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CONFERENCE PROGRAMME

16th - 19th September

E-MRS 2019 Fall Meeting

Conference and exhibition held at the Main Campus of the
Warsaw University of Technology - Plac Politechniki 1 - Warsaw, Poland

European Materials Research Society

Warsaw University of Technology

Polish Materials Science Society

Institute of Physics Polish Academy of Sciences

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2019 Fall Meeting

E-MRS CONFERENCE PROGRAMME - FALL MEETING 2019

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E-MRS Fall Meeting Office: **Faculty of Materials Science and Engineering**
Warsaw University of Technology
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Welcome

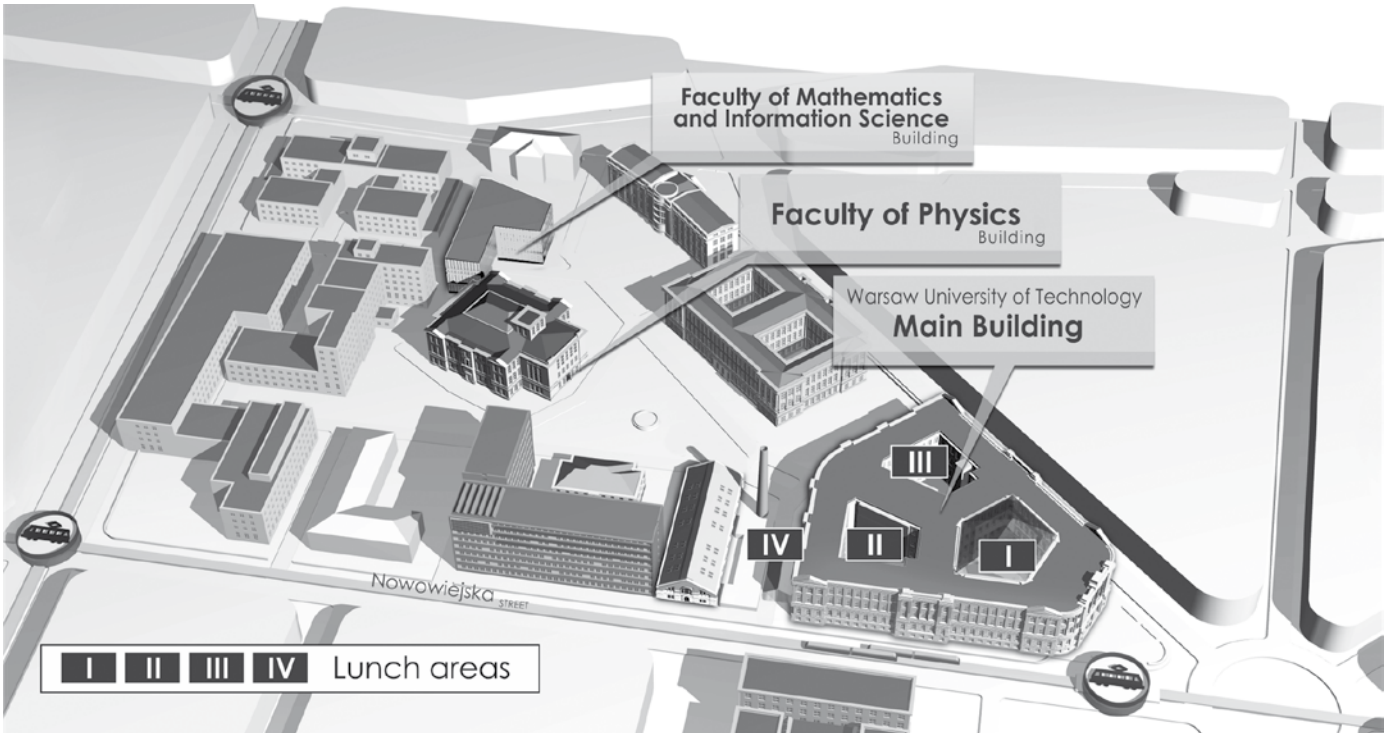
We are pleased to welcome you to the E-MRS 2019 Fall Meeting.

The European Materials Research Society (E-MRS) was established in 1983 through the initiative of individual european materials scientists. A number of european materials scientists who attended the MRS meetings in the U.S.A. realised that such a society could be of benefit to Europe to enhance the links between materials sci-ence and industry and to provide a voice for the materials community. Both the E-MRS Spring and Fall Meetings provide an international forum to discuss recent advances in the field of materials science.

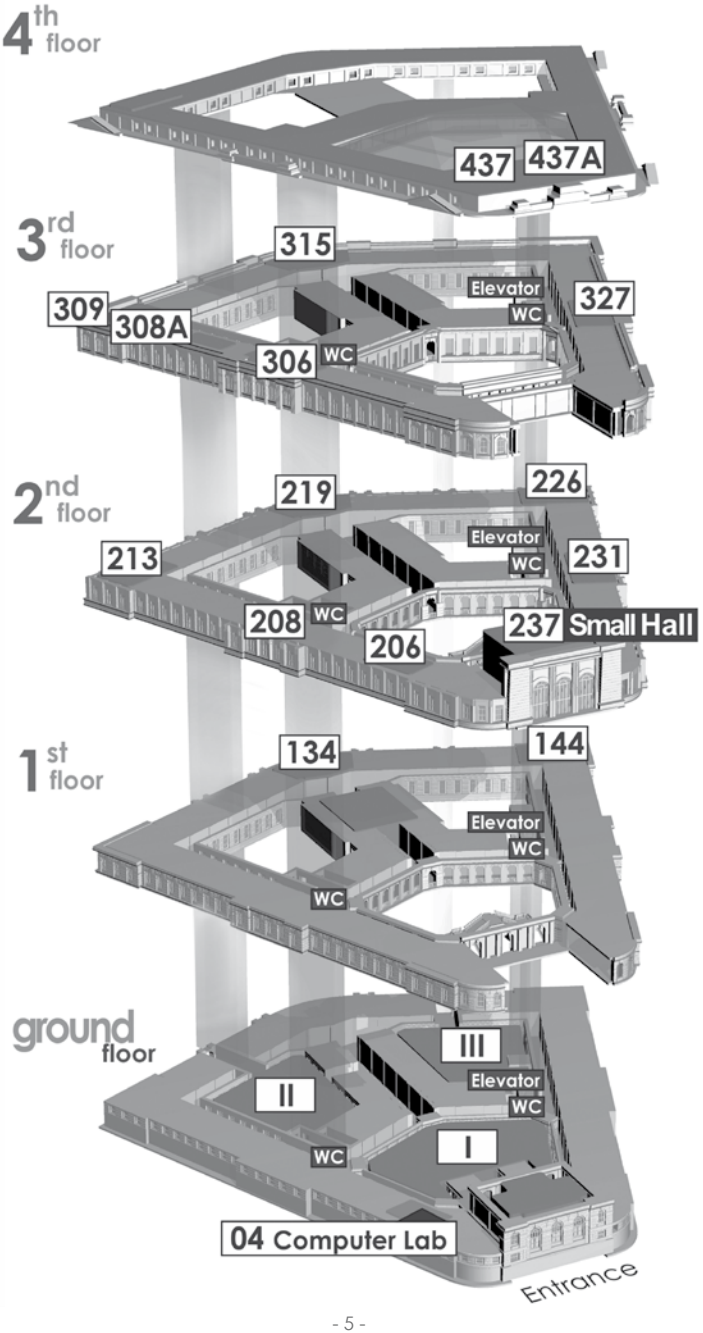
This year the conference is again being held in the Central Campus of the Warsaw University of Technology and is the 18th E-MRS Fall Meeting to be held in Warsaw since 2002. The conference will consist of:

- 22 parallel symposia,
- A plenary session which includes the presentation of the Jan Czochralski Award,
- An Exhibition of products and services of interest to the conference participants.

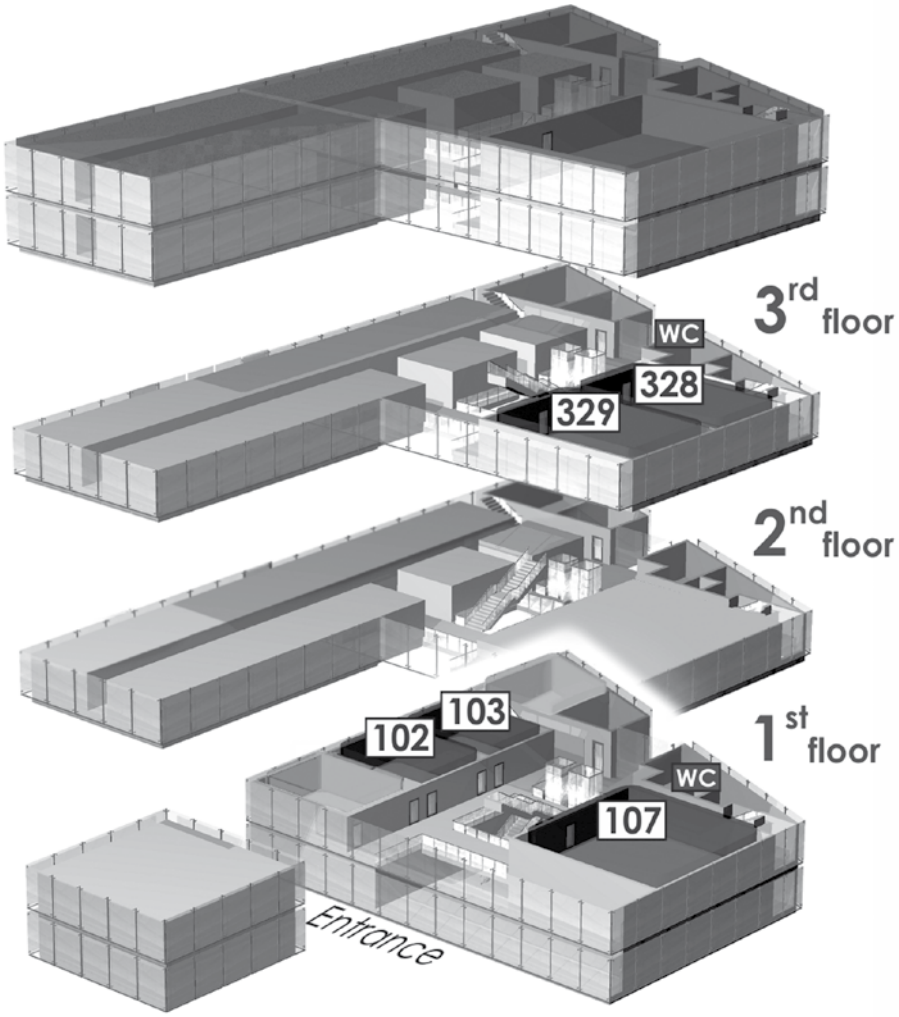
Warsaw University of Technology
Campus Overview



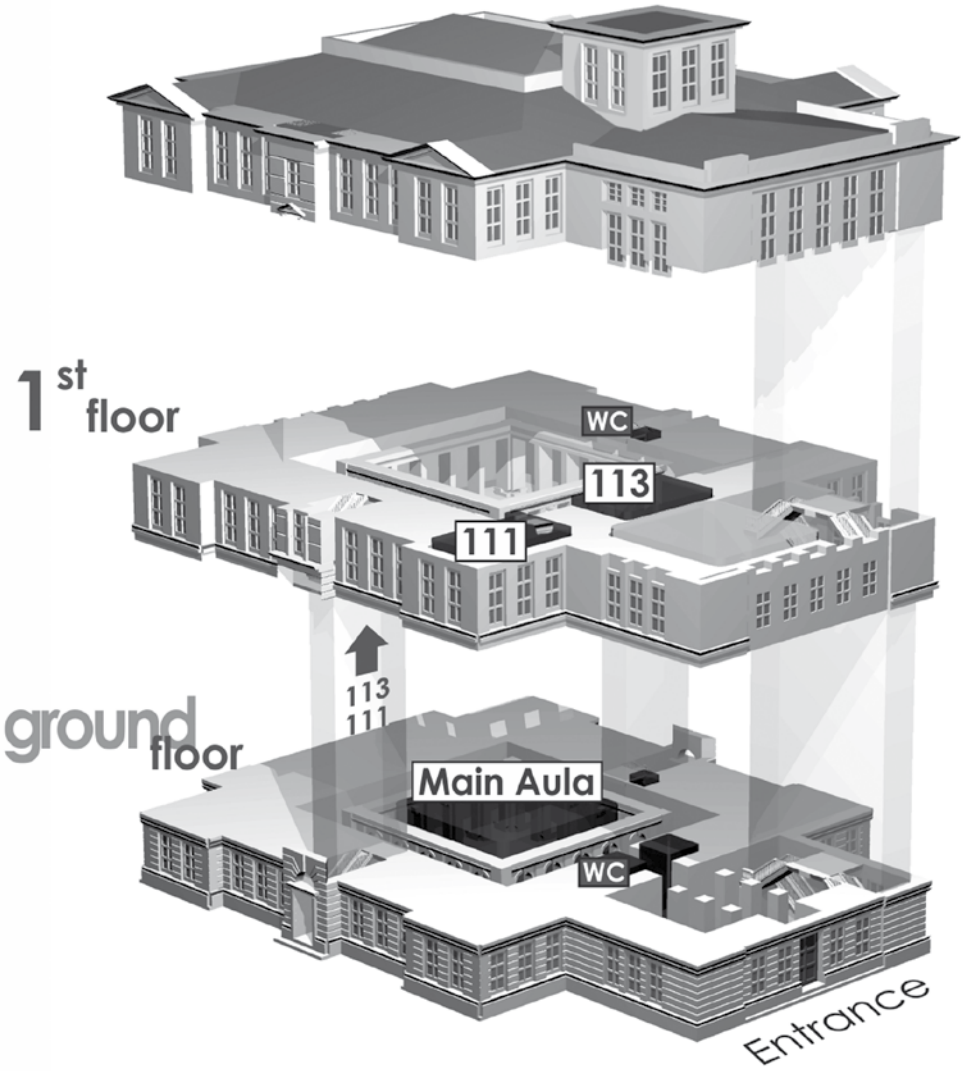
Main Building



Faculty of Mathematics
and Information Science
MINI Building



Faculty of Physics



Acknowledgments

The organisers of the Fall Meeting acknowledge the support of the Warsaw Convention Bureau which has provided complimentary publications and information about the city for all participants

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Available on the App Store

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You will find:

- Updated conference programme
- Latest news from organisers
- Maps to guide you to all the conference rooms

Conference Chairpersons

Eric FOGARASSY
Télécom Physique
Strasbourg
Frace

Jean FOMPEYRINE
IBM Research GmbH
Switzerland

Anthony J. KENYON
UCL
U.K.

Małgorzata LEWANDOWSKA
Warsaw University of Technology
Poland

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Warsaw University of Technology

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Past President
(1983-1988)
E-MRS Headquarters
France

Organisers

Polish Materials Research Society

Institute of Physics, PAS

Plenary Session

Wednesday, September 18 th, 2019, 9:00, Main Hall

09:00	Introduction – Conference Organisers	
09:10	Welcome Address by Prof. Rajmund Bacewicz, Vice Rector for Research of the Warsaw University of Technology	
09:15	Welcome Address by Peter Wellmann the E-MRS President	
09:30	Laudation by Peter Wellmann and Presentation of the Jan Czochralski Award to Prof. Donal D.C. Bradley, Vice-President for Research & Distinguished Professor of Materials Physics and Device Engineering, King Abdullah University of Science and Technology (KAUST)	
09:45	Lecture by Donal D.C. BRADLEY, King Abdullah University of Science and Technology (KAUST), Saudi Arabia **Tuning conjugated polymer electronic and optical properties via physical structure and environment**	
10:30	Lecture by Aaron THEAN, National University of Singapore, Singapore **Defect engineering for novel electronics – Paving the way forward towards a new materials engineering renaissance**	
11:15	Lecture by Avi SCHROEDER, Israel Institute of Technology, Israel **Precision cancer nanomedicines and nano-immunotherapies: design principles and applications**	

Czochralski Award

Jan Czochralski is one of the most cited Polish scientists. He discovered the method for growing single crystals in 1916, now known as the Czochralski method. This is widely used in the production of single crystal semiconductors, metals and synthetic gems. The discovery of this method has been the key to the development of the world's electronic revolution.

E-MRS decided to establish award in the name of Jan Czochralski for his achievements in material science and crystallography. Fifteen scientists have been honoured previously and **the 2019 laureate is Prof. Donal D.C. Bradley**.

Donal Bradley is Vice-President for Research & Distinguished Professor of Materials Physics and Device Engineering at the King Abdullah University of Science and Technology (KAUST) in Saudi Arabia. He leads an innovative and wide-ranging research programme in molecular electronic materials and devices as a Visiting Professor at Oxford and OSCAR (the Oxford Suzhou Centre for Advanced Research) and is in the process of establishing his new group at KAUST.

He has been a Fellow of the Royal Society (FRS) since 2004 and was appointed a Commander of the British Empire (CBE) in 2010 for services to science. Professor Bradley is a co-inventor of conjugated polymer electroluminescence (1989) and a co-founder of Cambridge Display Technology Ltd (1990). In 2001 he co-founded Molecular Vision Ltd, to develop novel polymer detection systems for microanalysis applications. Most recently (2019) he co-founded PeroLED Ltd, a perovskite-based lighting and display company. He additionally served on the Board of Solar Press (UK) Ltd from 2009 to 2016.

Professor Bradley's publications have been cited ~82,900 times with h-index = 126 (Google Scholar) and he is a Clarivate Analytics Cross-Field Highly Cited Researcher. He also holds honorary doctorates from the University of Sheffield (2014) and Hong Kong Baptist University (2017).

Previous E-MRS Czochralski Award laureates:

- Prof. Dr. Walter HEYWANG, formerly Director of Research of Siemens
- Prof. Dr. Boris PATON, the long term President of the NAS of Ukraine
- Prof. Thaddeus B. MASSALSKI from Carnegie Mellon University
- Prof. Shuji NAKAMURA from University of California
- Prof. Juergen BUSCHOW from University of Amsterdam
- Prof. Hermann GRIMMEISS from University of Lund
- Prof. Mildred DRESSELHAUS from MIT, USA
- Prof. Federico CAPASSO from Harvard University, USA
- Prof. Anthony M. GLAZER from Clarendon Laboratory, U.K.
- Prof. Sylwester POROWSKI from Institute of High Pressure Physics, PAS
- Prof. George M. WHITESIDES, Harvard University, USA
- Prof. Claes-Göran GRANQVIST, The Ångström Laboratory Uppsala, Sweden
- Prof. Manijeh RAZEGHI, Northwestern University, Evanston, USA
- Prof. Elvira FORTUNATO, Universidade Nova de Lisboa, Portugal
- Prof. Herbert GLEITER, The Research Centre Karlsruhe, Germany

SYMPOSIA

INFORMATION AND COMMUNICATION TECHNOLOGIES

Symposium A: Ion-related phenomena in nanoscale oxide systems: from fundamentals to applications

Symposium B: Integration of advanced materials on silicon: from classical to quantum applications

Symposium C: Fabrication and characterization of emerging transparent conductive materials

Symposium D: Materials for nanoelectronics and nanophotonics

Symposium E: Caloric materials for efficient heat management applications: advances and challenges

Symposium F: Novel Approaches for Neuromorphic Computing: Materials, Concepts and Devices

Symposium G: Diamond for Electronic Devices IV

Symposium H: New materials for photonics

ENERGY AND ENVIRONMENT

Symposium I: Materials for Energy Applications: Li-ion, Na-ion Batteries, supercapacitors and beyond, perovskite-type Solar cells and beyond

Symposium J: Computational materials science for sustainable energy using nanocatalysts from abundant elements

Symposium K: Nuclear materials under extreme conditions

Symposium L: Beyond hydrogen storage – Metal hydrides as multifunctional materials for energy storage and conversion

Symposium M: Metal oxide- and oxyhydride-based nanomaterials for energy and environment-related applications

Symposium N: Advanced catalytic materials for (photo)electrochemical energy conversion

MANUFACTURING

Symposium O: Towards a green strategy for materials recycling. Two focusing domains: high added materials & CO_2 for innovative applications

Symposium P: 3D printing and additive manufacturing for the industry of the future

FUNDAMENTALS

Symposium Q: Nanoparticles: advances in synthesis, characterization, theoretical modelling and applications

Symposium R: Surface and Interfaces of Nanocarbons

Symposium S: New frontiers for the in-situ and operando spectroscopic investigation of interfaces applied to catalysis and electrochemistry

Symposium T: Nanomaterial thermal transport properties and nanothermodynamics

Symposium U: X-ray based techniques for sustainable energy related materials

Symposium V: Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials IX

GENERAL TIMETABLE

Symposium symbol	Symposium location		Monday September 16 th	Tuesday September 17 th	Wednesday September 18 th	Thursday September 19 th
Symposium A	**Main** Building	**327**	08:50-17:15 (1)	09:00-17:30	14:00-17:30	
Symposium B	**Main** Building	**144**	09:00-17:30 (1)	09:00-16:45	14:00-17:30	09:00-15:10
Symposium C	**Main** Building	**226**	11:00-17:30	09:00-15:30 (1)	14:00-17:15	
Symposium D	**Main** Building	**134**	08:00-17:30 (1)	08:00-18:00 (1)	13:00-17:45	08:00-15:00
Symposium E	**Main** Building	**437a**		09:00-17:30 (1)	14:00-17:30	
Symposium F	**Main** Building	**231**	14:00-17:30 (1)	09:00-17:50	14:00-17:35	09:00-12:20
Symposium G	**Main** Building	**437**	14:00-17:45	09:00-17:30 (1)	14:00-17:15	
Symposium H	**Main** Building	**208**		09:00-17:30 (1)	14:15-17:15	08:30-12:15
Symposium I	**Main** Building	**219**	09:00-18:00 (1)	09:00-18:00 (1)	14:00-17:45	09:00-17:45
Symposium J	**Faculty of Physics** Building	**111**	09:00-17:00 (2)	09:00-17:00		
Symposium K	**Main** Building	**213**	14:00-17:00	09:00-17:00 (2)	14:00-17:00	
Symposium L	**Main** Building	**309/315**	11:30-17:45	09:00-17:30 (2)	14:00-17:30	
Symposium M	**Main** Building	**315**	08:45-17:45 (2)	09:00-17:30 (2)	14:00-17:30	09:00-17:40
Symposium N	**Main** Building	**306**	08:30-17:35 (2)	08:20-17:25 (2)	14:00-17:40	08:30-15:30
Symposium O	**Main** Building	**308a**		08:30-18:05	14:00-18:00	
Symposium P	**Main** Building	**206**	08:30-17:40 (2)	09:00-16:00		
Symposium Q	**MiNI** Building	**329**	09:00-17:30 (2)	09:00-17:30 (2)	14:00-17:15	09:00-12:15
Symposium R	**MiNI** Building	**328**	08:50-17:15	09:00-17:30 (2)	14:00-17:30	09:00-10:25
Symposium S	**Faculty of Physics** Building	**113**	09:00-17:20 (2)	09:00-17:00	14:00-16:40	
Symposium T	**MiNI** Building	**102**		09:00-17:30 (2)	14:00-17:30	09:00-12:40
Symposium U	**MiNI** Building	**103**	14:15-17:45 (2)	09:00-17:30	14:00-17:40	
Symposium V	**MiNI** Building	**107**	09:00-17:30 (2)	08:30-17:30 (2)	13:30-18:00	08:30-17:25

Symbol	Location		Monday September 16 th	Tuesday September 17 th	Wednesday September 18 th	Thursday September 19 th
(1) Poster Session	Main Building Small Hall		17:30 -19:30*	17:30 -19:30*		
(2) Poster Session	Faculty of Physics Main Aula		17:30 -19:30*	17:30 -19:30*		
Plenary Session	Main Building Main Hall				09:00 -12:30	
SATELITE EVENTS:						
Thesis competition	Main Building	**208**	12:45-13:45	12:45-13:45		

Computer Lab - Main Building 04
LUNCH Main Building ground floor - I and area II, III, IV

(1) Poster Session – Main Building, Small Hall
(2) Poster Session – Faculty of Physics, Main Aula
* Poster Session 17:30-19:30 but may vary depending on symposium timing

Symposium A Publications: Proceedings to be published in JPhys: Energy
"Focus on ion-related properties of oxides at the nanoscale: from fundamentals to applications"

IOP Publishing

Symposium A

Sessions: Room 327 | Main Building
Poster Session: Small Hall | Main Building

INFORMATION AND COMMUNICATION TECHNOLOGIES:

Ion-related phenomena in nanoscale oxide systems: from fundamentals to applications

Symposium Organizers: **Elisa GILARDI**, Paul Scherrer Institute (PSI), Switzerland
Federico BAIUTTI, Catalonia Institute for Energy Research (IREC), Spain
Felix GUNKEL, RWTH Aachen University & Peter Grünberg Institute, Germany
Matjaz SPREITZER, Jozef Stefan Institute Ljubljana, Slovenia

SYMPOSIUM A TIMETABLE

Symposium A				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30	(08:50-09:00) Welcome (09:00-10:30) Session I	Session VI	Plenary Session 09:00-12:30	
10:30 – 11:00	Coffee Break			
11:00 – 12:30	Session II	Session VII		
12:30 – 14:00	Lunch Break			
14:00 – 15:30	Session III	Session VIII	Session X	
15:30 – 16:00	Coffee Break			
16:00 – 17:30	(16:00-17:15) Session IV	Session IX	Session XI	
17:30 – 19:30	Poster Session		Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium A location

Sessions: 327 | Main Building
Poster Session: Small Hall | Main Building

Symposium A Program

Monday, September 16 th, 2019

08:50	Welcome remarks	
Session I: Nanoscale characterization : Nejc Hodnik		
09:00	**Sub-Angstrom-Scale Investigations of Ultra-Thin Cuprate Films** Vesna Srot[1], Yi Wang[1], Matteo Minola[1], Ute Salzberger[1], Bernhard Fenk[1], Marion Kelsch[1], Marco Salluzzo[2,3], Gabriella Maria De Luca[3,2], Bernhard Keimer[1] and Peter A. van Aken[1] 1. Max Planck Institute for Solid State Research, Stuttgart, Germany; 2. CNR-SPIN Napoli Complesso Monte Sant´ Angelo via Cinthia, Napoli, Italy; 3. Dipartimento di Fisica ``E. Pancini`` Complesso Monte Sant´ Angelo via Cinthia, Napoli, Italy	A.1.1
09:30	**Noncontact AFM: Challenges and Opportunities on Oxide surfaces** Martin Setvin TU Wien, Institute of Applied Physics, Wiedner Hauptstrasse 8-10/134	A.1.2
10:00	**Atomic-scale structure and chemistry of the Ni-SrTiO3 interface in vertically aligned nanocomposites investigated by STEM-EELS** Matthieu Bugnet[1], Quentin M. Ramasse[2,3], Marcel Hennes[4], Xiaorong Weng[4], Dominique Demaille[4], Benoît Gobaut[5], Amélie Juhin[6], Philippe Sainctavit[6], Yunlin Zheng[4], Franck Vidal[4], Guillaume Radtke[6] 1. Univ Lyon, INSA Lyon, UCBL Lyon1, MATEIS, CNRS UMR 5510, F-69621 Villeurbanne, France; 2. SuperSTEM Laboratory, SciTech Daresbury Campus, Daresbury WA4 4AD, United Kingdom; 3. School of Physics and School of Chemical and Process Engineering, University of Leeds, Leeds LS2 9JT, United Kingdom; 4. Sorbonne Université, CNRS, INSP, 75005 Paris, France; 5. Synchrotron Soleil, L'Orme des Merisiers Saint-Aubin BP 48, 91192 Gif-sur-Yvette Cedex, France; 6. Sorbonne Université, CNRS, IMPMC, 75005 Paris, France	A.1.3
10:15	**Electrically poled multiferroic ferrite/BaTiO3 thin films** A. Barbier[1], B. Sarpi[2], P.-L. Nguyen[1], M. Rioult[1,2], T. Aghavnian[1,2], D. Stanescu[1], J.-B. Moussy[1], C. Rountree[1], H. Magnan[1], F.Maccherozzi[3], N. Jedrecy[4], R. Belkhou[2] 1. Service de Physique de l'Etat Condensé, Gif-sur-Yvette, France; 2. Synchrotron SOLEIL, L'Orme des Merisiers Saint-Aubin, France; 3.Diamond Light Source, Oxforshire, United Kingdom (4) INSP, UPMC-Sorbonne Universités, 75252 Paris Cedex 05, France	A.1.4
10:30	Coffee Break	

Session II: Defect chemistry I: Defect-property relations : Scott Chambers

11:00	**Tuning the surface chemistry of epitaxial electrocatalysts** Christoph Baeumer, Tyler Mefford, Qiyang Lu, Slavomír Nemsák, Regina Dittmann, Rainer Waser, William C. Chueh Department of Materials Science and Engineering, Stanford University, Stanford, CA, USA, Institute of Electronic Materials (IWE2), & JARA-FIT, RWTH Aachen University, Aachen, Germany, Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, USA, Peter Gruenberg Institute (PGI7) & JARA-FIT, Forschungszentrum Juelich GmbH, Juelich, Germany	A.2.1
11:30	**Proton and hydroxide affinity of closed-shell metal oxides** Maximilian F. Hoedl[1], Tor S. Bjorheim[2], Rotraut Merkle[1], Eugene A. Kotomin[2], Joachim Maier[1] 1. Max Planck Institute for Solid State Research, Heisenbergstr. 1, D-70569, Stuttgart, Germany; 2. University of Oslo, Gaustadalléen 21, 0349 Oslo, Norway	A.2.2
11:45	**Ferroelectric self-polarization by defect engineering** M. Tyunina[1,2,*], J. Peräntie[1], T. Kocourek[2], S. Saukko[3], H. Jantunen[1], M. Jelinek[2], A. Dejneka[2] 1. Microelectronics Research Unit, Univeristy of Oulu, Finland; 2. Institute of Physics of the Czech Academy of Sciences, Prague, Czechia; 3. Center of Microscopy and Nanotechnology Univeristy of Oulu, Finland	A.2.3
12:00	**Ab initio calculations BaTiO3 and SrZrO3 F-centers, BaTiO3/SrTiO3 and PbZrO3/SrZrO3 (001) interfaces and WO3 (001) surfaces** R.I. Eglitis, J. Purans and J. Gabrusenoks Institute of Solid State Physics, University of Latvia, 8 Kengaraga Str., Riga LV1063, Latvia	A.2.4
12:15	**Stability and local environment of transition metal ions in MgO nanocubes** Oliver Diwald[1], Matthias Niedermaier[1],Thomas Schwab[1], Paolo Dolcet[2,3], Silvia Gross[2], Johannes Bernardi[4], Michel Bockstedte[1] 1. Department of Chemistry and Physics of Materials, Paris-Lodron University Salzburg, Jakob-Haringer-Strasse 2a, A-5020, Salzburg, Austria; 2. Università degli Studi di Padova, Dipartimento di Scienze Chimiche, and INSTM, UdR Padova, via Marzolo 1, I-35131, Padova, Italy; 3. Karlsruher Institut für Technologie (KIT), Institut für Technische Chemie und Polymerchemie (ITCP), Engesserstr. 20, 76131 Karlsruhe, Germany; 4. University Service Center for Transmission Electron Microscopy, Technische Universität Wien, Wiedner Hauptstrasse 8-10, A-1040, Vienna, Austria	A.2.5
12:30	Lunch Break	

Session III: Catalysis and electrode activity : Albert Tarancon

14:00	**Oxide surfaces during electrochemical water oxidation: From surface ad-atom dynamics to defect chemistry** Christian Jooss[1], Gaurav Lole[1], Emanuel Ronge[1], Jonas Lindner[1], Daniel Mierwaldt[1] and Marcel Risch[1,2] and Vladimir Roddatis[1] 1. Insitute of Materials Physics, University of Goettingen, Germany; 2. Helmholtz Zentrum für Materialien und Energie, Berlin	A.3.1

14:30	**Nanoscale events governing noble metal-based electrocatalyst: from degradation to opportunities** Nejc Hodnik Department of Catalysis and Chemical Reaction Engineering, National Institute of Chemistry, Hajdrihova 19, 1000 Ljubljana, Slovenia	A.3.2
15:00	**Improved Electrochemical Reactivity by Cathode Microstructure Modification using Doped Ceria Nanoparticles** Jong-Eun Hong[1,*], Seung-Gi Kim[1], Dong Woo Joh[1], Hafiz Ahmad Ishfaq[1,2], Chanhoon Jung[3], Jeong Hwa Park[3], Hye-Sung Kim[1], Tak-Hyoung Lim[1,2], Seung-Bok Lee[1,2], Seok-Joo Park[1], Rak-Hyun Song[1,2], Kang Taek Lee[3,*] 1. Fuel Cell Laboratory, Korea Institute of Energy Research (KIER), Daejeon, Korea; 2. Department of Advanced Energy and Technology, Korea University of Science and Technology (UST), Yuseong-gu, Daejeon, 34113, Korea; 3. Department of Energy Science and Engineering, DGIST, Daegu 42988, Korea	A.3.3
15:15	**First-principles calculations of protonic defects in perovskite oxides** Denis Gryaznov[1], Maximilian F. Hoedl[2], Rotraut Merkle[2], Eugene A. Kotomin[1,2], Joachim Maier[2] 1. Institute of Solid State Physics, University of Latvia, 8 Kengaraga, LV-1063, Riga, Latvia; 2. Max Planck Institute for Solid State Research, Heisenbergstr. 1, D-70569, Stuttgart, Germany	A.3.4
15:30	Coffee Break	
Session IV: Defect chemistry II: Oxygen ion conductors : Federico Baiutti		
16:00	**Multifold effect of nanoscale on oxygen defective ceramics for energy conversion technologies** Vincenzo Esposito Technical University of Denmark, Department of Energy Conversion and Storage, Frederiksborgvej 399, 4000 Roskilde, Denmark	A.4.1
16:30	**BICUVOX thin films as oxide-ion conductors for near room temperature applications** Iñigo Garbayo[1], Francesco Chiabrera[1], Nerea Alayo[1], José Santiso[2], Alex Morata[1], Albert Tarancón[1,3] 1. Department of Advanced Materials for Energy Applications, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià del Besòs, Barcelona, Spain; 2. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Campus UAB, Bellaterra, Barcelona, 08193, Spain; 3. ICREA, Passeig Lluís Companys 23, 08010, Barcelona, Spain	A.4.2

16:45	**Electron injection drives structural changes in oxide dielectrics** Alexander Shluger, Jack Strand, David Z. Gao Department of Physics and Astronomy, University College London, London, UK, Department of Physics and Astronomy, University College London, London, UK and Università di Modena e Raggio Emilia, Via Amendola 2, 42122 Reggio Emilia, Italy, Nanolayers Research Computing Ltd., London, UK and Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway	A.4.3
17:00	**Current transients in oxide capacitors cannot be explained by considering only the distribution of oxygen vacancies** D.J. Mannion, L. Zhao, W.H. Ng, A. Mehonic, A.J. Kenyon University College London, University College London, University College London, University College London, University College London	A.4.4
17:30 Poster Session I: E. Gilardi, M. Spreitzer, F. Baiutti, F. Gunkel		
	The Coadsorption Effect of Cl- and H2O on the Various Defect Al2O3 Film Surface Chuan-Hui Zhang, Bao Chen, Peng Shi, Liwu Jiang National Centre for Materials Service Safety, University of Science and Technology Beijing	A.P.1
	Optical revelation of defects in epitaxial barium titanate films M. Tyunina[1,2,*] , D. Chvostova[2], A. Dejneka[2] 1. Microelectronics Research Unit, University of Oulu, Finland; 2. Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic	A.P.2
	Photoluminescence, electrical and structural properties of Tb3 and Eu3 co-doped ZnO films grown on Si and Al2O3 substrates N.Korsunska[1], L. Borkovska[1], L. Khomenkova[1], O. Gudymenko[1], V. Kladko[1], O. Kolomys[1], V. Strelchuk[1], C. Guillaume[2], X. Portier[2], O. Melnichuk[3], L. Melnichuk[3] 1. V. Lashkaryov Institute of Semiconductor Physics of the NAS of Ukraine, 45 Prospect Nauky, 03028 Kyiv, Ukraine; 2. CIMAP, Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 6 Blvd. Maréchal Juin, 14050 Caen, France 3Mykola Gogol State University of Nizhyn, 2 Hrafska Str., Nizhyn 16600, Ukraine	A.P.3
	Transparent Optical Fingerprint Sensor by Reducing Ionized Oxygen Vacancy Sites in Oxide Semiconductors Jeho Na, Sung Haeng Cho, Jae-Eun Pi, Jaehyun Moon, Hee-Ok Kim, Seong-Deok Ahn and Seung-Youl Kang Electronics and Telecommunications Research Institute (ETRI) Daejeon, 34129, Korea	A.P.4

	Hydrogen Barrier Performance of Lanthanum Oxide Deposited by Reactive Magnetron Sputtering Chong Hwon Lee[1,2], Yujin Lee[1], Taewook Nam[1], Sanghun Lee[1], Il-Kwon Oh[1], Joon Young Yang[2], Dong Wook Choi[2], Choongkeun Yoo[2], Ho-jin Kim[2], Woo-Hee Kim[3,*], and Hyungjun Kim[1,*] 1. School of Electrical and Electronics Engineering, Yonsei University, 50 Yonsei Ro, Seodaemun-gu, Seoul 03722, Korea; 2. LG Display Co., Ltd., 245 LG-ro, Wollong-myeon, Paju-si, Gyeonggi-do 10845, Korea; 3. Department of Materials Science and Chemical Engineering, Hanyang University, 55 Hanyangdeahak-ro, Sangnok-gu, Ansan, Gyeonggi-do 15588, Korea	A.P.5
	Theoretical study of structural and piezoelectric properties of SrTiO3/BaTiO3 heterostructures D. Gryaznov, G. Zvejnieks, L.L. Rusevich, E.A. Kotomin Institute of Solid State Physics, University of Latvia	A.P.6
	In-Situ Impedance Analysis of Mixed Ionic-Electronic Conducting Thin Films and Substrates during Pulsed Laser Deposition Markus Kubicek, Matthäus Siebenhofer, Ghislain M. Rupp, Jürgen Fleig TU Wien, Institute of Chemical Technologies and Analytics, Getreidemarkt 9, 1060 Wien, Austria	A.P.7

Symposium A Program

Tuesday, September 17 th, 2019

Session VI: Harvestore Invited Session : Matjaz Spreitzer		
09:00	**Nanomaterials for solid state energy microdevices** A. Tarancón ICREA	A.6.1
09:30	**Illuminating Mixed Conductors: From Photochromism in SrTiO3 to Photoelectrochemical Devices** Markus Kubicek, Alexander Viernstein, Maximilian Morgenbesser, Jürgen Fleig TU Wien, Institute of Chemical Technologies and Analytics, Getreidemarkt 9, 1060 Wien, Austria	A.6.2
10:00	**Novel Functionalities in Atomically Controlled Oxide Heterostructures by Pulsed Laser Deposition** Guus Rijnders MESA+ Institute for Nanotechnology, University of Twente, POBox 217, 7500AE, Enschede, the Netherlands	A.6.3
10:30	Coffee Break	
Session VII: Micro-/Nanodevices : Alex Morata		
11:00	**Understanding the Dynamics in Memristive Devices by in-operando techniques** Stefan Tappertzhofen[1,2], Sebastian Bette[2], Giuliana Di Martino[3], Stephan Hofmann[1] 1. Department of Engineering, University of Cambridge, Cambridge, United Kingdom; 2. now with aixACCT Systems GmbH, Aachen, Germany; 3. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom	A.7.1
11:30	**Influencing the Memristive Switching Behavior of TiO2 Nanowires in Different Device Architectures** Carola Ebenhoch[1], Julian Kalb[1], Joohyun Lim[2], Christina Scheu[2], Lukas Schmidt-Mende[1] 1. Department of Physics, University of Konstanz, 78457 Konstanz, Germany; 2. Max-Planck-Institut für Eisenforschung GmbH, Max-Planck-Straße 1, 40237 Düsseldorf, Germany	A.7.2

11:45	**A self-sustained ceramic membrane for oxygen sensing applications: design and full integration in MEMS device** M. Bianchini[1], N. Alayo[1], I. Garbayo[1], F. Chiabrera[1], M. Salleras[2], L. Fonseca[2], A. Tarancón[1,3] 1. Catalonia Institute for Energy Research (IREC), Department of Advanced Materials for Energy, 08930, Sant Adriá del Besòs, Barcelona, Spain; 2. IMB-CNM (CSIC), Institute of Microelectronics of Barcelona, National Center of Microelectronics, CSIC, Campus UAB, 08193, Bellaterra, Barcelona, Spain; 3. ICREA, 08010, Barcelona, Spain	A.7.3
12:00	**Silicon Nanocrystals-based devices for electroluminescence and resistive switching applications** J. L. Frieiro[1,2], J. López-Vidrier[1-3], O. Blázquez[1,2], D. Yazicioglu[3], S. Gutsch[3], J. Valenta[4], M. Zacharias[3], S. Hernández[1,2], B. Garrido[1,2] 1. MIND, Department of Engineering: Electronics, Universitat de Barcelona, Martí i Franquès 1, E-08028 Barcelona, Spain; 2. Institute of Nanoscience and Nanotechnology (IN2UB), Universitat de Barcelona, Av. Joan XXIII S/N, E-08028 Barcelona, Spain; 3. Laboratory for Nanotechnology, Department of Microsystems Engineering (IMTEK), University of Freiburg Albert-Ludwigs-University Freiburg, Georges-Köhler-Allee 103, D-79110 Freiburg (Germany); 4. Faculty of Mathematics and Physics, Charles University, Ke Karlovu 3, 121 16 Prague 2 (Czech Republic)	A.7.4
12:15	**Dramatic SiO2 Thickness Reduction by Reactive Ion Etching of Nanopillars from Si/SiO2/Si layer stacks** K.-H. Heinig[1], H.-J. Engelmann[1], A. Gharbi[2], R. Tiron[2], T. Prüfer[1], J. von Borany[1] 1. Helmholtz Zentrum Dresden-Rossendorf, Dresden, Germany; 2. CEA-LETI, Grenoble, France	A.7.5
12:30	Lunch Break	
Session VIII: Lithium batteries : Elisa Gilardi		
14:00	**Enhanced Lithium Transport in Epitaxial Thin Films for Lithium-ion Batteries** Mark Huijben MESA+ Institute for Nanotechnology, University of Twente	A.8.1
14:30	**Chemical and electrochemical degradation in metal anode/solid-electrolyte interfaces for solid state batteries** Eduard Querel, Federico Pesci, Rowena Brugge, Andrea Cavallaro and Ainara Aguadero Department of Materials, Imperial College London, SW7 2AZ, London, UK	A.8.2
15:00	**Modelling oxide interfaces to increase diffusion** N. Kuganathan, D. C. Parfitt, and A. Chroneos Faculty of Engineering, Environment and Computing, Coventry University, Priory Street, Coventry CV1 5FB, United Kingdom	A.8.3

15:15	**In-operando spectroscopic ellipsometry for the study of ion diffusion phenomena** A. Morata[1], V. Siller[1], F.Chiabrera[1], M. Stchakovsky[2], A. Tarancón[3] 1. IREC, Jardins de les Dones de Negre 1, Planta 2, 08930, Sant Adrià del Besòs, Spain; 2. HORIBA Scientific, Avenue de la Vauve, Passage Jobin Yvon, 91120 Palaiseau, France; 3. ICREA, Passeig Lluís Companys 23, 08010, Barcelona, Spain	A.8.4
15:30	Coffee Break	

Session IX: Thin films & interfaces I : Christoph Baeumer

16:00	**Potential Gradients and Band Alignment at the n-SrTiO3/p-Ge(001) Interface- Implications for the Hydrogen Evolution Reaction** Scott A. Chambers Physical & Computational Sciences Division, Pacific Northwest National Laboratory, Richland, WA	A.9.1
16:30	**Facile Electron and Oxygen Ion Transport in SrTiO3: Implications for Photoelectrocatalysis and Oxide Thin Film Growth** Agham Posadas, Alexander A. Demkov Department of Physics, The University of Texas at Austin, Austin, Texas, United States	A.9.2
17:00	**Understanding curious ferromagnetic insulating state of LaMnO3 on SrTiO3** Hrishit Banerjee, Oleg Jansen, Karsten Held, Tanusri Saha-Dasgupta Technische Universitat (TU) Graz, IFW Dresden, Technische Universitat (TU) Vienna, Indian Association for the Cultivation of Science (IACS) Kolkata.	A.9.3
17:15	**In-situ spectroscopy of ionic and electronic charge transfer in oxide heterostructures** M. Rose[1,2], B. Smíd[3], M. Vorokhta[3], H. Bluhm[4], F. Gunkel[1,2], D.N. Mueller and R. Dittmann[2] 1. Institute for Electronic Materials (IWE 2), RWTH Aachen, Aachen, GER; 2. Peter Gruenberg Institute, Forschungszentrum Juelich, Juelich, GER; 3. Dep. of Surface and Plasma Science, MFF UK, Charles University, Prague, CZ; 4. Chemical Sciences Division, Lawrence Berkeley National Lab., Berkeley, USA	A.9.4

Symposium A Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session X: Memristors : Markus Kubicek		
14:00	**How to tune the memristance of nickelate nanoionic devices by playing with their oxygen content** K. Maas[1], E. Villepreux[2], L. Rapenne[1], E. Salas-Colera[3,4], D. Cooper[2], C. Jimenez[1], G.R. Castro[3,4], Q. Rafhay[5], M. Boudard[1], and M. Burriel[1] 1. Univ. Grenoble Alpes, CNRS, Grenoble INP, LMGP, F-38000 Grenoble, France; 2. CEA, LETI, Minatec Campus, F-38054 Grenoble, France; 3. European Synchrotron, SpLine CRG BM25 Beamline, 71 Ave Martyrs, F-38000 Grenoble, France; 4. CSIC, ICMM, Madrid 28049, Spain; 5. Univ. Grenoble Alpes, CNRS, IMEP-LAHC, F-38000 Grenoble, France	A.10.1
14:30	**Native Gallium Oxide Exhibits Memristance** Mahmoud N. Almadhoun[1], Maximilian Speckbacher[2], Brian C. Olsen[1], Erik J. Luber[1], Sayed Youssef Sayed[1], Marc Tornow[2], Jillian M. Buriak[1] 1. University of Alberta; 2. Technical University of Munich	A.10.2
14:45	**The effect of Ti+ ion implantation on the anatase-rutile phase transformation and resistive switching properties of TiO2 films** Ashis Manna[1], A. Barman[2], Shalik R. Joshi[1], B. Satpati[3], P. Dash[1], Ananya Chattaraj[2], S.K. Srivastava[4], P.K. Sahoo[5], A. Kanjilal[2], D. Kanjilal[6], and Shikha Varma[1] 1. Institute of Physics, Sachivalaya Marg, Bhubaneswar 751005, India; 2. Department of Physics, School of Natural Sciences, Shiv Nadar University, Gautam Buddha Nagar, Uttar Pradesh 201314, India; 3.Surface Physics and Material Science Division, Saha Institute of Nuclear Physics, 1/AF Bidhannagar, Kolkata,700064, India; 4. Department of Physics, Indian Institute of Technology Kharagpur, Kharagpur 721302, India; 5. School of Physical Sciences, National Institute of Science Education and Research, Jatni, Odisha India 6.Inter-University Accelerator Centre, Aruna Asaf Ali Marg, New Delhi 110 067, India	A.10.3
15:00	**Tunable bipolar resistive switching in TiN/LaMnO3+d/Pt heterostructures** Raquel Rodriguez-Lamas[1]*, Dolors Pla[1], Odette Chaix-Pluchery[1], Hervé Roussel[1], Laetitia Rapenne[1], Xavier Mescot[2], Quentin Rafhay[2], Michel Boudard[1], Carmen Jiménez[1], Mónica Burriel[1] 1. Univ. Grenoble Alpes, CNRS, Grenoble INP1, LMGP, F-38000 Grenoble, France; 2.Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP1, IMEP-LAHC, F-38000 Grenoble, France 1 Institute of Engineering Univ. Grenoble Alpes	A.10.4

15:15	**The Stacking Sequence dependent resistive switching in IGZO and SnO2 thin film memory devices** Asif Ali, Jung Jongwan Department of Nanotechnology and Advanced Materials Engineering, Sejong University, Seoul, Korea	A.10.5
15:30	Coffee Break	

Session XI: Thin films & interfaces II : Felix Gunkel

16:00	**Understanding the low mobility in ZnO:Al films deposited in oxygen-rich atmospheres thanks to a new conductivity model** David Muñoz-Rojas, Viet Huong Nguyen, Ulrich Gottlieb, Anthony Valla, Bruno Masenelli, Delfina Muñoz, Daniel Bellet Univ. Grenoble Alpes, CNRS, Grenoble INP, LMGP, F-38000 Grenoble, France., Univ. Grenoble Alpes, CEA, LITEN, INES, 73375 Le Bourget-du-Lac, France. , Institut des Nanotechnologies de Lyon, INL, CNRS-UMR5270, INSA-Lyon, 69622 Villeurbanne, France	A.11.1
16:30	**Influence of light on the resistive switching states of ITO/ZnO/p-Si devices** O. Blázquez[1,2], J.L. Frieiro[1,2], J. López-Vidrier[1,2], C. Guillaume[3], X. Portier[3], C. Labbé[3], P. Sanchis[4], S. Hernández[1,2] and B. Garrido[1,2] 1. MIND, Department of Engineering: Electronics, Universitat de Barcelona, Martí i Franquès 1, E-08028 Barcelona (Spain); 2. Institute of Nanoscience and Nanotechnology (IN2UB), Universitat de Barcelona, Av. Joan XXIII S/N, E-08028 Barcelona (Spain); 3. CIMAP Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 14050 Caen (France); 4. Nanophotonics Technology Center, Universitat Politècnica de València, Camino de Vera s/n, E-46022 Valencia (Spain)	A.11.2
16:45	**Synthesis of N-doped TiO2 by combining reactive magnetron sputtering and ion implantation for dye-sensitized solar cell applicat** A. Panepinto[1], P.-A. Cormier[1], D. Cossement[2], R. Snyders[1,2] 1. Chemistry of Plasma-Surface Interactions, University of Mons, Place du Parc 20, B-7000 Mons, Belgium; 2. Materia Nova Research Center, Parc Initialis, Avenue N. Copernic 3, B-7000 Mons, Belgium	A.11.3
17:00	**Conductive Filament Localization in Nano-Scale Electrochemical Metallization Cells** Maximilian Speckbacher[1], Oliver Bienek[2], and Marc Tornow[1] 1. Professorship of Molecular Electronics, Department of Electrical and Computer Engineering, Technical University of Munich, Theresienstraße 90, 80333 Munich, Germany 2. Walter Schottky Institute and Physics Department, Technical University of Munich, Am Coulombwall 4, 85748 Garching, Germany	A.11.4
17:15	**Tailoring the memristive response in redox-based interfaces** M.J. Sánchez[1]*, C. Ferreyra[2], W. Román Acevedo[2], R. Gay[3] and D. Rubi[2] 1. INN- Centro Atómico Bariloche and Instituto Balseiro, 8400 San Carlos de Bariloche, Argentina; 2. GIyA and INN, CNEA, Av. Gral Paz 1499 (1650), San Martín, Buenos Aires, Argentina; 3. CIC nanoGUNE, Tolosa Hiribidea 76, 20018 Donostia-San Sebastián, Spain. *Corresponding author Email: majo@cab.cnea.gov.ar	A.11.5
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium B

Sessions: Room 144 | Main Building
Poster Session: Small Hall | Main Building

INFORMATION AND COMMUNICATION TECHNOLOGIES

Integration of advanced materials on silicon: from classical to quantum applications

Symposium Organizers: **Didier LANDRU**, SOITEC, France
Inga Anita FISCHER, Brandenburg Technical University, Germany
Clement PORRET, IMEC, Belgium
Giovanni ISELLA, Politecnico di Milano, Italy

SYMPOSIUM B TIMETABLE

Symposium B				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30	Session I	Session IV	Plenary Session 09:00-12:30	Session X
10:30 – 11:00	Coffee Break			Coffee Break
11:00 – 12:30	Session II	Session V		Session XI
12:30 – 14:00	Lunch Break			
14:00 – 15:30	Session III	Session VI	Session VIII	(14:00-15:00) Session XII (15:00-15:10) Closing speech
15:30 – 16:00	Coffee Break			
16:00 – 17:30	(16:00-16:30) Session III (16:30-17:30) Poster oral presentation	(16:00-16:45) Session VII	Session IX	
17:30 – 19:30	Poster Session		Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium B location

Sessions: 144 | Main Building
Poster Session: Small Hall | Main Building

Symposium B Program

Monday, September 16 th, 2019

Session I: Advanced CMOS : Inga A. Fischer

09:00	**Integration Techniques for Advanced CMOS** Luca Pirro GlobalFoundries, Dresden, Germany	B.I.1
09:30	**GeH4-catalyzed HCl etching for the low temperature Cyclic Deposition/Etch of Si, Si:P, tensile-Si:P and SiGe(:B)** J.M. Hartmann, M. Veillerot University Grenoble Alpes and CEA, LETI, Grenoble, France	B.I.2
09:45	**Low Ti / SiGe:B contact resistivities by optimizing strain in epitaxial SiGe:B / Si and thermal treatments applied to contacts** Yan Hua Huang[1,2,3], Clement Porret[3], Andriy Hikavyy[3], Gianluca Rengo[2,3], Hao Yu[3], Marc Schaekers[3], Jean-Luc Everaert[3], Marc Heyns[2,3] and Roger Loo[3] 1. National Tsing Hua University, No. 101, Section 2, Kuang-Fu Road, Hsinchu 300, Taiwan; 2. K.U. Leuven, Celestijnenlaan 200D, B-3001 Leuven, Belgium; 3. Imec vzw, Kapeldreef 75, B-3001 Leuven, Belgium	B.I.3
10:00	**Ge:B and GeSn:B Low Temperature Selective Epitaxial Growth Schemes for Source/Drain layers in Ge pMOS devices** A. Vohra[1,2], C. Porret[2], D. Kohen[3], S. Folkersma[1,2], J. Bogdanowicz[2], M. Schaekers[2], J. Tolle[3], A. Hikavyy[2], E. Capogreco[2], L. Witters[2], R. Langer[2], W. Vandervorst[1,2] and R. Loo[2] 1. K.U. Leuven, Dept. of Physics, Celestijnenlaan 200D, 3001 Leuven, Belgium; 2. Imec vzw, Kapeldreef 75, 3001 Leuven, Belgium; 3. ASM, 3440 East University Drive, Phoenix, AZ 85034, USA	B.I.4
10:15	**The formation of Ni germanides by magnetron sputtering and flash lamp annealing** Lars Rebohle, Viktor Begeza, Marcel Neubert*, Yufang Xie, Slawomir Prucnal, Jörg Grenzer, Shengqiang Zhou Helmholtz-Zentrum Dresden - Rossendorf, Institute of Ion Beam Physics and Materials Research, Bautzner Landstrasse 400, 01328 Dresden, Germany, *Rovak GmbH, Zum Teich 4, 01723 Grumbach	B.I.5
10:30	Coffee Break	

Session II: Power & Piezo materials : Clément Porret

11:00	**GaN integration on silicon for high power devices** I. Abid, R. Kabouche, F. Medjdoub IEMN-CNRS, Institute of Electronics, Microelectronics and Nanotechnology, Villeneuve d'Ascq, France	B.II.1
11:30	**SmartCutTM LiTaO3 thin film on Silicon substrates for high performances SAW components** I. Huyet, A. Drouin, E. Butaud, I. Radu E. Courjon, F. Bernard, T. Laroche, S. Ballandras	B.II.2
11:45	**Single crystalline PMN-PZT thin film growth and transfer for high performance MEMS devices development** Ruiguang Ning, Seung-Hyub Baek Korea Institute of Science and Technology, University of Science and Technology, Korea Institute of Science and Technology, University of Science and Technology	B.II.3
12:00	**Large response of piezoelectric actuators for piezotronic devices** Y. Popoff[1,2], P. Wittendorp[3], F. Tyholdt3, M. Dekkers[4], L. Nielen[5], T. Schmitz-Kempe[5], A. Sousanis[6], D. Poelman[6], P. Smet[6], L. Crocker[7], N. McCartney[7], I. Rungger[7], O. Groening[2], J. Fompeyrine[1] 1. IBM Zurich Research Laboratory, Rueschlikon, Switzerland; 2. Empa, Duebendorf, Switzerland; 3. SINTEF Digital, Oslo, Norway; 4. Solmates B.V., Enschede, Netherlands; 5. aixACCT Systems GmbH, Aachen, Germany; 6. Ghent University, Ghent, Belgium; 7. National Physical Laboratory, Teddington, United Kingdom	B.II.4
12:15	**Effects of Dopants on Piezoresistivity of SiC: Results from High-throughput computational screening and experimental studies** Teck Leong Tan, Adrian M. Mak, Guan C. Loh, T. Wejrzanowski, E. Tymicki Agency for Science, Technology and Research, Institute of High Performance Computing, 1 Fusionopolis Way, #16-16 Connexis, 138632, Singapore, Warsaw University of Technology, Faculty of Materials Science and Engineering, Woloska 141, 02507 Warsaw, Poland, Institute of Electronic Materials Technology, Wolczynska 133, 01919 Warsaw, Poland	B.II.5
12:30	Lunch Break	

Session III: Quantum information engineering : Didier Landru

14:00	**When will Germanium become the new leading material in quantum information?** Giordano Scappucci QuTech, TU Delft	B.III.1
14:30	**Large scale quantum computer based on Si spin qubits** Maud Vinet Quantum computing program manager at CEA Leti	B.III.2

15:00	**Double Quantum Dots in two dimensional Germanium hole gases** Daniel Jirovec[1], Andrea Hofmann[1], Andrea Ballabio[2], Jacopo Frigerio[2], Ivan Prieto[1], Daniel Chrastina[2], Giovanni Isella[2], Georgios Katsaros[1] 1. IST Austria; 2. L-Ness & Politecnico di Milano	B.III.3
15:15	**CMOS-compatible Single Si Quantum Dot fabrication in a SiO2 layer sandwiched in a Si nanopillar for a Room Temperature Single El** K.-H. Heinig[1], G. Hlawacek[1], H.-J. Engelmann[1], T. Prüfer[1], X. Xu[1], W. Möller[1], L. Bischoff[1], A. Gharbi[2], R. Tiron[2], M. Rommel[3], J. von Borany[1] 1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. CEA-LETI, Grenoble, France; 3. Fraunhofer IISB, Erlangen, Germany	B.III.4
15:30	Coffee Break	
16:00	**Light effective hole mass in undoped Ge/SiGe quantum wells** M.Lodari[1], A.Tosato[1], D.Sabbagh[1], M.A.Schubert[2], G.Capellini[2,3], A.Sammak[4], M.Veldhorst[1], G.Scappucci[1] 1. QuTech and Kavli Institute of Nanoscience, Delft University of Technology, PO Box 5046, 2600 GA Delft, The Netherlands; 2. IHP - Leibniz-Institut fÄĽr innovative Mikroelektronik, Im Technologiepark 25, 15236 Frankfurt, Germany; 3. Dipartimento di Scienze, UniversitÄ degli studi Roma Tre, Viale Marconi 446, 00146 Roma, Italy; 4. QuTech and Netherlands Organisation for Applied Scientific Research (TNO), Stieltjesweg 1, 2628 CK Delft, The Netherlands	B.III.5
16:15	**Towards A Rubidium Cold Atom Photonics Platform on Silicon Substrates for Practical Quantum Sensors** K. Gallacher[1], M. Sinclair[1], E. McBrearty[1], A. Saeed[1], R W. Millar[1], O. Sharp[2], F Mirando[2], G. Ternent[2], G. Mills[2], B. Casey[2], S. Hild[3], M. Sorel[1] and D J. Paul[1] 1. University of Glasgow, School of Engineering, Rankine Building, Oakfield Avenue, Glasgow, G128LT, U.K.; 2. Kelvin Nanotechnology Limited, Rankine Building, Oakfield Avenue, Glasgow, G12 8LT, U.K.; 3. SUPA School of Physics and Astronomy, University of Glasgow, Kelvin Building, University Avenue, Glasgow G12 8SU, U.K.	B.III.6
16:30	Poster oral presentation: 3' per poster	

17:30 Poster Session I:

	The Effects of Channel Poly Grain Size on Cell Reliability of 3D-NAND Flash Eunsun-Youm[1,2]*, Sunil-Shim[2,1], Minchul-Park[2,1], Yugyun-Shin[2,1], ByoungDeog-Choi[2] 1. Semiconductor R&D Center, Samsung Electronics, Hwasung, Gyeonggi 445-701, Korea; 2. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, 440-746, Korea	B.P.1
	The chirality of metal-encapsulated silicene-like nanowires Peng Shi, Lifang Yang, Liwu Jiang, Chuanhui Zhang University of Science and Technology Beijing	B.P.2

	Characteristics of the Hf0.5Zr0.5O2 Thin Films Grown by a Facing-Target Sputtering Method Mitsuaki Yano[1], Taiki Kawamoto[1], Hiroshi Ota[1], Yuichi Hirofuji[1], Kazuto Koik[1], Yutaka Nakamitsu[2], Sadao Kadokura[3] 1. Nanomaterials Microdevices Research Center, Osaka Institute of Technology, Asahi-ku, Osaka 535-8585, Japan; 2. Institute of Semiconductor & Electronics Technologies, ULVAC, Inc., Susono, Shizuoka 410-1231, Japan; 3. FTS Corporation, Hachioji, Tokyo 192-0024, Japan	B.P.3
	Characteristics of the Hf0.5Zr0.5O2 Thin Films Grown by a Chemical Solution Deposition Method Mitsuaki Yano, Taichi Inoue, Hiroshi Ota, Yuichi Hirofuji, Masatoshi Koyama, Kazuto Koike Nanomaterials Microdevices Research Center, Osaka Institute of Technology, Asahi-ku, Osaka 535-8585, Japan	B.P.4
	Study on the Environmental Reliability Characteristics of SiOx, SiNx Moisture Barrier Films Deposited by Pilot R2R-PECVD Tae-Yeon Cho, Won-Jae Lee, Sung-Hoon Choa, Seong-Keun Cho Chemical Materials Solution Center, Korea Research Institute of Chemical Technology Graduate School of NID Fusion Technology, Seoul National University of Science and Technology	B.P.5
	Band gap renormalization in n-type Ge and GeSn alloys made by millisecond range flash lamp annealing S. Prucnal[1], Y. Berencén[1], M. Wang[1], L. Rebohle[1], R. Kudrawiec[2], M. Polak[2], V. Zviagin[3], R. Schmidt-Grund[3], M. Grundmann[3], J. Grenzer[1], M. Turek[4], A. Droździel[4], K. Pyszniak[4], J. Zuk[4], M. Helm[1], W. Skorupa[1] and S. Zhou[1] 1. Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Bautzner Landstrasse 400, 01328 Dresden, Germany; 2. Faculty of Fundamental Problems of Technology, Wroclaw University of Science and Technology, Wybrzeże Wyspiańskiego 27, 50-370 WrocĹ‚aw, Poland; 3. Felix-Bloch-Institut für Festkörperphysik, Universität Leipzig, Linnéstr. 5, 04103 Leipzig, Germany; 4. Maria Curie-Sklodowska University, Pl. M. Curie-Sklodowskiej 1, 20-035 Lublin, Poland	B.P.6
	Tunable plasmonics in heavily doped GaAs fabricated by ion implantation and sub-second annealing Juanmei Duan[1,2], M. Helm[1,2], W. Skorupa[1], S. Zhou[1], S. Prucnal[1] 1. Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Bautzner Landstrasse 400, D-01328 Dresden, Germany; 2. Technische Universität Dresden, D-01062 Dresden, Germany	B.P.7
	Improvement of reverse leakage current characteristics of Si-based homoepitaxial InGaN/GaN light emitter for MEMS applications Keun Man Song[1], H. Kang[1], Moonsang Lee[2], Hyun Uk Lee[2], Jaekyun Kim[3] 1. Korea Advanced Nano Fab Center, Suwon, Gyeonggi 16229, Korea; 2. Korea Basic Science Institute, Daejeon, 34133, Republic of Korea; 3. Department of Photonics and Nanoelectronics, Hanyang University, Ansan, 15588, Republic of Korea	B.P.8

	Investigating dielectric properties of A-site doped Sr2Nb3O10 single crystals Haena Yim[1], So Yeon Yoo[1], and Ji-Won Choi[1,2*] 1. Center for Electronic Materials, Korea Institute of Science and Technology, Seongbuk-gu, Seoul 02792, Republic of Korea; 2. Nanomaterials Science and Engineering, Korea University of Science and Technology, Daejeon 34113, Republic of Korea	B.P.9
	Lattice-matched GeSiSn/Ge double-barrier resonant tunneling diodes Takahiro Tsukamoto, Minoru Wakiya, Kazuaki Haneda, Nobumitsu Hirose, Akifumi Kasamatsu, Toshiaki Matsui, Yoshiyuki Suda The University of Electro-Communications, Tokyo University of Agriculture and Technology, National Institute of Information and Communications Technology	B.P.10
	Abrupt changes in the graphene on Ge system at the onset of surface melting L. Di Gaspare[1], L. Persichetti[1], F. Fabbri[2], A. Ruocco[1], A. M. Scaparro[1], A. Notargiacomo[3], A. Sgarlata[4], M. Fanfoni[4], V. Miseikis[5], C. Coletti[5], and M. De Seta[1] 1. Dipartimento di Scienze, Université di Roma Tre, Rome, 00146, Italy; 2. NEST, Istituto Nanoscienze - CNR, Scuola Normale Superiore, Piazza San Silvestro 12, I-56127 Pisa, Italy; 3. Institute for Photonics and Nanotechnology, Via Cineto Romano 42, 00156, CNR-Rome, Italy; 4.Dipartimento di Fisica, Université di Roma 'Tor Vergata', Via Della Ricerca Scientifica, 1- 00133 Roma, Italy; 5. Center for Nanotechnology Innovation @NEST, IIT, Piazza San Silvestro 12, 56127 Pisa, Italy	B.P.11
	MOVPE of BN epilayer on Si substrate using Al2O3 buffer P.A. Caban[1], J. Gaca[1], M. Wojcik[1], P. Michalowski[1], P. Ciepielewski[1], M. Mozdzonek[1], D. Teklinska[1], E. Dumiszewska[1], P. Firek[2], M. Godlewski[3], J.M. Baranowski[1] 1. Institute of Electronic Materials Technology, Warsaw, POLAND; 2. Institute of Microelectronics and Optoelectronics, Warsaw University of Technology, Warsaw, POLAND; 3. Institute of Physics polish Academy of Science, Warsaw, Poland	B.P.12
	Epitaxial Piezoelectric Thin Films for pMUT Seung-Hyub Baek Korea Institute of Science and Technology	B.P.13
	Effect of wet treatments on the electrical properties of Al2O3/GeSn MOS capacitors B. Salem[1], M. A. Mahjoub[1], T. Haffner[1], Y. Guerfi[1], S. Labau[1], E. Eustache[1], J. Aubin[2], J.M. Hartmann[2], T. Baron[1], G. Ghibaudo[3], B. Pelissier[1], F. Bassani[1] 1. Univ. Grenoble Alpes, CNRS, LTM, 38054 Grenoble Cedex 9, France; 2. Univ. Grenoble Alpes, CEA, LETI, 17 rue des Martyrs, 38054 Grenoble Cedex 9, France; 3. Univ. Grenoble Alpes, IMEP-LaHC, 38016 Grenoble, France	B.P.14
	Structural characterization of SiGeSn layers MOCVD grown on Ge N. Armani[1], E. Achilli[1], M. Calicchio[1], G. Abagnale[1], F. Annoni[1], M. Cornelli[1], G. Timó[1], L. Nasi[2] 1. Ricerca sul Sistema Energetico - RSE, Strada Torre della Razza, Piacenza (Italy); 2. IMEM-CNR Institute, Parco Area delle Scienze 37/A, 43124 Parma (Italy)	B.P.15

Enormously large cross-section of localization of positrons in spin-orbit field of qubit-forming bismuth centers in natural Si B.P.16

N. Arutyunov[1,2,3], M. Elsayed[1], R. Krause-Rehberg[1], V. Emtsev[2,] N. Abrosimov[4,] G. Oganesyan[2], V. Kozlovski[5]

1. Martin Luther University Halle, Department of Physics, 06120, Halle, Germany; 2. Ioffe Physico-Technical Institute, 194021, St. Petersburg, Russia; 3. Inst. Ion-Plasma&Laser Technology (Institute of Electronics), 700170, Tashkent, Uzbekistan; 4. Leibniz Institute for Crystal Growth, D-12489, Berlin, Germany; 5. St. Petersburg State Polytechnical University, 195251, St. Petersburg, Russia

Numerical design of materials and geometry of SiC based piezoresistive sensor B.P.17

Jakub Skibinski, Mateusz Grybczuk, Tomasz Wejrzanowski, Emil Tymicki, Teck Leong Tan

Warsaw University of Technology, Faculty of Materials Science and Engineering, Woloska 141, 02507 Warsaw, Poland, Institute of Electronic Materials Technology, Wolczynska 133, 01919 Warsaw, Poland, Agency for Science, Technology and Research, Institute of High Performance Computing, 1 Fusionopolis Way, #16-16 Connexis, 138632, Singapore

Electric characterization of interface states in ultrathin SiH/Si and SiH/Si/ZnO:Al layers B.P.18

R. Plugaru[1], S. Vulpe[1], E.Vasile[2], N. Plugaru[3]

1. National Institute for R&D in Microtechnologies-IMT Bucharest, Erou Iancu Nicolae 126 A, 077190 Voluntari, Romania; 2. University â€šPolitehnicaâ€tof Bucharest, Faculty of Applied Chemistry and Material Science, Department of Oxide Materials and Nanomaterials, Gh. Polizu 1-7, 011061 Bucharest, Romania; 3. National Institute of Materials Physics, Atomistior 405 A, Magurele, Ilfov, 077125, Romania

Improving the electrical properties of epitaxial SiGe:B with excimer laser annealing treatments B.P.19

Yan Hua Huang[1,2,3], Clement Porret[3], Andriy Hikavyy[3,] Gianluca Rengo[2,3], Lucas Petersen Barbosa Lima[4] , Rami Khazaka[4], David Kohen[5], Joe Margetis[5], John Tolle[5], Toshiyuki Tabata[6], Fulvio Mazzamuto[6], Marc Heyns[2,3] and Roger Loo[3]

1. National Tsing Hua University, No. 101, Section 2, Kuang-Fu Road, Hsinchu 300, Taiwan; 2. K.U. Leuven, Celestijnenlaan 200D, B-3001 Leuven, Belgium; 3. Imec vzw, Kapeldreef 75, B-3001 Leuven, Belgium; 4. ASM, Kapeldreef 75, 3001 Leuven, Belgium; 5. ASM America, 3440 East University Drive, Phoenix, Arizona 85034, USA; 6. SCREEN-LASSE, 14-38 Rue Alexandre, 92230 Gennevilliers, France

Large-Scale Finite Element Micromagnetics Simulations using Open Source Software B.P.20

Johannes Ender, Roberto Orio, Simone Fiorentini, Viktor Sverdlov

Christian Doppler Laboratory for Non-Volatile Magnetoresistive Memory And Logic

Comprehensive Comparison of Switching Models for Perpendicular Spin Transfer Torque MRAM Cells B.P.21

Simone Fiorentini, Roberto Orio, Johannes Ender, Viktor Sverdlov

Christian Doppler Laboratory for Nonvolatile Magnetoresistive Memory and Logic (TU Wien)

Symposium B Program

Tuesday, September 17 th, 2019

Session IV: III-V materials & material transfer : Giovanni Isella

09:00	**III-V/Si CMOS Technology Platform: From Materials for Logic to Integrated RF and Photonics** Cezar B. Zota, Clarissa Convertino, Kirsten Moselund, Lukas Czornomaz IBM Research - Zurich	B.IV.1
09:30	**Influence of PE-ALD growth conditions on electronic properties of GaP/Si heterojunction** Baranov A.I.[1,] Kudryashov D.A.[1], Morozov I.A.[1], Uvarov A.V.[1], Vasiliev A.A.[1], Zelentsov K.S.[1], Gudovskikh A.S.[1,2] 1. St Petersburg Academic University of RAS, 194021 St Petersburg, Russia; 2. St Petersburg Electrotechnical University "LETI", 197376 St Petersburg, Russia	B.IV.2
09:45	**Imaging 3D nanostructure of III-V on Si via cross-section SPM: quantum wells and nanowires - defects, polarity, local charges** O.V. Kolosov[1]*, M. Mucientes[1], L. Forcieri[1], P. Jurczak[2], M. Tang[2], K. Lulla[2], Y. Gong[2,3], S. Jarvis[1,2], H. Liu[2], and T. Wang[3] 1. Physics Department and Materials Science Institute, Lancaster University, LA1 4YB, UK *o.kolosov@lancaster.ac.uk; 2. Department of Electronic and Electrical Engineering, University College London, London WC1E 7JE, UK; 3. Department of Electronic & Electrical Engineering, University of Sheffield, Sheffield, S1 3JD	B.IV.3
10:00	**Transfer and in situ mechanical characterization of monocrystalline silicon thin films on polymer** Laurent Michaud, Pierre Montméat, Clément Castan, Frank Fournel, Samuel Tardif, François Rieutord Univ. Grenoble Alpes, CEA, LETI, 38000 Grenoble, France	B.IV.4
10:15	**Chemical structures and mechanical properties of a-SiN:H films deposited by roll-to-roll PECVD as gas barrier layer** Seong-Keun Cho[1], Tae-Yeon Cho[1], Juwhan Ryu[2], Jae Heung Lee[1] 1. Chemical Materials Solutions Center, Korea Research Institute of Chemical Technology, Daejeon, 34114, Korea; 2. Department of Polymer Science and Engineering, Chungnam National University, Daejeon 34134, Korea	B.IV.5
10:30	Coffee Break	

Session V: GeSn

11:00	**Optically pumped GeSn laser with ~1kW/cm2 threshold operating in cw mode** Detlev Grützmacher[1], D.M. Buca[1], N. von den Driesch[1], Daniela Stange[1], Dennis Rainko[1], Moustafa Elkurdi[2], Jean Michel Hartmann[3], Zoran Ikonic[4] 1. Institute for Semiconductor Nanoelectronics., PGI-9, Forschungszentrum Jülich, and JARA-Institute Green IT, FZ-JÄĽlich and RWTH Aachen, PGI-10, 52425 Jülich, Germany; 2. Center for Nanoscience and Nanotechnology, C2N UMR 9001, CNRS, Université Paris Sud, Université Paris Saclay, 91120 Palaiseau, France; 3. CEA, LETI and Univ. Grenoble Alpes, 38054 Grenoble, France; 4. Pollard Institute, School of Electronic and Electrical Engineering, University of Leeds, Leeds LS2 9JT, UK	B.V.1
11:30	**The Electronic Structure of the Sn/Ge(001) Heterointerface** Felix Reichmann[1], Emily Hofmann[1,2], Giovanni Capellini[1,3], Wolfgang Matthias Klesse[1] 1. IHP - Leibniz-Institut für innovative Mikroelektronik, Frankfurt (Oder), Germany; 2. London Centre for Nanotechnology & Department of Electronic and Electrical Engineering University College London, London, UK; 3. Dipartimento di Scienze Universitä Roma Tre, Rome, Italy	B.V.2
11:45	**Atomic scale insights on the formation of tin monolayers on germanium** Emily V. S. Hofmann[1,2], Emilio Scalise[3,] Felix Reichmann[1], Steven R. Schofield[2], Giovanni Capellini[1,4], Leo Miglio[3], Neil J. Curson[2], Wolfgang M. Klesse[1] 1. IHP - Leibniz-Institut für innovative Mikroelektronik, Frankfurt (Oder), Germany; 2. London Centre for Nanotechnology, University College London, London, UK; 3. Dipartimento di Scienza dei Materiali, Universitá di Milano-Bicocca, Milan, Italy; 4. Dipartimento di Scienze, Universitá Roma Tre, Rome, Italy	B.V.3
12:00	**Sputtered GeSn as a promising material for IR detection** Andrea Giunto[1], Bianca Patrahau[1], Laura J. Roset[1], Anna Krammer[2], Nicolas Tappy[1], Rajrupa Paul[1], Andreas Schüler[2], Anna Fontcuberta i Morral[1] 1. Laboratory of Semiconductor Materials, École Polytechnique Fédérale de Lausanne; 2. Solar Energy and Building Physics Laboratory, École Polytechnique Fédérale de Lausanne	B.V.4
12:15	**Graded-bandgap GeSn on silicon for infrared applications** P. Ščajev[1], S. Nargelas[1], P. Onufrijevs[2], A. Medvids[2], L. Grase[2], M. Andrulevicius[3], M. Skapas[4], K. Lyutovich[5], E. Kasper[5], H.H. Cheng[6] 1. Institute of Photonics and Nanotechnology, Vilnius University, Sauletekio al. 3, LT 10257, Vilnius, Lithuania; 2. Institute of Technical Physics, Faculty of Materials Science and Applied Chemistry, Riga Technical University, P. Valdena 3/7, Riga, LV-1048, Latvia; 3. Kaunas University of Technology, Barsausko str. 59, LT-50131, Kaunas, Lithuania; 4. Center for Physical Sciences and Technology (FTMC), Vilnius, Lithuania; 5. Universitat Stuttgart, Pfaffenwaldring 47, 70569 Stuttgart, Germany; 6. Center for Condensed Matter Sciences and Graduate Institute of Electronic Engineering, National Taiwan University, Roosevlet Road No 1, Section 4, Taipei 10617, Taiwan	B.V.5
12:30	Lunch Break	

Session VI: 2D materials

14:00	**Plasma-enhanced atomic layer deposition of transition metal dichalcogenides for nanoelectronics** Ageeth A. Bol Eindhoven University of Technology	B.VI.1
14:30	**Graphene in 2D/3D heterojunctions for rectifying and photo-detecting applications** Antonio Di Bartolomeo*, Giuseppe Luongo, Francesca Urban, Alessandro Grillo and Filippo Giubileo University of Salerno, Physics Department "E.R. Caianiello", Salerno, Italy	B.VI.2
15:00	**Enhanced Electrical Performance in Van der Waals Heterostructure FET** Yun-Yuan Wang, Chih-Hsiang Hsiao, Chih-I Wu Department of Electrical Engineering, Graduate Institute of Photonics and Optoelectronics, National Taiwan University, Taiwan R.O.C.	B.VI.3
15:15	**Fabrication and characterization of transparent high-k 2-dimensional dielectric capacitor** Haena Yim[1], So Yeon Yoo[1], and Ji-Won Choi[1,2] 1. Center for Electronic Materials, Korea Institute of Science and Technology, Seongbuk-gu, Seoul 02792, Republic of Korea; 2. Nanomaterials Science and Engineering, Korea University of Science and Technology, Daejeon 34113, Republic of Korea	B.VI.4
15:30	Coffee Break	

Session VII: Nanowires

16:00	**Silver nanoparticles/Silicon nanowires structures for surface enhanced Raman spectroscopy sensors** Kais Daoudi[1,2], Mounir Kaidi[1,2], Di Zhang[2,3] and Hussain Alawadhi[1,2] 1. Applied Physics and Astronomy Department, University of Sharjah, Sharjah, United Arab Emirates; 2. Centre for Advanced Materials Research, Research Institute of Sciences and Engineering, University of Sharjah, Sharjah, United Arab Emirates; 3. Sustainable and Renewable Energy Engineering Department, University of Sharjah, Sharjah, United Arab Emirates	B.VII.1
16:15	**Surface Transfer Doping induced via Breaking equilibrium at VLS Si NWs** Awad Shabny[1], Francesco Buonocore[2,] Massimo Celino[2], Jürgen Ristein[3], Jordi Arbiol[4] and Muhammad Y. Bashouti[1,5]* 1. Department of Solar Energy and Environmental Physics, Swiss Institute for Dryland Environmental and Energy Research, J. Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Midreshset Ben-Gurion, Building 26, 8499000, Israel; 2. ENEA, C. R. Casaccia, via Anguillarese 301, 00123 Rome, Italy; 3. Universität Erlangen-Nürnberg, Chair of Laser Physics, Staudt-str. 1, 91058, Erlangen, Germany; 4. Institució Catalana de Recerca i Estudis Avancats (ICREA) and Institut de Ciéncia de Materials de Barcelona, ICMAB-CSIC, 08193, Bellaterra, CAT, Spain; 5-The IISe-Katz Institute for Nanoscale Science & Technology, Ben-Gurion University of the Negev, POB 653, Beer-Sheva Campus, Building 51, 8410501, Israel	B.VII.2

16:30	**Undoped and doped Si Nanowires for Surface-enhanced CO sensing** M. Gaidi, K. Daoudi, S. Coulambus and M. Shameer University of Sharjah	B.VII.3

Symposium B Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VIII: Emerging applications		
14:00	**Heavily-doped semiconductor Plasmonics** Thierry Taliercio Univ Montpellier, CNRS, IES, UMR 5214, F-34000 Montpellier, France	B.VIII.1
14:30	**Plasmonic third harmonic generation from germanium nanoantennas on silicon substrates at mid-infrared wavelengths** Kevin Gallacher[1], Marco P. Fischer[2], Aaron Riede[2], Jacopo Frigerio[3], Giovanni Pellegrini[4], Michele Ortolani[5], Giovanni Isella[3], Alfred Leitenstorfer[2], Paolo Biagioni[4], Daniele Brida[2,6] and Douglas J. Paul[1] 1. School of Engineering, University of Glasgow, Rankine Building, Oakfield Avenue, Glasgow, G12 8LT, UK; 2. Department of Physics and Center for Applied Photonics, University of Konstanz, D-78457 Konstanz, Germany; 3. L-NESS, Dipartimento di Fisica del Politecnico di Milano, Via Anzani 42, 22100 Como, Italy; 4. Dipartimento di Fisica, Politecnico di Milano, Piazza Leonardo da Vinci 32, 20133 Milano, Italy; 5. Physics and Materials Science Research Unit, Université du Luxembourg, L-1511 Luxembourg	B.VIII.2
14:45	**A study for the impact ionization in the oxide semiconductor system** Hyeon-Jun Lee[1]*, Katsumi Abe[2] 1. Institute of Convergence, DGIST, Daegu 42988, South Korea (*E-mail: dear.hjlee@dgist.ac.kr); 2. Silvaco Japan Company, Ltd., Yokohama 220-8136, Japan	B.VIII.3
15:00	**Nanoscale non-uniformity for efficient heat management and thermoelectric energy conversion in Si-based devices** Xanthippi Zianni National and Kapodistrian University of Athens, Greece	B.VIII.4

15:15	**Thermo-mechanical properties of Ge microstructures: a combined theoretical and experimental approach** C.L. Manganelli[1], D. Spirito[1], M. Virgilio[2], M. Montanari[3], S. Faralli[4], N. Andriolli[4], W.M. Klesse[1] and G. Capellini[1,3] 1IHP - Leibniz-Institut für innovative Mikroelektronik, Im Technologiepark 25, D-15236 Frankfurt (Oder), Germany; 2. Dipartimento di Fisica, Universitá di Pisa, Pisa, 56127, Italy; 3. Dipartimento di Scienze, Universitá degli Studi Roma Tre, Roma, 00146, Italy; 4. Istituto TeCIP, Scuola Superiore Sant?Anna, Pisa, 5617, Italy	B.VIII.5
15:30	Coffee Break	

Session IX: Advanced characterization techniques

16:00	**Compensating defects in epitaxial Ge and GeSn** J. Slotte, A. Khanam, A. Vohra, I. Makkonen, R. Loo, G. Pourtois, C. Porret, W. Vandervorst Department of Applied Physics, Aalto University, P.O. Box 15100, FI-00076 Aalto, Finland, Department of Applied Physics, Aalto University, P.O. Box 15100, FI-00076 Aalto, Finland, Imec vzw, Kapeldreef 75, 3001 Leuven, Belgium, K.U. Leuven, Department of Physics, Celestijenlaan 200D, 3001 Leuven, Belgium, Department of Applied Physics, Aalto University, P.O. Box 15100, FI-00076 Aalto, Finland, Imec vzw, Kapeldreef 75, 3001 Leuven, Belgium, Imec vzw, Kapeldreef 75, 3001 Leuven, Belgium, Department of Chemistry, Plasmant Research Group, University of Antwerp, B-2610, Wilrijk-Antwerp, Belgium, Imec vzw, Kapeldreef 75, 3001 Leuven, Belgium, Imec vzw, Kapeldreef 75, 3001 Leuven, Belgium, K.U. Leuven, Department of Physics, Celestijenlaan 200D, 3001 Leuven, Belgium	B.IX.1
16:30	**Evolution of donor-vacancy clusters in Ge, GeSn and SiGeSn during ms-range FLA monitored by positron annihilation spectroscopy** S. Prucnal[1], M. O. Liedke[2], X. Wang[1], M. Posselt[1], J. Knoch[3], Y. Berencén[1], L. Rebohle[1], E. Napolitani[4], J. Frigerio[5], A. Ballabio[5], G. Isella[5], R. Hübner[1], A. Wagner[2], J. Zuk[6], M. Turek[6], M. Helm[1], and S. Zhou[1] 1. Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Bautzner Landstraße 400, D-01328 Dresden, Germany; 2. Helmholtz-Zentrum Dresden-Rossendorf, Institute of Radiation Physics, Bautzner Landstrasse 400, D-01328 Dresden, Germany; 3. Institut für Halbleitertechnik, RWTH Aachen, Germany, 4Dipartimento di Fisica e Astronomia, Universitá di Padova and CNR-IMM MATIS, Via Marzolo 8, I-35131 Padova, Italy; 5. L-NESS, Dipartimento di Fisica, Politecnico di Milano, Polo di Como, Via Anzani 42, I-22100 Como, Italy; 6. Maria Curie-Skłodowska University, Institute of Physics, Pl. M. Curie-Skłodowskiej 1, 20-035 Lublin, Poland	B.IX.2
17:00	**Ab initio analysis of defect formation and dopant activation in P and As co-doped Si** Nobuya Nakazaki, Erik Rosseel, Clement Porret, Andriy Hikavyy, Roger Loo, Naoto Horiguchi and Geoffrey Pourtois Sony Semiconductor Solutions Corporation, imec	B.IX.3
17:15	**Atomic Scale Characterization of Si and Dopant (As, P, B) co-implantation in SiO2 by Atom Probe Tomography** R. Demoulin[1], M. Roussel[1], S. Duguay[1], P. Pareige[1], E. Talbot[1], D. Muller[2], D. Mathiot[2] 1. Groupe de Physique des Matériaux (GPM), Normandie Univ, UNIROUEN, INSA Rouen, CNRS, 76000 Rouen, France; 2. ICube Laboratory, Université de Strasbourg, CNRS, B.P. 20, 67037 Strasbourg cedex, France	B.IX.4
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium B Program

Thursday, September 19 th, 2019

Session X: Photonics I

09:00	**Ge on Si Single Photon Avalanche Detectors and Applications** Jaroslaw Kirdoda[1], Lourdes Ferre Llin[1], Kateryna Kuzmenko[2], Peter Vines[2], Zoe Greener[2], Derek CS Dumas[1], Ross W. Millar[1], Muhammad M. Mirza[1], Gerald S Buller[2] and Douglas J. Paul[1] 1. University of Glasgow, School of Engineering, Rankine Building, Oakfield Avenue, Glasgow, G12 8LT, U.K.; 2. Heriot-Watt University, Institute of Photonics and Quantum Sciences, School of Engineering and Physical Sciences, Edinburgh, EH14 4AS, U.K.	B.X.1
09:30	**Group IV compound for compact electro optic modulation** Frederic Gardes, Katarzyna Grabska, Lorenzo Mastronardi, Mehdi Banakar, Thalia Dominguez Bucio, Milos Nedeljkovic, Callum Littlejohns, Andrea Ballabio, Andrea Barzaghi, Giovanni Isella Optoelectronics Research Centre, University of Southampton, University Rd, Southampton SO17 1BJ, UK LNESS - Dipartimento di Fisica, Politecnico di Milano via Anzani, 22100 Como Italy	B.X.2
09:45	**Growth and characterization of doped Si micro-crystals for single photon detection** Andrea Barzaghi[1], Saleh Firoozabadi[2], Marco Salvalaglio[3], Roberto Bergamaschini[4], Fabio Signorelli[5], Andrea Ballabio[1], Andreas Beyer[2], Marco Albani[4], Axel Voigt[3], Francesco Montalenti[4], Kerstin Volz[2], Alberto Tosi[5], Giovanni Isella[1] 1. L-NESS, Dipartimento di Fisica, Politecnico di Milano, P.zza Leonardo da Vinci, 32 20133 Milano, Italy; 2. Materials Science Center and Faculty of Physics, Philipps-Universität Marburg, Hans-Meerweinstrae 6, 35032 Marburg, Germany; 3. Institute of Scientific Computing, Technische Universität Dresden, Willersbau, B 209 - Zellescher Weg 12-14, 01062 Dresden, Germany; 4. L-NESS, Department of Materials Science, Universitá di Milano- Bicocca, via Cozzi 53, I-20126 Milano, Italy; 5. Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Via Ponzio 34/5, 20133 Milano, Italy	B.X.3
10:00	**The influence of strain on the optical emission from defect-enhanced Ge/Si quantum dots** L. Spindlberger[1], F. Murphy-Armando[2], J. Aberl[1] and Moritz Brehm[1] 1. Institute of Semiconductor and Solid State Physics, Johannes Kepler University Linz, Altenberger Strasse 69, 4040 Linz, Austria; 2. Tyndall National Institute, Lee Maltings, Dyke Parade, Cork T12 R5CP, Ireland	B.X.4

10:15	**Spectroscopic identification of analytes using Ge on Si waveguides between 8 and 12 µm wavelength** Ugne Griskeviciute[1], Kevin Gallacher[1], Ross W. Millar[1], Leonetta Baldassarre[2], Marc Sorel[1], Michele Ortolani[2], and Douglas J. Paul[1] 1. University of Glasgow, School of Engineering, Rankine Building, Oakfield Avenue, Glasgow, G12 8LT, U.K.; 2. Dipartimento di Fisica, Universita di Roma La Sapienza, Piazzale Aldo Moro 5, I-00185 Roma, Italy	B.X.5
10:30	Coffee Break	

Session XI: Photonics 2

11:00	**Photonic devices with reduced In, Ga and Sb content** T. Baron[1], ML. Touraton[1,2,3], T. Cerba[1], M. Martin[1], J. Moeyaert[1], S. David[1], V. Loup[3], F. Bassani[1], B. Salem[1], D. Dutartre[2], Mingchu Tang[4], Siming Chen[4], Huiyun Liu[4], C. Jany[3] 1. Univ. Grenoble Alpes, CNRS, CEA/Leti Minatec, LTM, F-38054 Grenoble Cedex; 2. STMicroelectronics, 850 rue Jean Monnet, F-38926 Crolles Cedex, France; 3. Univ. Grenoble Alpes, CEA, LETI, 38000 Grenoble, France; 4. University College London, Torrington Place, London, WC1E 7JE, United Kingdom	B.XI.1
11:30	**Fabrication and characterization of « bottom-up» and « top-down » GeSn nanowires** F. Bassani[1], T. Haffner[1], E. Martinez[2], P. Gentile[3], E. Robin[4], Y. Guerfi[1], E. Eustache[1], S. David[1], J. Aubin[2], J.M. Hartmann[2], T. Baron[1], B. Salem[1] 1. Univ. Grenoble Alpes, CNRS, LTM, 38054 Grenoble Cedex 9, France; 2. Univ. Grenoble Alpes, CEA, LETI, 38000 Grenoble, France; 3. Univ. Grenoble Alpes, CEA, INAC-PHELIQS, 38000 Grenoble, France; 4. Univ. Grenoble Alpes, CEA, INAC-MEM, 38000 Grenoble, France	B.XI.2
11:45	**High-quality n-type Ge/SiGe heterostructures for room temperature THz emission** L. Di Gaspare[1], M. Montanari[1], C. Ciano[1], L. Persichetti[1], L. Bagolini[1], M. Virgilio[2], G. Capellini[1,3], M. Zoellner[3], O. Skibitzki[3], D. Stark[4], G. Scalari[4], J. Faist[4], D. J. Paul[5], T. Grange[6], S. Birner[6], O. Moutanabbir[7], S. Mukherjee[7], L. Baldassarre[8], M. Ortolani[8], and M. De Seta[1] 1. Università Roma Tre,Dipartimento di Scienze Rome, 00146 Italy; 2. Università di Pisa, Dipartimento di Fisica, Pisa 56127, Italy; 3. IHP-Leibniz-Institut für innovative Mikroelektronik, Frankfurt (Oder), 15236 Germany; 4. Institute of Quantum Electronics ETH Zurich, Zurich, 8093 Switzerland; 5. School of Engineering, University of Glasgow, Glasgow, G12 8LT United Kingdom; 6. nextnano GmbH, Garching b. München, 85784 Germany; 7. Department of Engineering Physics, École Polytechnique de Montréal, Canada; 8. Università Sapienza, Rome, 00185 Italy	B.XI.3
12:00	**Mid infrared second harmonic generation in Ge/SiGe asymmetric quantum wells** Jacopo Frigerio, Andrea Ballabio, Chiara Ciano, Andrea Mancini, Leonetta Baldassarre, Jonas Allerbeck, Joel Kuttruff, Giovanni Isella, Daniele Brida, Michele Virgilio, Michele Ortolani L-NESS, Dipartimento di Fisica, Politecnico di Milano, Polo Territoriale di Como, Via Anzani 42, I-22100, Como, Italy, Dipartimento di Fisica, Sapienza Universitá di Roma, Piazzale Aldo Moro 5, I-00185 Rome, Italy, Department of Physics and Center for Applied Photonics, University of Konstanz, D-78457 Konstanz, Germany, Faculté des Sciences, de la Technologie et de la Communication, Université de Luxembourg, L-1511 Luxembourg, Dipartimento di Fisica "E. Fermi", Universitá di Pisa, Largo Pontecorvo 3, I-56127 Pisa, Italy	B.XI.4

12:15	**Optimal doping level for tensile strained Ge:Sb/Si microstructures** D.V. Yurasov, N.A. Baidakova, M.N. Drozdov, M.A. Kalinnikov, A.V. Nezhdanov, D.V. Shengurov, P.A. Yunin and A.V. Novikov Institute for Physics of Microstructures, Russian Academy of Sciences, Nizhny Novgorod, Russia, Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia	B.XI.5
12:30	Lunch Break	

Session XII: Virtual substrates

14:00	**Enabling III-V photovoltaics on Silicon with nanoscale substrate engineering** Abderraouf Boucherif Laboratoire Nanotechnologies Nanosystèmes (LN2) - CNRS UMI-3463, Institut Interdisciplinaire d'Innovation Technologique (3IT), Université de Sherbrooke, 3000 Boulevard Université, Sherbrooke, J1K OA5 Québec, Canada	B.XII.1
14:30	**Ge nano-heteroepitaxy: from nano-pillars to thick coalesced layers** M. Mastari[1], M. Charles[1], P. Pimenta-Barros[1], M. Argoud[1], R. Tiron[1], A.M. Papon[1], N. Chevalier[1], D. Landru[2], Y. Kim[2], O. Kononchuck[2] and J.M. Hartmann[1] 1. Univ. Grenoble Alpes, CEA, LETI, 38000 Grenoble, France; 2. SOITEC, Parc Technologique des Fontaines F-38190 Bernin, France	B.XII.2
14:45	**Modelling the kinetic growth and faceting of vertical micro- and nano-structures on Si** M. Albani[1], R. Bergamaschini[1], M. Salvalaglio[2], A. Voigt[2], L. Miglio[1], F. Montalenti[1] 1 L-NESS and Dept. of Materials Science, University of Milano-Bicocca, Milano 20125, Italy; 2. Institute of Scientific Computing Technische UniversitÄat Dresden, Dresden 01062, Germany	B.XII.3
15:00	Closing speech	
15:10	End of E-MRS fall 19 symposium B	

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

Symposium C

Sessions: Room 226 | Main Building
Poster Session: Small Hall | Main Building

INFORMATION AND COMMUNICATION TECHNOLOGIES:

Fabrication and characterization of emerging transparent conductive materials

Symposium Organizers: **Antoine BARNABÉ**, Université de Toulouse III Paul Sabatier, France
Geoffroy HAUTIER, Université Catholique de Louvain, Belgium
Karsten FLEISCHER, Dublin City University, Ireland
Petru LUNCA POPA, Luxembourg Institute of Science and Technology - MRT Department, Luxembourg

SYMPOSIUM C TIMETABLE

Symposium C				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30		(09:00-10:00) Session IV	Plenary Session 09:00-12:30	
10:30 – 11:00	Coffee Break			
11:00 – 12:30	Session I	(11:00-12:15) Session V		
12:30 – 14:00	Lunch Break			
14:00 – 15:30	Session II	Session VI	Session VIII	
15:30 – 16:00	Coffee Break			
16:00 – 17:30	Session III		(16:00-17:15) Session IX	
17:30 – 19:30		Poster Session	Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium C location

Sessions: 226 | Main Building
Poster Session: Small Hall | Main Building

Symposium C Program

Monday, September 16 th, 2019

Session I: Applications of transparent conductive materials : Petru Lunca Popa, MRT Department, Luxembourg Institute of Science and Technology

11:00	**Alternatives to conventional transparent conducting oxides for conductors and semiconductors** E. Fortunato, R. Martins i3N/CENIMAT, Department of Materials Science from Faculty of Science and Technology, Universidade NOVA de Lisboa and CEMOP/UNINOVA, Campus de Caparica, 2829-516 Caparica, Portugal	C.1.1
11:30	**Complementary Inverters Composed of Oxide Thin-Film Transistors** Shu-Ming Hsu[1], Chia-Chun Wu[1], Dung-Yue Su[2], Feng-Yu Tsai[2], Jian-Zhang Chen[3], I-Chun Cheng[1] 1 Graduate Institute of Photonics and Optoelectronics, National Taiwan University, Taipei 10617, Taiwan; 2. Department of Materials Science and Engineering, National Taiwan University, Taipei 10617, Taiwan; 3. Institute of Applied Mechanics, National Taiwan University, Taipei 10617, Taiwan	C.1.2
11:45	**Plasma-assisted deposition of thin ITO film for optical-fibre-based biosensors** Petr Sezemsky[1], Jiri Kratochvil[1], Robert Bogdanowicz[2], Mateusz Smietana[3], Dariusz Burnat[2], Harm Wulff[4], Viteslav Stranak[1] 1. University of South Bohemia, Branisovska 1760, Ceske Budejovice, Czech Republic; 2. Warsaw University of Technology, Koszykowa 75, 00-662 Warsaw, Poland; 3. Gdansk University of Technology, Narutowicza 11/12, 80-233 Gdansk, Poland; 4. University of Greifswald, Friedrich-Ludwig-Jahn-Straße 17a, 17489 Greifswald, Germany	C.1.3
12:00	**Enhanced Deep Ultraviolet Self-powered Photodetector Based on n-Sn-doped β-Ga2O3 Nano-flake/p-MnO Quantum Dots** Norah Alwadai[1,2], Ulrich Buttner[3], Somak Mitra[1], Bin Xin[1] and Iman S. Roqan[1] 1. Physical Sciences and Engineering Division, King Abdullah University of Science and Technology (KAUST), Thuwal 23955-6900, Saudi Arabia; 2. Department of Physics, College of Sciences, Princess Nourah bint Abdulrahman University (PNU), Riyadh 11671, Saudi Arabia; 3. Nanofabrication Core Lab, King Abdullah University of Science and Technology (KAUST), Thuwal 23955-6900, Saudi Arabia	C.1.4
12:15	**Investigating the influence of device structure in low-temperature IGZO TFTs by TCAD simulation and XPS** Jorge Martins*, Inês Martins, Jonas Deuermeier, Elvira Fortunato, Rodrigo Martins, Pedro Barquinha i3N/CENIMAT, Department of Materials Science, Faculty of Science and Technology, Universidade NOVA de Lisboa and CEMOP/UNINOVA, Campus de Caparica, 2829-516 Caparica, Portugal	C.1.5

12:30	Lunch Break	
Session II: Charge transport in Zinc Oxide thin films: Karsten Fleischer. Dublin City University, IRELAND		
14:00	**Structure and electronic properties of amorphous ZnO** David Mora-Fonz, Alexander L. Shluger Department of Physics and Astronomy, University College London, UK, Department of Physics and Astronomy, University College London, UK	C.2.1
14:30	**Influence of oxygen- and zinc-rich conditions on donor and acceptor states of ZnO thin films** E. Guziewicz[1,*], E. Przezdziecka[1], D. Jarosz[1], P. Terziyska[2], R. Jakiela[1], T.A. Krajewski[1] 1. Institute of Physics, Polish Academy of Sciences, Aleja Lotników 32/46 02-668 Warsaw, Poland; 2. Intitute of Solid State Physics, Bulgarian Academy of Sciences, 72 Tzarigradsko Chaussee Blvd, 1784, Sofia, Bulgaria	C.2.2
14:45	**The influence of selected rare earth ion implantation on the optoelectronic properties of ZnO films obtained by the ALD method** Tomasz A. Krajewski[1], Renata Ratajczak[2], Slawomir Prucnal[3], Serhiy Kobyakov[4], Wojciech Wozniak[1], Krzysztof Kopalko[1], Elzbieta Guziewicz[1] 1. Institute of Physics, Polish Academy of Sciences, Aleja Lotnikow 32/46, PL-02668 Warsaw, Poland; 2. National Centre for Nuclear Research, ul. Soltana 7, 05-400 Otwock, Poland; 3. Helmholtz-Zentrum Dresden-Rossendorf, Bautzner Landstrasse 400, D-01328 Dresden, Germany; 4. Cardinal Stefan Wyszynski University, College of Science, Department of Mathematics and Natural Sciences, ul. Dewajtis 5, PL-01 815 Warsaw, Poland	C.2.3
15:00	**Important factors influencing the electrical properties of sputtered AZO thin films** Petr Novák[1], Jiří Rezek[2], Tomáš Kozák[2], Petra Šotová[1], Zdeněk Jansa[1], Rostislav Medlín[1], Marie Netrvalová[1], Olga Bláhová[1] 1. New Technologies – Research Centre, University of West Bohemia, Plzeň, Czech Republic 2. Department of Physics and NTIS - European Centre of Excellence, University of West Bohemia, Plzeň, Czech Republic	C.2.4
15:15	**Hybrid density functional calculations of Ir-doped ZnO** Andrew Chesnokov[1], Denis Gryaznov[1], Juris Purans[1], Eugene Kotomin[1,2], Natalia V. Skorodumova[3,4] 1. Institute of Solid State Physics, University of Latvia, Riga, Latvia; 2. Max Planck Institute for Solid State Research, Stuttgart, Germany; 3. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 4. Department of Materials Science and Engineering, KTH Royal Institute of Technology, Stockholm, Sweden	C.2.5
15:30	Coffee Break	

Session III: Indium based high performance transparent conducting materials : Silviu Colis, IPCMS-University of Strasbourg, FRANCE

16:00	**Extracting Quantitative Band-edge Profiles from Buried Heterojunctions from Hard X-ray Photoelectron Spectra** Scott A. Chambers Physical and Computational Sciences Directorate Pacific Northwest National Laboratory Richland, WA USA	C.3.1
16:30	**Thin high-conductivity Zr-doped In2O3 layers for low In consumption in high-performance transparent electrodes** Esteban Rucavado[1], Federica Landucci[1,2], Quentin Jeangros[1], Mathieu Boccard[1], Aïcha Hessler-Wyser[1], Christophe Ballif[1], Monica Morales-Masis[1,3] 1. École Polytechnique Fédérale de Lausanne (EPFL), Institute of Microengineering (IMT), Photovoltaics and Thin Film Electronics Laboratory, Rue de la Maladière 71b, CH-2002 Neuchâtel, Switzerland.; 2. École Polytechnique Fédérale de Lausanne (EPFL), School of Basic Sciences (SB), Electron Spectrometry and Microscopy Laboratory (LSME), CH-1015 Lausanne, Switzerland; 3. MESA+ Institute for Nanotechnology, University of Twente, 7500 AE Enschede, The Netherlands	C.3.2
16:45	**Development of Sn-rich Nanoclusters in Indium Tin Oxide Sintered Body** Seong-Uk Oh, Dokyum Kim, Sangwook Lee, Young-Woo Heo, Jeong-Joo Kim, Joon-Hyung Lee School of Materials Science & Engineering, Kyungpook National University	C.3.3
17:00	**Luminescence activation and excitation mechanism of terbium doped indium tin oxide thin films** P. Llontop[1], C. E. Torres[1], M. Piñeiro[1], L. Conde[1], A. Tejada[1,2] and J. A. Guerra[1] 1. Departamento de Ciencias, Sección Física, Pontificia Universidad Católica del Perú, Av. Universitaria 1801, Lima 32, Perú; 2. Helmholz-Zentrm Berlin für Materialien und Energie GmbH, Institut für Silizium-Photovoltaik	C.3.4
17:15	**Donor and acceptor characteristics of native defects in SnO2 and In2O3** Qing Hou, John Buckeridge, Alexey A. Sokol, Jingcheng Guan, C. Richard A. Catlow* Kathleen Lonsdale Materials Chemistry, Department of Chemistry, University College London, 20 Gordon Street, London WC1H 0AJ	C.3.5

Symposium C Program

Tuesday, September 17 th, 2019

Session IV: Transparent and conductive polymers : David Muñoz-Rojas, Univ. Grenoble Alpes, FRANCE		
09:00	**Dramatic improvement of PEDOT conductivity and application to flexible transparent heaters** Jean-Pierre Simonato, Alexandre Carella, Amélie Schultheiss, Magatte N. Gueye, Renaud Demadrille, Jérôme Faure-Vincent University Grenoble Alpes, CEA-Grenoble, MINATEC Campus	C.4.1
09:30	**PVP/PEDOT/Silver hybrid nanofibers for flexible electrochromic electrode** Jun Ho Myung, Jihyun Yoon, Woong-Ryeol Yu Department of Materials Science and Engineering and Research Institute of Advanced Materials (RIAM) , Seoul National University, Seoul, Korea	C.4.2
09:45	**Highly conductive PEDOT for transparent heater applications: ageing mechanisms and efficient encapsulations** Amélie Schultheiss[1], Magatte Gueye[1], Alexandre Carella[1], Renaud Demadrille[2], Amélie Revaux[3], Jean-Pierre Simonato[1] 1. Université Grenoble Alpes, CEA, Liten, DTNM, S2CE, LSIN, F-38000 Grenoble, France; 2. Université Grenoble Alpes, CEA, IRIG, SyMMES, F-38000 Grenoble, France; 3. Université Grenoble Alpes, CEA, Liten, DTNM, SCSF, LCO, F-38000 Grenoble, France	C.4.3
10:00	Coffee Break	
Session V: Synthesis of inovative TCMs : Daniel Bellet Univ. Grenoble Alpes, FRANCE		
11:00	**Innovative hybrid composite transparent electrodes based on silver nanowire networks and thin oxide coatings** David Muñoz-Rojas, Viet Huong Nguyen, Joao Resende, Sara Aghazadehchors, Dorina T. Papanastasiou, Laetitia Rapenne, Carmen Jiménez, Ngoc Duy Nguyen, Daniel Bellet Univ. Grenoble Alpes, CNRS, Grenoble INP, LMGP, F-38000 Grenoble, France, Université de Liège, Département de Physique, CESAM/Q-MAT, SPIN, B-4000 Liège, Belgium	C.5.1

11:30	**Highly bendable nanomesh obtain by vapor dealloying for transparent conductive electrode application** Adrien Chauvin[1-2], Willigis Txia Cha Heu[2], Joze Buh[3-4], Pierre-Yves Tessier[2] and Abdel-Aziz El Mel[2] 1. Charles University, Ke Karlovu 3, 121 16 Praha 2, Czech Republic; 2. Institut des Matériaux Jean Rouxel, Université de Nantes, CNRS, 2 rue de la Houssinière B.P. 32229, 44322 Nantes cedex 3, France; 3. Jožef Stefan Institute, Complex matter department, Jamova cesta 39, 1000 Ljubljana, Slovenia; 4. Center of Excellence on Nanoscience and Nanotechnology Nanocenter, Jamova 39, 1000 Ljubljana, Slovenia	C.5.2
11:45	**Direct printing of transparent and substrate-free conducting fibre arrays** Wenyu Andy Wang, Yan Yan Shery Huang Department of Engineering, University of Cambridge	C.5.3
12:00	**Tailoring electronic structure of SWCNTs for transparent and conductive film applications** Albert G. Nasibulin Skolkovo Institute of Science and Technology, Nobel str. 3, Moscow, Russia 143026 and Department of Chemistry and Materials Science, Aalto University, Finland	C.5.4
12:15	Lunch Break	

Session VI: Applications of transparent conductive materials II : Jean-Pierre SIMONATO University Grenoble Alpes, CEA, FRANCE

14:00	**Transparent metallic oxides as electrodes in photovoltaic solar cells** K. Bouras[1], G. Schmerber[2], G. Ferblantier[1], D. Aureau[3], H. Rinnert[4], H. Park[5], W.K. Kim[5], A. Dinia[2], A. Slaoui[1], S. Colis[2] 1. Université de Strasbourg, CNRS, Laboratoire des Sciences de l'Ingénieur, de l'Informatique et de l'Imagerie (UMR 7357), 23 rue du Loess, BP 20, F-67037 Strasbourg Cedex 2, France; 2. Université de Strasbourg, CNRS, Institut de Physique et Chimie des Matériaux de Strasbourg (UMR 7504), 23 rue du Loess, BP 43, F-67034 Strasbourg Cedex 2, France; 3. Université de Versailles Saint Quentin en Yvelines, Université de Paris Saclay, CNRS, Institut Lavoisier de Versailles (UMR 8180), 45 avenue des Etats Unis, F-78035 Versailles, France; 4. Université de Lorraine, CNRS, Institut Jean Lamour (UMR 7198), BP 70239, F-54506 Vandoeuvre-lès-Nancy, France; 5. School of Chemical Engineering, Yeungnam University, Gyeongsan 38541, Republic of Korea	C.6.1
14:30	**Bifacial and Semi-transparent Perovskite Solar Cells for All-Day Power Generating Window Applications** Zhengfei Wei, Benjamin Smith, Harrison K. H. Lee, Vasil Stoichkov, Wing C. Tsoi, David A. Worsley and Trystan M. Watson SPECIFIC, College of Engineering, Swansea University, Bay Campus, Fabian Way, Swansea, SA1 8EN, UK	C.6.2
14:45	**Recent Progress of Transparent Conducting Oxides for OLED Applications** Byoung-Seong Jeong*, Young-Woo Heo Kyungpook National University	C.6.3

15:00	**Photocatalytic activity of ZnO modified by annealing and electrochemical treatment** Koji Abe, Atsuhito Otake Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology	C.6.4
15:15	**ALD Al-doped ZnO as transparent conductive material for flexible devices** D.Z. Dimitrov[1,2], V. Marinova[2], B. Blagoev[1], I. Avramova[3] 1. Institute of Solid State Physics, Bulgarian Academy of Sciences; 2. Institute of Optical Materials and Technologies, Bulgarian Academy of Sciences; 3. Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences	C.6.5
15:30	Coffee Break	

17:30 Poster Session: Fabrication and characterization of emerging transparent conductive materials : Karsten Fleischer. Dublin City University, IRELAND

	Photodetector device with receiving optical module for fiber-optic telecommunication systems Andreyeva N.O., Zuyev V.O., Morozova S.V., Red'ko R.A State University of Telecommunications, 7, Solomenska str., 03680 Kyiv, Ukraine	C.P.1
	Failure mechanism of Fluorine-doped Tin Oxide Thin films on glass at temperature, humidity and thermal shock conditions Hyoung-Seuk Choi Convergence R&D Division, Korea Institute of Ceramic Engineering and Technology, Jinju-si, Gyeongsangnam-do, Republic of KOEA	C.P.2
	Textured Transparent Conducting Boron-doped ZnO Films Deposited by LPCVD Method for Application in CIGS Thin Film Solar Cell Jinsu Yoo, Ki-Won Nam, Young-Joo Eo, Sejin Ahn, Inyoung Jeong, Ara Cho, Donghyeop Shin, Seung Kyu Ahn, Kihwan Kim, Joo Hyung Park, Jae Ho Yun, Jihye Gwak, Jun-Sik Cho Korea Institute of Energy Research	C.P.3
	Oxygen Concentration Dependence of the Optical and Electrical Properties of Mn-Doped Tin Oxide Thin Films Deposited on a Polyeth Young-Soo Cho, Gun-Eik Jang Chungbuk National University	C.P.4
	Atomic Layer Deposition of MgF2 and LaF3 using TiF4 as precursor Wen-Hao Cho[1], Wei-Bo Liao[2], Tzu-Fan Liu[2], Chien-Lin Chen[1], Cheng-Ye Yang[1], Chi-Chung Kei[1], Chien-Cheng Kuo[2], Cheng-Chung Lee[2] 1. Taiwan Instrument Research Institute, National Applied Research Laboratories; 2. Department of Optics and Photonics, National Central University	C.P.5

	Thin films Copper (I) Bromide as hole selective material for organometalic solar cells R. Gergova, G. Popkirov, P. Vitanov, M. Ganchev Central Laboratory of Solar Energy and New Energy Sources, Bulgarian Academy of Sciences - 1784 Sofia, 72 Tzarigradsko shaussee, Bulgaria	C.P.6
	Improvement in Transmittance of Organic Transparent Conductive Film Prepared by Inkjet Printing Method Atsushi Nitta[1], Naohiko Chosa[2], Yuki Imamura[2], Yuma Ikeda[1], Kazuhiro Takeda[3] 1. Department of Electronic Control Engineering, National Institute of Technology, kagoshima College, Kirishima, Japan; 2. Advanced Mechanical and Electronic Systems Engineering, National Institute of Technology, kagoshima College, Kirishima, Japan; 3. Department of Information Engineering, National Institute of Technology, kagoshima College, Kirishima, Japan	C.P.7
	Graphene/Indium oxide composite as a transparent conducting electrode Sangbong Lee[1], Minsu Kim[1], Seong-Yong Cho[2], Do-Joong Lee[3], Hyun-Mi Kim[1] and Ki-Bum Kim[1]* 1. Department of Materials Science and Engineering, Seoul National University; 2. Department of Materials Science and Engineering, Myongji University; 3. School of Engineering, Brown University	C.P.8
	Graphitized layers on DLC films prepared by thermocatalytic treatments as transparent conductive material Boubiche[1] N.,J. Hulik[1] J., Abdesslam[1,3] M., Speisser[1] C., Muller [1] D., F. Djeffal[2] and F. Le Normand[1] 1. MaCEPV/ICube, Université de Strasbourg and CNRS, STRASBOURG, 23 rue de Loess, BP 20CR, 67037 STRASBOURG, FRANCE; 2. Department Electronics, University of BATNA-1, 05000 BATNA, ALGERIA; 3. Department of Radiation Physics, University of Science and Technology Houari Boumédiène, ALGER, ALGERIA	C.P.9
	Development of thin film zirconium oxy-sulfide as a p-type transparent conductor Angela N. Fioretti[1], Sebastian Siol[2], Christophe Ballif[1], Mathieu Boccard[1], Monica Morales-Masis[3] 1. Photovoltaics and Thin Film Electronics Laboratory, Institute of Microengineering, Ecole Polytechnique Federale de Lausanne (EPFL), Neuchatel, Switzerland; 2. Empa - Swiss Federal Laboratories for Materials Science and Technology, Dubendorf, Switzerland; 3. University of Twente, MESA+ Institute for Nanotechnology, Enschede, the Netherlands	C.P.10
	Formation of nano-dimensional material on the basis of cosb3 scootered with addition of alloying elements Yu. M. Makogon, R.A. Shkarban, S.I. Sidorenko National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", 37 Peremohy Ave., UA-03056 Kyiv, Ukraine	C.P.11
	Measuring photocarrier recombination dynamic at the nanometric scale: From surface to bulk recombination Valentin Aubriet[1,2,3], Kristell Courouble[3], Mickael Gros-Jean[3], Christophe Vallée[2], Lukasz Borowik[1] 1. Univ. Grenoble Alpes, CEA, LETI, F-38000 Grenoble; 2. Univ. Grenoble Alpes, LTM (CEA-LETI/Minatec), 38000 Grenoble, France; 3. STMicroelectronics, 850 rue Jean Monnet, 38926 Crolles Cedex France	C.P.12

	Highly sensitive metal-grid strain sensors via water based solution processing Seungwoo Oh, Jinseon You, Suk Tai Chang School of chemical engineering and materials science, Chung-Ang University	C.P.13
	Highly transparent and conductive electrodes based on a formation of web-like network of AgNW using the dewetting phenomenon Jin Kim, Jinseon You, Seungwoo Oh, Suk Tai Chang School of Chemical Engineering and Materials Science, Chung-Ang University, Seoul, Korea	C.P.14
	An annealing study of high crystalline quality ZnO layers grown by ALD W. Wozniak[1], R. Schifano[1], E. Przezdziecka[1], A. Wierzbicka[1], R. Minikayev[1], D. Jarosz[1], R. Ratajczak[2], E Guziewicz[1] 1. Institute of Physics, Polish Academy of Sciences, Aleja Lotnikow 32/46, PL-02668 Warsaw, Poland; 2. National Centre for Nuclear Research, ul. Soltana 7, 05-400 Otwock, Poland	C.P.15
	Spectroscopic and electrical investigations on gallium oxide PEALD-films Ali Mahmoodinezhad[1], Christoph Janowitz[1], Franziska Naumann[2], Hassan Gargouri[2], Karsten Henkel[1], Dieter Schmeißer[3] and Jan Ingo Flege[1] 1. Applied Physics and Semiconductor Spectroscopy, Brandenburg University of Technology Cottbus-Senftenberg, Konrad-Zuse-Straße 1, 03046Cottbus, Germany; 2. SENTECH Instruments GmbH, SchwarzschildstraÄźe 2, 12489 Berlin, Germany; 3. Applied Physics and Sensor Technology, Brandenburg University of Technology Cottbus-Senftenberg, Konrad-Wachsmann-Allee 17, 03046 Cottbus, Germany	C.P.16
	Studies on Zn-based buffer layer ZnO, ZnS, Zn(O,S): An alternative buffer layer to CdS deposited by Atomic Layer Deposition (ALD) Narmatha Koothan[1], Yu-Hsuan Yu[1], Wei-Lun Xu[2], Chi-Chung Kei[1], Chu-Nien Nan[1], Chien-Wei Chen[1], Yu-Chiao Lin[1], Wen-Hao Cho[1] 1. Taiwan Instrument Research Institute(TIRI), National Applied Research Laboratories, Hsinchu, Taiwan; 2. Department of Materials Science and Engineering National Tsing Hua University, Hsinchu, Taiwan	C.P.17
	Effect of High thermal protection Al barrier on oxide/Ag/Al/oxide transparent electrode Joon-Min Lee[1,2], Chang-Ho Lee[1], Ho-Yeol Choi[1,2], Young-Hoi Kim[1], Chan-Hwa Hong[1,*] 1. University of Science and Technology, Korea; 2. Electronics and Telecommunications Research Institute, Korea	C.P.18
	X-ray photoelectron spectroscopy composition analysis of amorphous ZnSnOy deposited via reactive and non-reactive magnetron sput Ainur Zhussupbekova[1], Aitkazy Kaisha[1], Karsten Fleischer[1,2], Igor V. Shvets[1] and David Caffrey[1] School of Physics and Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College, The University of Dublin, Dublin 2, Ireland; 2. School of Physics, Dublin City University, Dublin 9, Ireland	C.P.19

	Air Wetting of Tin Dioxide Film by Liquid Metal Melts Tetiana Sydorenko, Boris D. Kostyuk, Valentina V. Poluyanskaya Frantsevich Institute for Problems of Materials Science, National Academy of Science of Ukraine	C.P.20
	Solution-processed thin film transistors employing ZnS semiconducting channels M. Ahmed[1], W. I. Milne[2], G. Adamopoulos[1]* 1. Engineering Department, Lancaster University, Lancaster LA1 4YR, UK; 2. Department of Engineering, University of Cambridge, 9 JJ Thomson Avenue, Cambridge CB3 0FA, UK	C.P.21
	Solution-processed In2O3 based TFTs implementing tantalum aluminate high-k dielectrics U. Dikko[1], W. I. Milne[2], G. Adamopoulos[1]* 1. Engineering Department, Lancaster University, Lancaster LA1 4YR, UK; 2. Department of Engineering, University of Cambridge, 9 JJ Thomson Avenue, Cambridge CB3 0FA, UK	C.P.22
	Fabrication and Investigation of Thin Film Silicon Tandem Solar Cells Towards Performance Improvement Pavel Calta[1], Veronika Vavruňková[1], Jiří Navrátil[2], Pavol Šutta[1], Marie Netrvalová[1], Rostislav Medlín[1] 1. University of West Bohemia, New Technologies-Research Centre, Univerzitní 8, 306 14 Plzeň, Czech Republic; 2. University of West Bohemia, Department of Technologies and Measurements / RICE, Faculty of Electrical Engineering, Univerzitní 8, 30614 Plzeň, Czech Republic	C.P.23
	Structural characteristics of oxide thin films grown by radio frequency magnetron sputtering deposition P. Prepelita[1], I. Stavarache[2], D. Craciun[1], M. Filipescu[1], F. Garoi[1], V. Craciun[1] 1. National Institute for Laser, Plasma and Radiation Physics, PO Box MG-36, Magurele 077125, Ilfov, Romania; 2. National Institute of Materials Physics, PO Box MG-7, Magurele 077125, Ilfov, Romania	C.P.24
	Fabrication of strain sensor based on silicone elastomer equipped with reversible cross-linking functionality Sun Ok Kim, Su bin Choi, Yun Hee Ju, Cheul-Ro Lee, Jong-Woong Kim* School of Advanced Materials Engineering Chonbuk National University, 567 Baekje-daero, Deokjin-gu, Jeonju 54896, Republic of Korea	C.P.25
	Nanostructured SnO(x) films and their structural, optical properties after annealing V.A. Timofeev[1], A.I. Nikiforov[1], V.I. Mashanov[1], I.A. Azarov[1], I.D. Loshkarev[1], I.V. Korolkov[2], T.A. Gavrilova[1] 1. A.V. Rzhanov Institute of Semiconductor Physics SB RAS, 13 Lavrentyev Avenue, Novosibirsk 630090, Russia; 2. Nikolaev Institute of Inorganic Chemistry SB RAS; 3. Lavrentyev Avenue, Novosibirsk 630090, Russia	C.P.26
	Transparent thin film heater based on a heat-resistant silver nanowire hybrid composite K. Lang, G. Domann, P. Löbmann, Matthias Klein Fraunhofer ISC, Wuerzburg	C.P.27

Symposium C Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VIII: Novel emerging transparent semiconductors : Alexander Shluger, University College London, UK		
14:00	**Copper Iodide as Electronic Material** Marius Grundmann Universität Leipzig, Felix Bloch Institute for Solid State Physics, Leipzig, 04105, Germany	C.8.1
14:30	**Tuning the properties of the new perovskite transparent conductor SrVO3 and its integration on low cost substrates** A. Boileau[1], A. Cheikh[1], A. David[1], C. Labbé[2], J. Cardin[2], F. Gourbilleau[2], M. Dallocchio[1], F. Baudouin[3], V. Demange[3], M. Guilloux-Viry[3], W. Prellier[1], A. Fouchet[1] and U. Lüders[1] 1. CRISMAT, UMR6508 CNRS ENSICAEN Normandie Université, Caen, France; 2. CIMAP, ENSICAEN – UNICAEN – CNRS, Caen, France; 3. Univ Rennes, CNRS, ISCR – UMR 6226, ScanMAT – UMS 2001, Rennes, France	C.8.2
14:45	**Defect engineering on off-stoichiometric copper chromium oxide for emerging transparent devices** J. Afonso, P. Grysan, J. Crêpellière, P. Lunca-Popa, R. Leturcq, D. Lenoble Luxembourg Institute of Science and Technology - LIST	C.8.3
15:00	**Fabrication of p-type conductive BaCu(Se,Te)F films and application to back contact of CdTe solar cells** Kenji Miki, Kosuke Beppu, Takahiro Wada Department of Materials Chemistry, Ryukoku University, Seta Otsu 520-2194, Japan	C.8.4
15:15	**The CuBO2 structural conundrum: neither delafossite nor monoclinic** Manuel Pérez Jigato Luxembourg Institute of Science and Technology	C.8.5
15:30	Coffee Break	

Session IX: Silver nanowires for transparent electrodes : Marius Grundmann, Universität Leipzig, GERMANY

16:00	**Transparent electrodes based on silver nanowire networks: a brief overview** Daniel Bellet, Dorina T. Papanastasiou, Joao Resende, Thomas Sannicolo, Viet Huong Nguyen, Carmen Jiménez, David Muñoz-Rojas Univ. Grenoble Alpes, CNRS, Grenoble INP, LMGP, 38000 Grenoble, France	C.9.1
16:30	**Bio-inspired Semi-transparent Silver Nanowires Conductor based on Vein Network with Excellent Electromechanical and Photothermal** Chun-Hua Zhu*, You-Xia Qiang Institute of Chemical Materials, China Academy of Engineering Physics, Mianyang, Sichuan 621900, China	C.9.2
16:45	**Transparent electrodes based on sprayed silver nanowires: large-scale performances and control of light scattering** Jonathan Crêpellière, Kévin Menguelti, Marc Michel, Renaud Leturcq Luxembourg Institute of Science and Technology Luxembourg Institute of Science and Technology Luxembourg Institute of Science and Technology Luxembourg Institute of Science and Technology	C.9.3
17:00	**The stable, flexible and transparent oxide/Ag based alloy/oxide multilayer thin film electrode** Joohee Jang[1,2], Ji-Won Choi[1,2]* 1.Center for Electronic Materials, Korea Institute of Science and Technology (KIST); 2. Division of Nano & Information Technology, KIST School, Korea University of Science and Technology	C.9.4
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium D

Sessions: Room 134 | Main Building
Poster Session: Small Hall | Main Building

INFORMATION AND COMMUNICATION TECHNOLOGIES:

Materials for nanoelectronics and nanophotonics

Symposium Organizers: **Jean-Claude GRIVEL**, Technical University of Denmark, Denmark

Jost ADAM, NanoSYD, Mads Clausen Institute, Denmark

Lakshminarayana POLAVARAPU, Ludwig- Maximilians-University (LMU), Germany

Rosaria PUGLISI, CNR - IMM, Italy

Yogendra MISHRA, University of Kiel, Germany

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Symposium D location

Sessions: 134 | Main Building
Poster Session: Small Hall | Main Building

Symposium D Program

Monday, September 16 th, 2019

Session I: Plasmonics and Nanophotonics : Jost Adam, Yogendra Mishra

08:00	**INVITED: Organized Surfaces of Au Nanoplates: A New Building Block for On-Chip Plasmonic Devices** Svetlana Neretina, Robert Hughes, Spencer Golze, Sergei Rouvimov University of Notre Dame, Notre Dame, IN, United States	D.1.1
08:30	**Para-hexaphenylene (p-6P) nanofibers for polarization-insensitive surface plasmon polariton excitation** Elżbieta Karolina Sobolewska[1], Tomasz Kawalec[2], Horst-Günter Rubahn[1], Jost Adam[1], Jacek Fiutowski[1] 1. Mads Clausen Institute, NanoSYD, University of Southern Denmark, Alsion 2, DK-6400 Sønderborg, Denmark; 2. Marian Smoluchowski Institute of Physics, Jagiellonian University, ul. prof. Stanisława Łojasiewicza 11, 30-348 Krakow, Poland	D.1.2
08:45	**Investigation of gold nanoparticle fluorescence fluctuations, causes and potential uses** Johannes Frueh, Julie Probst, Guangyu Qiu, Jing Wang Harbin Institute of Technology, Institute of Micro- Nanotechnology research ETH Zürich, Institut für Umweltingeneurswissenschaften	D.1.3
09:00	**A Passivation Approach with Hydrogen-Bonded Phosphonate Ligands for Highly Efficient CsPbBr3 Nanocrystal LEDs** Alasdair AM Brown[1,2,3], Xin Yu Chin[3], Thomas JN Hooper[3,4], Parth Vashishtha[4], Annalisa Bruno[3], Suan Hui Pu[1], Liudi Jiang[1], Ju Nie Tey[2], Bahulayan Damodaran[3], Nripan Mathews[3,4] and Subodh G. Mhaisalkar[3,4] 1. School of Engineering, Faculty of Engineering and Physical Sciences, University of Southampton, Southampton SO17 1BJ; 2. Agency for Science and Technology Research (A*STAR) Singapore Institute of Manufacturing Technology (SIMTech), 73 Nanyang Drive, Singapore 637662; 3. Energy Research Institute at NTU (ERI@N), Research Techno Plaza, X-Frontier Block Level 5, 50 Nanyang Drive, Singapore 637553; [4] School of Materials Science and Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798	D.1.4

09:15	**Light trapping of organic photovoltaics with improved refractive index profile and surface nanostructure** Shigeru Kubota[1], Yoshiki Harada[1], Takenari Sudo[2], Kensaku Kanomata[1], Bashir Ahmmad[1], Jun Mizuno[2] and Fumihiko Hirose[1] 1. Graduate School of Science and Engineering, Yamagata University, Japan; 2. Research Organization for Nano and Life Innovation, Waseda University, Japan	D.1.5
09:30	**Optical properties of tensile-strained Ge structures embedded into micro-cavities** D.V. Yurasov, N.A. Baidakova, V.A. Verbus, N.S. Gusev, E.E. Morozova, A.V. Nezhdanov, E.V. Skorohodov, D.V. Shengurov, A.N. Yablonskiy and A.V. Novikiov Institute for Physics of Microstructures, Russian Academy of Sciences, Nizhny Novgorod, Russia; National Research University Higher School of Economics, Nizhny Novgorod, Russia; Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, 603950, Russia	D.1.6
09:45	**Tuning of electrical and optical properties of ultrathin Ta:TiO2-based plasmonic films** Beatrice Roberta Bricchi[1], Luca Ornago[1], Cristina Mancarella[1], Matteo Ghidelli[1], Carlo S. Casari[1,2], Andrea Lucotti[3], Andrea Li Bassi[1,2] 1. Micro- and Nanostructured Materials Laboratory, Department of Energy, Politecnico di Milano, via Ponzio 34/3, 20133, Milano, Italy; 2. Center for Nanoscience and Technology – IIT@Polimi, via Giovanni Pascoli 70/3, 20133, Milano, Italy; 3. Department of Chemistry, Materials, and Chemical Engineering "Giulio Natta", Politecnico di Milano, Piazza Leonardo da Vinci 32, 20133 Milano, Italy	D.1.7
10:00	**Formation of periodic structures on amorphous silicon surface by femtosecond laser radiation: experiment and theory** Dmitrii V. Shuleiko[1], Mikhail N. Martyshov[1], Danila V. Orlov[1], Stanislav V. Zabotnov[1], Denis E. Presnov[2,1], Andrey G. Kazanskii[1], Pavel K. Kashkarov 1. Lomonosov Moscow State University, Faculty of Physics, 1/2 Leninskie Gory, Moscow, 119991, Russia; 2. Lomonosov Moscow State University, Skobeltsyn Institute of Nuclear Physics, 1/2 Leninskie Gory, Moscow, 119991, Russia	D.1.8
10:15	**Solvent effect on Solution processed high efficient red-orange OLEDs based on thermally activated delayed fluorescence** Manish Kumar[1,2]*, Marian Chapran[3], L. Pereira[1] 1. Department of Physics and i3N – Institute for Nanostructures, Nanomodulation and Nanofabrication, University of Aveiro, 3810-193 Aveiro, Portugal; 2. CeNTI – Centre for Nanotechnologies and Smart Materials, R. Fernando Mesquita, 2785, 4760-034 Vila Nova de Famalicão, Portugal; 3. Department of Molecular Physics, Technical University of Łódź, Żeromskiego 116, 90-924 Łódź, Poland	D.1.9
10:30	Coffee Break	
Session II: Plasmonics and Nanophotonics : Jost Adam, Rosaria Puglisi		
11:00	**INVITED: New pathways in plasmonic sensing** Andreas Seifert CIC nanoGUNE Tolosa Hiribidea, 76, 20018 Donostia - San Sebastián, Spain	D.2.1

11:30	**Rare-earth-free phosphors for white LEDs lighting, prepared by the polymeric precursor method** P. Gaffuri[1,2], M. Salaün[1], I. Gautier-Luneau[1], E.Appert[2], V.Consonni[2], A. Ibanez[1] 1 Univ. Grenoble Alpes, CNRS, Institut Néel, F-38000 Grenoble, France 2 Univ. Grenoble Alpes, CNRS, Grenoble INP, LMGP, F-38000 Grenoble, France	D.2.2
11:45	**Synthesis, morphology and spectroscopy of thin films with luminescent vanadate nanoparticles applied on silicon substrates** Chukova O.[1], Nedilko S.A.[1], Nedilko S.G.1, Slepets A.[1], Voitenko T.[1], Androulidaki M.[2], Manousa A.[2], Papadopoulos A.[2], Savva K.[2], Stratakis E.[2] 1. Taras Shevchenko National University of Kyiv, Volodymyrska Str., 64/13, Kyiv 01601, Ukraine. E-mail: chukova@univ.kiev.ua; 2. Institute of Electronic Structure & Laser (IESL) of Foundation for Research & Technology Hellas (FORTH), Heraklion 711 10 Crete, Greece	D.2.3
12:00	**ZnO – Au hybrids: From Photoluminescence to Surface Enhanced Raman Spectroscopy** K N Prajapati[1], K Bandopadhyay[2] and J. Mitra[1] 1. School of Physics, IISER Thiruvananthapuram, Kerala 695551, India; 2. Institute of Electronic Materials Technology (ITME), Warsaw, Poland	D.2.4
12:15	**Nonlocal hyperbolic metamaterials** Bartosz Janaszek, Marcin Kieliszczyk, Paweł Szczepański Warsaw University of Technology; Warsaw University of Technology; Warsaw University of Technology, National Institute of Communication	D.2.5
12:30	**Doping of silicon nanowires with electrically active impurities: optical diagnostics and potential applications** V.Yu.Timoshenko[1,3,4], S.P. Rodichkina[1,2], A. I. Efimova[1], E.A. Lipkova[1], A.A.Eliseev[1], L.A.Golovan[1], A.V. Pavlikov[1], T. Nychyporuk[2], V. Lysenko[2,3] 1. Lomonosov Moscow State University, Leninskie Gory 1, 119991 Moscow, Russia; 2. University of Lyon, INSA de Lyon, INL, UMR CNRS 5270, Lyon, France; 3. National Research Nuclear University MEPhI, Kashirskoye Sh. 31, 115409 Moscow, Russia; 4. Lebedev Physical Institute of RAS, Leninskiy Prospekt 53, 119991 Moscow, Russia	D.2.6
12:45	**Carbon nanodots as active materials for light emitting diodes** Sofia Paulo-Mirasol, Emilio Palomares, Eugenia Martinez-Ferrero Eurecat, Avda. Ernest Lluch 36, 08302 Mataró (Spain); ICIQ, Avda. Països Catalans 16, 43007 Tarragona (Spain)	D.2.7
13:00	Lunch Break	
Session III: Plasmonics and Nanophotonics : Jacek Fiutowski, Svetlana Neretina		
14:00	**INVITED: Durable Plasmonics Enabled by Oxide Claddings** Robert Hughes, Arin Preston, and Svetlana Neretina University of Notre Dame, Notre Dame, IN, United States	D.3.1

14:30	**Gold Nanoporous Particles: Fabrication and Characterization** F. Ruffino[1], R. Grillo[1], V. Torrisi[1], M. Zimbone[1,2], M.G. Grimaldi[1] 1. Dipartimento di Fisica ed Astronomia "Ettore Majorana"-Università di Catania, via S. Sofia 64, 95123 Catania, Italy and IMM-CNR, via S. Sofia 64, 95123 Catania, Italy; 2. IMM-CNR, via S. Sofia 64, 95123 Catania, Italy V. Torrisi BRIT (Bio-nanotech Research Innovation Tower), Università di Catania, via S. Sofia 89, 95123 Catania, Italy	D.3.2
14:45	**Fabrication, optical characterization and modelling of plasmonic superlattices** Mathias Charconnet[1,2], Cristiano Matricardi[3], Agustín Mihi[3], Jost Adam[4], Luis M. Liz-Marzánb[5] and Andreas Seiferta[5] 1. CIC nanoGUNE, Nanoengineering Group, Donostia-San Sebastián, Spain; 2. CIC biomaGUNE, Bionanoplasmonics Laboratory, Donostia-San Sebastián, Spain; 3. Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Nanooptener Group, Bellaterra, Spain d University of Southern Denmark, Mads Clausen Institute, Sønderborg , Denmark; 4. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain	D.3.3
15:00	**Nano Lithographically Templated Assembly of 1D Nanostructures** Viraj Bhingardive[1,3], Avichai Marcovici[1,3], Guillaume Le Saux[1,3], Pazit Rukenstein[2,3], Kobi Flomin[2,3], Karam Shreteh[2,3], Taleb Mokari[2,3], Mark Schvartzman[1,3] 1. Department of Materials Engineering; 2. Department of Chemistry; 3. Ilse Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, Beer-Sheva, 8410501, Israel	D.3.4
15:15	**Thin films for optics and optoelectronics deposited using sol-gel methods** K. Rubešová, D. Mikolášová, J. Havlíček, T. Hlásek, V. Jakeš, P. Nekvindová, R. Kučerková, M. Nikl, J. Oswald Department of Inorganic Chemistry, University of Chemistry and Technology, Technicka 5, 166 28 Prague 6, Czech Republic (K. Rubešová, D. Mikolášová, J. Havlíček, T. Hlásek, V. Jakeš, P. Nekvindová) Institute of Physics of the Czech Academy of Sciences, Cukrovarnicka 10, 16200 Prague, Czech Republic (R. Kučerková, M. Nikl, J. Oswald)	D.3.5
15:30	Coffee Break	

Session IV: Nanomaterials and Memory Devices : Yogendra Mishra, Jean-Claude Grivel

16:00	**INVITED: Memristor and memcapacitor based on a charge disproportionate molecular redox** Sreetosh Goswami, T. Venkatesan National University of Singapore, National University of Singapore	D.4.1
16:30	**Structural Investigation of N-doping Effects in Ge-rich Ge-Sb-Te System for Phase-Change Memory** L. Prazakova, E. Nolot, E. Martinez, D. Morel, N. Rochat, D. Rouchon, C. Sabbione, M. Bernard, M.C. Cyrille, G. Navarro CEA, LETI, MINATEC Campus, 17 rue des Martyrs, 38054 Grenoble Cedex 9, France	D.4.2

16:45	**New materials to Battle the Transistor Interconnect Bottleneck** Cara-Lena Nies, Suresh Kondati Natarajan, Michael Nolan Tyndall National Institute, UCC, T12 R5CP Cork, Ireland	D.4.3
17:00	**Electronic Transport in Few-layer Germanium Arsenide** Jianbo Sun, Alessandro Grillo, Maurizio Passacantando, Antonio Di Bartolomeo, Jose Caridad and Luca Camilli Department of Physics, Technical University of Denmark; Department of Physics, University of Salerno; Department of Physical and Chemical Sciences, University of L'Aquila; Department of Physics, University of Salerno; Department of Physics, Technical University of Denmark; Department of Physics, Technical University of Denmark	D.4.4
17:15	**Silicon nanowires with 5 nm diameter obtained by Chemical Vapor Deposition** Daniele Spucches, Sebastiano Caccamo, Enza Fazio, Fortunato Neri, Giovanni Mannino, Silvia Scalese, Antonino La Magna, Rosaria A. Puglisi CNR Institute for Microelectronics and Microsystems Strada VIII n.5, Zona industriale, 95121 Catania, Italy; Dipartimento Scienze Matematiche ed Informatiche, Scienze Fisiche e Scienze della Terra, Università degli Studi di Messina, F. Stagno d'Alcontres, 31, 98166 Messina, Italy	D.4.5
18:00	Poster Session I: Jost Adam, Jean-Claude Grivel, Yogendra Mishra, Rosaria Puglisi	
	Efficient perovskite light emitting diodes through additive-controlled nanostructure tailing and charge injection balancing Yatao Zou, Baoquan Sun* Institution of Functional Nano & Soft Materials, Soochow University, China	D.P1.1
	Direct synthesis of continuous nitrogen-doped graphene film by low-temperature chemical vapor deposition Myungwoo Son, Moon-Ho Ham Photonic Energy Research Center, Korea Photonics Technology Institute, Gwangju, 61007, Republic of Korea, School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju, 61005, Republic of Korea	D.P1.2
	Tunable In/In4Se3 (100) nanosystem application for nanoelectronics P.V. Galiy[1], T.M. Nenchuk[1], A. Ciszewski[2], P. Mazur[2], O.R. Dveriy[3] 1. Electronics and Computer Technology Dept., Ivan Franko Lviv National University, Lviv, Ukraine; 2. Institute of Experimental Physics, University of Wroclaw, Wroclaw, Poland; 3. Chair of Electromechanics and Electronics, National Academy of Land Forces, Lviv, Ukraine	D.P1.3
	3D Si micropillar array (SiMPA) to detect markers in blood Jukwan Na, Jun Shik Choi, Juyoung Kwon, Yong-beom Lim, Heon-Jin Choi Department of Materials Science and Engineering, Yonsei University, Seoul, 03722, South Korea	D.P1.4

Gate-tunable ambipolar graphene-quantum dot phototransistor D.P1.5

Li Zheng, Wen Zhou, Wenjia Zhou, Zhijun Ning, Xinhong Cheng, Yuehui. Yu

1. State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China; 2. School of Physical Science and Technology, ShanghaiTech University, Shanghai, China

Strained asymmetric InGaAs/InAlAs quantum cascade laser grown by metal-organic chemical vapor deposition D.P1.6

Dong-Hwan Jun[1], Dong Hak Kim[1], Junhyun Kang[2], Jin Dong Song[2], and Il Ki Han[2]

1. Korea Advanced Nano Fab Center, 109, Gwanggyo-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16229, Korea; 2. Korea Institute of Science and Technology, 5 Hwarang-ro, 14-gil, Seongbuk-gu, Seoul, 136-791, Korea

Freestanding Monolayer Graphene Microstructures D.P1.7

Madhav Kumar[1]*, Praveen Kumar[2] and Harish Bhaskaran[3]

1. Université Grenoble Alpes, CEA, LETI, 38000 Grenoble, France. (madhav.KUMAR@cea.fr); 2. Université Grenoble Alpes, INAC-MEM-LEMMA, CEA, 38000 Grenoble, France; 3. Department of Materials, University of Oxford, Oxford, United Kingdom

Polymer-nanoparticle hybrid nanotubes fabricated by AAO templates D.P1.8

Takuya Tsuda, Andreas Fery

Leibniz-Institut für Polymerforschung Dresden e. V., Hohe Str. 6. 01069 Dresden, Germany Technische Universität Dresden, 01062 Dresden, Germany

Impact of impurities and dopants on defects and electrical properties of (Al)GaN epilayers D.P1.9

Karolina Piętak[1,2], Ewelina Rozbiegała[1,3], Sebastian Złotnik[1], Paweł Michałowski[1], Mariusz Rudziński[1]

1. Łukasiewicz Research Network - Institute of Electronic Materials Technology, Wólczyńska 133, 01-919 Warsaw; 2. Warsaw University of Technology, Faculty of Chemistry, Noakowskiego 3, 00-664 Warsaw; 3. Warsaw University of Technology, Faculty of Materials Science and Engineering, Wołoska 141, 02-507 Warsaw

Laser dewetting behaviors of Ag and Au thin films on glass and Si substrates: experiments and theoretical considerations D.P1.10

Harim Oh, Minseok Seo, Jaeyong Kim, Junho Lee, Myeongkyu Lee

Yonsei University

Laser-induced dewetting of metal thin films for template-free plasmonic color printing D.P1.11

Harim Oh, Minseok Seo, Jaeyong Kim, Junho Lee, Myeongkyu Lee

Yonsei University

Electrical performance of solution-processed thin film under various ambient D.P1.12

Yesul Jeong, Michael C Petty, Jang-Hee Yoon

Korea Basic Science Institute (KBSI), Busan 46742, Republic of Korea Department of Engineering and Centre for Molecular and Nanoscale Electronics, Durham University, South Road, Durham DH1 3LE, United Kingdom

	Sonochemical synthesis of nano- and micropowders of SnS2 and their characterization Grzegorz Matyszczak, Sławomir Podsiadło, Emilia Polesiak, Małgorzata Sobieska Warsaw University of Technology, Faculty of Chemistry	D.P1.13
	Photoluminescence of Cu-In-S nanocrystals embedded in gelatin L. Borkovska[1], N. Korsunska[1], A. Rachkov[2], T. Kryshtab[3] 1. V. Lashkaryov Institute of Semiconductor Physics of the NAS of Ukraine, Kyiv, Ukraine; 2. Institute of Molecular Biology and Genetics of the NAS of Ukraine, Kyiv, Ukraine 3Instituto Politécnico Nacional - ESFM, Av. IPN, Ed.9 U.P.A.L.M., 07738, Ciudad de Mexico, Mexico	D.P1.14
	A True Random Number Generator Using Threshold-Switching-Based Memristors in an Efficient Circuit Design Kyung Seok Woo, Yongmin Wang, Jihun Kim, Yumin Kim, Young Jae Kwon, Jung Ho Yoon, Woohyun Kim, and Cheol Seong Hwang Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University	D.P1.15
	Effect of low-temperatures upon atomic and electronic properties of nanostructured SrTiO3 (001) surfaces V.A. Gamaliy, V.V. Butskii, S. Piskunov, I.Isakovica, A.I. Popov, N.V. Krainyukova B. Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine, Kharkiv, Ukraine, Institute of Solid State Physics, University of Latvia, Riga, Latvia	D.P1.16
	Flexible and self-powered PVDF/Bi2Al4O9/RGO piezoelectric based nanogenerator for energy harvesting Abhishek Anand and Mukesh Chander Bhatnagar Department of Physics, Indian Institute of Technology, New Delhi - 110016	D.P1.17
	Effect of annealing atmosphere on phase formation processes in FePd/Au thin films M.N. Shamis[1], P.V. Makushko[1], T.I. Verbytska[1], S.I. Sidorenko[1], G. Beddies[2], N.Y. Safonova[2], M. Albrecht[2], and Yu. N. Makogon[1] 1. Igor Sikorsky Kyiv Polytechnic Institute, Department of Physics of Metals, Peremogy av. 37, 03056, Kyiv, Ukraine; 2. University of Augsburg, Institute of Physics, Universitätsstraße 1, D-86159, Augsburg, Germany *E-mail: m.n.shamis@gmail.com	D.P1.18
	Red Phosphorescent Iridium(III) Complexes using phenylisoquinoline for Solution-Processed Organic Light-Emitting Diodes Jae-Ho Jang, Hee Jung Park, Jeong Yong Park, and Do-Hoon Hwang* Pusan National University	D.P1.19

	Detection of ammonia using surface acoustic wave microsensors with Au decorated ZnO nanorods /SiO2 coatings Violeta Dediu, Ileana Cernica, Octavian Ionescu, Silviu Vulpe Oana Tutunaru, Cosmin Romanitan National Institute for Research and Development in Microtehnologies, Bucharest, Romania	D.P1.20
	Fluorinated metal oxides as electon selective materials in organic optoelectronics Maria Vasilopoulou, Dimitris Davazoglou Institute of Nanoscience and Nanotechnology, National Center for Scientific Research, Athens, Greece	D.P1.21
	Color-switchable Reversible Electrodeposition(RED) device based on Indium-Tin-Oxide(ITO) interference effect Chihun Sung[1,2], Jisu Han[1,2], Juhee Song[1], Chil Seong Ah[1], Seong M. Cho[1], Joo Yeon Kim[1], Chi-sun Hwang[1], Jeong-IK Lee[1] and Tae-Youb Kim[1,2]* 1. Reality Device Research Division, ICT Materials & Components Research Laboratory, Electronics and Telecommunications Research Institute, 218 Gajeong-ro, Yuseong-gu, Daejeon 34129, Republic of Korea, Tel.:82-42-860-5267, E-mail: youby@etri.re.kr; 2. Next generation display Lab., ICT(Advanced Device Technology), University of Science and Technology, 217, Gajeong-ro, Yuseong-gu, Daejeon 34113, Republic of Korea	D.P1.22
	Fluorinated Polyimide Gate Dielectrics for Transparent Organic Field-Effect Transistor and Logic Gate Circuit Honggi Min, Boseok Kang, BongSoo Kim, Jeong Ho Cho* Yonsei University, Sungkyunkwan University, UNIST	D.P1.23
	PVDF - BCZT thin films obtained by laser deposition techniques for flexible electronic devices N. Enea, N.D. Scarisoreanu, V. Ion, F. Andrei, D. Manica, M. Dinescu, A. Moldovan and I. Boerasu National Institute for Laser, Plasma and Radiation Physics, 409 Atomistilor St, RO-077125, Magurele, Romania	D.P1.24
	Fabrication and Characteristic of c-Si Solar divided cells Using Nanosecond Green Lasers Won Seok Choi, Jeong Eun Park, Jae Joon Jang, Donggun Lim Korea National University of Transportation	D.P1.25
	ECA Bonding Cell for High Power of CIGS Thin Film Solar Cell Using Stainless Substrate Eun Ji Bae, Jeong Eun Park, So Mang Park, Seon Wol Jeon, Donggun Lim Korea National University of Transportation	D.P1.26

	Optical and structural characterisation of GaS layers diluted with magnetic ions Daniel J. Jastrzebski[1], Anna Rydzkowska[2], Oskar Sadowski[2], Pawel Pączkowski[3], Cezariusz Jastrzębski[2] 1. Faculty of Chemistry, Warsaw University of Technology, Noakowskiego 3, 00-664 Warsaw, Poland; 2. Faculty of Physics, Warsaw University of Technology, Koszykowa 75, 00-662 Warsaw, Poland; 3. Cardinal Stefan Wyszyński University, Faculty of Mathematics and Natural Sciences. School of Exact Sciences, Department of Physics, K. Wóycickiego 1/3 Street, 01-938 Warsaw, Poland	D.P1.27
	High temperature performance of 2-terminal GaN HEMT-type hydrogen sensors with source-connected Pt-gate and thin AlGaN barrier Tuan Anh Vuong, Soohyuk Yang, Jongsun Kim, Hyungtak Kim Hongik University	D.P1.28
	Nanowires of FeNi and FeCo alloys: matrix synthesis and structure Doludenko I.[2,1], Zagorskiy D.[1], Frolov K.[1], Perunov I.[1], Kanevski V.[1], Muslimov A.[1], Panov D.[2,1] 1. Center of Crystallography and Photonics of RAS, Moscow, Russia; 2. National Research University Higher School of Economics, Moscow, Russia	D.P1.29
	The effect of magnetic field on the electrodeposition of metals during matrix synthesis Cherkasov D.[1], Doludenko I.[1], Khaibulin R.[2], Bedin S.[1], Zagorskiy D.[1] 1. Center of Crystallography and Photonics of RAS, Moscow, Russia; 2. Kazan Institute of Physics and Technology. E. K. Zavoisky Kazan Scientific Center of RAS, Kazan, Russia	D.P1.30

Symposium D Program

Tuesday, September 17 th, 2019

Session V: Nanomaterials and Memory Devices : Jean-Claude Grivel, Yogendra Mishra

08:00	**INVITED: Strain-mediated electrical excitation of ferromagnetic nanostructures integrated onto ferroelectric substrates** N.A. Pertsev Ioffe Institute, St. Petersburg, Russia	D.5.1
08:30	**p-GeSe/n-IGZO van der waals diode** Hasan Abbas Jaffery, Jung Jongwan*, Sajjad Hussain* Graphene Research Institute, Sejong University, Seoul 143-747, Republic of Korea: Department of Nanotechnology & Advanced Materials Engineering and Graphene Research Institute, Sejong University, Seoul 143-747, Republic of Korea	D.5.2
08:45	**Fabrication of Schottky junction based on p-type GeSe by asymmetry of metal contacts** Hussain Muhammad, Jung Jongwan*, Sajjad Hussain* Graphene Research Institute, Sejong University, Seoul 143-747, Republic of Korea: Department of Nanotechnology & Advanced Materials Engineering and Graphene Research Institute, Sejong University, Seoul 143-747, Republic of Korea	D.5.3
09:00	**The TiO2 nanoparticle Mediator to Enhance the Bi-stability for Reversible Electrodeposited Devices** Jisu Han[1,2], Chihun Sung[1,2] Juhee Song[1], Chil Seong Ah[1], Joo Yeon Kim[1], Seong Mok Cho[1], Hojun Ryu[1], Chi-Sun Hwang[1], Jeong-Ik Lee[1] and Tae-Youb Kim[1,2]* 1. Reality Device Research Division, ICT Materials & Components Research Laboratory, Electronics and Telecommunications Research Institute, 218 Gajeong-ro, Yuseong-gu, Daejeon 34129, Republic of Korea; 2. Next generation display Lab., ICT(Advanced Device Technology), University of Science and Technology, 217, Gajeong-ro, Yuseong-gu, Daejeon 34113, Republic of Korea	D.5.4
09:15	**Compliance Current Controlled WORM, Volatile and Non-Volatile Memory in Ag/CoFe2O4/ Pt Resistive Switching Device** Sandeep Munjal and Neeraj Khare Indian Institute of Technology Delhi, Hauz Khas, New Delhi-110016, India	D.5.5

09:30	**Design of switchable interfaces: towards a new generation of responsive opto-electronic devices** V. Diez-Cabanes*[1], A. Galanti[2], M. Souto[3], Q. Wang[4], I. Ratera[3], N. Koch[4], J. Veciana[3], P. Samori[2], J. Cornil[1] 1. Laboratory for Chemistry of Novel Materials, University of Mons, Place du Parc 20, B-7000 Mons, Belgium. valentin.diezcabanes@umons.ac.be; 2. Université de Strasbourg, CNRS, ISIS UMR 7006, 8 allée Gaspard Monge, 67000, Strasbourg, Fance; 3. Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Campus de la UAB, 08193 Bellaterra, Spain; 4. Institut fur Physik & IRIS Adlershof Humboldt-Universitat zu Berlin Brook-Taylor-Str. 6, 12489 Berlin, Germany	D.5.6
09:45	**Surface functionalization of epitaxial graphene on SiC using low and high energy Ag ion irradiation for gas sensing application** Priya Darshni Kaushika, M. Rodner, G. Greczynski, D.K. Avasthi, Jens Erikssona, Mikael Syväjärvi, Rositsa Yakimova. G. Reza Yazdi Department of Physics, Chemistry and Biology, Linköping University, SE-58183 Linköping, Sweden	D.5.7
10:00	**INVITED: Forming-free Ta2O5 ReRAM Devices and its application beyond Data Storage** Vikas Rana[1] and Rainer Waser[1,2] 1. Peter Grünberg Institute-7, Forschungszentrum Jülich GmbH, 52428 Jülich, Germany; 2. IWE II, RWTH Aachen University, 52074 Aachen, Germany	D.5.8
10:30	Coffee Break	
Session VI: Catalytic Nanomaterials : Jost Adam, Rosaria Puglisi		
11:00	**INVITED: Precursor-mediated synthesis of inorganic nanomaterials for catalytic applications** Shashank Mishra Claude Bernard University of Lyon1, IRCELYON, 2 Avenue A. Einstein, 69626 Villeurbanne, France	D.6.1
11:30	**Computational design of bimetallic core-shell nanoparticles for hot carrier photocatalysis** Luigi Ranno, Stefano Dal Forno, Johannes Lischner Imperial College London	D.6.2
11:45	**Nanoscale Quantitative Chemical Analysis of Au-rich Nanostructures on Semiconductor Surfaces Using SEM/EDX and Machine Learning** Benedykt R. Jany, Arkadiusz Janas, Franciszek Krok Institute of Physics, Jagiellonian University, Lojasiewicza 11, PL30384 Krakow, Poland	D.6.3

12:00	**Enhanced photocatalysis and biomolecular sensing with a field-activated template** Sawsan Almohammed[1,2], Sebastian Tade Barwich[3], Andrew K. Mitchell[1], Brian J. Rodriguez[1,2] and James H. Rice[2] 1. School of Physics, University College Dublin, Belfield, Dublin 4, Ireland; 2. Conway Institute of Biomolecular and Biomedical Research, University College Dublin, Belfield, Dublin 4, Ireland; 3. School of Physics, Trinity College Dublin, Dublin 2, Ireland	D.6.4
12:15	**Hydration and porphyrin adsorption on powders and printed films of TiO2 anatase and rutile particles** O. Diwald[1], J. Schneider[1], A. Ziegler[1], T. Berger[1], P. Dzik[2] 1. Department of Chemistry and Physics of Materials, University of Salzburg, Jakob-Haringer-Strasse 2a, A-5020 Salzburg; 2. Fakulta Chemická, VUT v Brně, Brno University of Technology, Czech Republic	D.6.5
12:30	**Mapping Surface Free Energy of GaAs(001) during Droplet Epitaxy** C.X. Zheng, K. Hannikainen, Y.R. Niu, J. Tersoff, J. Pereiro, D. Gomez and D.E. Jesson ARC Centre of Excellence in Future Low-Energy Electronics Technologies, Monash University, Clayton, Victoria, Australia, School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom, School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom, IBM T. J. Watson Research Center, Yorktown Heights, New York, USA, School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom, School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom, School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom	D.6.6
12:45	**Multilayer nanowires: matrix synthesis and microscopy** Doludenko I.[1], Zhigalina O.[1], Khmelenin D.[1], Kanevski V.[1], Zagorskiy D.[1], Cherkasov D., Biziaev D.[2], Khaibullin R.[2], Shatalov A.[1] 1. Center of Crystallography and Photonics of RAS, Moscow, Russia; 2. Kazan Institute of Physics and Technology. E. K. Zavoisky Kazan Scientific Center of RAS, Kazan, Russia	D.6.7
13:00	Lunch Break	
Session VII: Perovskite Nanomaterials : Rosaria Puglisi, Jean-Claude Grivel		
14:00	**INVITED: Perovskite nanostructured films with functional properties for energy harvesting applications** Quentin Micard, Gugliemo G. Condorelli, Graziella Malandrino Dipartimento di Scienze Chimiche, Università degli Studi di Catania, INSTM UdR Catania Catania 95125, Italy	D.7.1
14:30	**FAPbX3 Perovskite Nanoparticle Composite Films and Its Applications** Duong Nguyen Minh, Youngjong Kang Department of Chemistry, Research Institute for Natural Sciences, Institute of Nano Science and Technology, Hanyang University	D.7.2

14:45	**Hybrid Perovskites for Photovoltaics: challenges and opportunities** Emanuele Smecca, Ajay Jena, Ioannis Deretzis, Gyu Min Kim, Yohuei Numata, Giovanni Mannino, Corrado Bongiorno, Antonino La Magna, Tsutomu Miyasaka and Alessandra Alberti CNR-IMM Zona industriale, Strada VIII 5, 95121, Catania, Italy, Toin University of Yokohama, Graduate School of Engineering, 1614 Kuroganecho, Aoba, Yokohama, 225-8503, Japan, CNR-IMM Zona industriale, Strada VIII 5, 95121, Catania, Italy, Toin University of Yokohama, Graduate School of Engineering, 1614 Kuroganecho, Aoba, Yokohama, 225-8503, Japan,Toin University of Yokohama, Graduate School of Engineering, 1614 Kuroganecho, Aoba, Yokohama, 225-8503, Japan, CNR-IMM Zona industriale, Strada VIII 5, 95121, Catania, Italy, CNR-IMM Zona industriale, Strada VIII 5, 95121, Catania, Italy, CNR-IMM Zona industriale, Strada VIII 5, 95121, Catania, Italy, Toin University of Yokohama, Graduate School of Engineering, 1614 Kuroganecho, Aoba, Yokohama, 225-8503, Japan, CNR-IMM Zona industriale, Strada VIII 5, 95121, Catania, Italy	D.7.3
15:00	**Fast photodiode using colloidal quantum dot through carrier acceleration at interface between metal oxide and the ligands** ShinYoung Jeong[1], Soon-kyu Cha[1], Byeoung-Kwon Ju[2] and IlKi Han[1] 1. Nanophotonics Research Center, Korea Institute of Science and Technology, Seoul, Korea; 2. School of Electrical Engineering, Korea University, Seoul, Korea	D.7.4
15:15	**Systematic trends in ABO3 perovskite as well as CaF2, BaF2 and SrF2 bulk and surface F-center calculations** R.I. Eglitis, A.I. Popov, J. Purans, R. Jia Institute of Solid State Physics, University of Latvia, 8 Kengaraga str., Riga LV1063, Latvia	D.7.5
15:30	Coffee Break	
Session VIII: Perovskite Nanomaterials : Yogendra Mishra, Malandrino Graziella		
16:00	**INVITED: Interfacial Engineering for Organic and Perovskite Solar Cells using Molecular Materials** Maria Vasilopoulou Institute of Nanoscience and Nanotechnology, National Center for Scientific Research "DEMOKRITOS", Terma Patriarchou Grigoriou, 15310, Agia Paraskevi, Greece	D.8.1
16:30	**Carrier and luminescence dynamics in quasi-two-dimensional perovskites** R. Gegevičius[1], A. Devižis[1], A. Fakharuddin[2], A. Kadaschuk[3], V. Gulbinas[1] 1. Center for Physical Sciences and Technology, Saulėtekio av.3, LT-10257 Vilnius, Lithuania; 2. Imec, Kapeldreef 75, 3001, Leuven, Belgium; 3. Institute of Physics, Prospect Nauky 46, 03028 Kyiv, Ukraine	D.8.2

16:45	**Indirect bandgap CsPbX3 nanocrystals -based X-ray detectors with negligible visible/UV light interference noise** Bin Xin[1], Naresh Alaal[1], Somak Mitra[1], Ahmad Subahi[2], Yusin Pak[1], Norah Alwadai[1,3], Iman S. Roqan[1]* 1. Physical Sciences and Engineering Division, King Abdullah University of Science and Technology (KAUST), Thuwal 23955-6900, Saudi Arabia; 2. King Saud Bin Abdulaziz University for Health Sciences, Jeddah 22384, Saudi Arabia; 3. Department of Physics, College of Sciences, Princess Nourah bint Abdulrahman University (PNU), Riyadh 11671, Saudi Arabia	D.8.3
17:00	**Efficient carrier transfer from CdSe/ZnS core-shell quantum dots to Perovskite CH3NH3PbI2Br** Il-Wook Cho and Mee-Yi Ryu Department of Physics, Kangwon National University, Chuncheon, Korea	D.8.4
17:15	**Ordered arrays of Ge(Si) quantum dots embedded in two-dimensional photonic crystals** Zh.V. Smagina[1], V.A. Zinovyev[1], E.E. Rodyakina[1,2], A.V. Nenashev[1,2], M.V. Stepikhova[3], A.N. Yablonskiy[3], A.V. Novikov[3], A.V. Dvurechenskii 1. Rzhanov Institute of Semiconductor Physics, Siberian Branch of Russian Academy of Sciences, 630090 Novosibirsk, Russia; 2. Novosibirsk State University, 630090 Novosibirsk, Russia; 3. Institute for Physics of Microstructures Russian Academy of Sciences, 603950 Nizhny Novgorod, Russia	D.8.5
17:30	**Tailoring Functional Properties in VA-Group Two-Dimensional Elemental Semiconductors** Liang Hu[1], Yu-Jia Zeng[1], Juanmei Duan[2] 1. Shenzhen Key Laboratory of Laser Engineering, College of Physics and Optoelectronic Engineering, Shenzhen University, Nanhai Avenue 3688, 518060 Shenzhen, P. R. China; 2. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Bautzner Landstrasse 400, 01328 Dresden, Germany	D.8.6
17:45	**The influence of structure on the fluctuations of fundamental absorption edge in (GeTe) x(Sb2Te3)1-x alloys** K. Shportko, E. Venger V. Lashkaryov Institute of Semiconductor Physics of NAS of Ukraine, Kyiv, Ukraine	D.8.7
18:00	Poster Session II: Yogendra Mishra, Jean-Claude Grivel, Jost Adam, Rosaria Puglisi	
	Photocatalytic decomposition of industrial dyes using doped ZnO thin films Jean-Claude Grivel Technical University of Denmark	D.P2.1
	Towards High-Fidelity Gold Nano-Antennas via 3D-Nanoprinting D. Kuhness[1], J. Sattelkow[1], R. Winkler[1], H. Plank[1,2,3] 1. Christian Doppler Laboratory - DEFINE, Graz University of Technology, 8010 Graz, Austria; 2. Institute of Electron Microscopy and Nanoanalysis, Graz University of Technology, 8010 Graz, Austria; 3. Graz Centre for Electron Microscopy, 8010 Graz, Austria	D.P2.2

	Nanowires based on the tobacco mosaic virus and gold nanoparticles Nataliia Kurgan, Volodymyr Karbivskyy G.V. Kurdyumov Institute for Metal Physics NAS of Ukraine	D.P2.3
	LaAlO3 substrate for thin-film devices: Optical properties at 0.8-8.8 eV between 10 and 300 K N. Nepomniashchaia, D. Chvostova, V. Vetokhina, A. Dejneka, M. Tyunina Institute of Physics of the Czech Academy of Sciences, Na Slovance 2,182 21 Prague 8, Czech Republic and Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering, Technicka 2, 166 27 Prague 6, Czech Republic, Institute of Physics of the Czech Academy of Sciences, Na Slovance 2,182 21 Prague 8, Czech Republic, Institute of Physics of the Czech Academy of Sciences, Na Slovance 2,182 21 Prague 8, Czech Republic, Institute of Physics of the Czech Academy of Sciences, Na Slovance 2,182 21 Prague 8, Czech Republic, Institute of Physics of the Czech Academy of Sciences, Na Slovance 2,182 21 Prague 8, Czech Republic and Microelectronics Research Unit, University of Oulu, P.O. Box 4500, FI-90014, Oulu, Finland	D.P2.4
	A Neuro-Fuzzy System for Predicting the Ageing Degradation of Tunneling Field-Effect Transistor T. Bentrcia[12,*], F. Djeffal[2] and H. Ferhati[2] 1. LEA, Department of Electronics, University of Batna 2, Batna 05000, Algeria; 2. LEPCM, University of Batna 1, Batna 05000, Algeria, * Corresponding author: E-mail: faycaldzdz@hotmail.com	D.P2.5
	Raman spectroscopy study of intra-layer and inter-layer processes in twisted bilayer graphene on hexagonal boron nitride Mourad Souibgui[1,*], Hosni Ajlani[1], Antonnela Cavanna[2], Ali Madouri[2], Meherzi Oueslati[1], Abdelaziz Meftah[1] 1. University of Tunis El Manar, Faculty of Sciences of Tunis, Unit of Research Nanomaterials and Photonic, 2092, Tunis, Tunisia, 2. CNRS/C2N, Route de Nozay, F-91460, Marcoussis, France * mourad.souibgui@gmail.com	D.P2.6
	Structure and properties of CdTe nanocrystals synthesized in track template Alma Dauletbekova[1]*, Rakhima Balakhayeva[1], Zein Baimukhanov[1], Artem Kozlovskii[2], Lyudmila Vlasukova[3], Abdirash Akilbekov[1], Sholpan Giniyatova[1] and Maxim Zdorovets[2,4] 1. Faculty of Physics and Technical Sciences, L.N. Gumilyov Eurasian National University, Nur-Sultan 010008, Kazakhstan; 2. Nur-Sultan Branch of Institute of Nuclear Physics, Nur-Sultan 010008, Kazakhstan; 3. Scientific Research Laboratory of Materials and Device Structures, Belarus State University, Minsk 220064, Belarus; 4. Ural Federal University, Yekaterinburg 620002, Russia	D.P2.7
	Pulsed Laser Annealing of Eu doped Lu2O3, Y2O3 and ZnO Thin Films Šárka Havlová[1,2], Michal Novotný[1,2], Přemysl Fitl[1,2], Jan Remsa[1], Jan Fara[1,2], Sergii Chertopalov[1], Martin Vondráček[1], Morgane Poupon[1], Lenka Volfová[1], Ladislav Fekete[1], Valter Kiisk[3], Raivo Jaaniso[3], Martin Vrňata[2] 1. Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic; 2. University of Chemistry and Technology, Prague, Czech Republic; 3. University of Tartu, Tartu, Estonia	D.P2.8

	Effect of Substituents of Thienylene-Vinylene-Thienylene-Based Polymers for Organic Field Effect Transistors and Photovoltaics Hee Su Kim, Do-Hoon Hwang Pusan National University	D.P2.9
	Efficient Polymer Donor Based on bi-Thienopyrroledione for Fullerene and Non-Fulleerene Organic Solar Cells Jong-Woon Ha, Do-Hoon Hwang* Pusan National University	D.P2.10
	Gas sensing properties of MASnI3 thin film Pham Tien Hung, Vu Xuan Hien, Phung Dinh Hoat, Sangwook Lee, Byoung-Seong Jeong, Joon-Hyung Lee, Jeong-Joo Kim, Young-Woo Heo* School of Materials Science and Engineering, Kyungpook National University (KNU), Daegu 41566, Korea	D.P2.11
	Light Harvesting Enhancement of Dye-sensitized Solar Cells with ZnO Nanoflowers Fang-I Lai, Jui-Fu Yang, Shou-Yi Kuo Electrical Engineering Program C, Yuan-Ze University, 135 Yuan-Tung Road, Chung-Li, 32003, Taiwan Department of Electronic Engineering, Chang Gung University, 259 Wen-Hwa 1st Road, Kwei-Shan, Taoyuan 333, Taiwan. Department of Urology, Chang Gung Memorial Hospital, Linkou, No.5, Fuxing Street, Kwei-Shan, Taoyuan 333, Taiwan	D.P2.12
	Self-assembled monolayer field-effect transistors (SAMFETs) and their application in complementary inverter circuits Baolin Zhao* Bastian Gothe, Marco Sarcletti and Marcus Halik University Erlangen-Nürnberg, Organic Materials & Devices - OMD, Interdisziplinären Zentrums für Nanostrukturierte Filme, Cauerstraße 3, 91058 Erlangen, Germany e-mail: baolin.zhao@fau.de	D.P2.13
	Metal-CNT Based Stretchable Electrodes for the Electrostatic Generation for Robotic Gripper Hanwhuy Lim, Baek-Jin Kim Korea Institute of Industrial Technology (KITECH), Green Chemistry Materials and Process R&D Group	D.P2.14
	Ce, Tb, Eu doped ZnO annealed films for LEDs application C. Guillaume[1], J.L. Frieiro[2], O. Blázquez[2], C. Labbé[1], B. Garrido[2], S. Hernández[2], C. Frilay[1], F. Lemarié[1] and X. Portier[1] 1. Normandie Université, ENSICAEN, UNICAEN, CEA, UMR CNRS 6252, CIMAP, 6 Boulevard du Maréchal Juin, 14050 Caen, France; 2. MIND-IN2UB, Departament d'Enginyeria Electrònica i Biomèdica, Universitat de Barcelona, Martí i Franquès 1, E-08028, Barcelona, Spain	D.P2.15

	Optical and structural studies of ZnO/CdO multiquantum wells grown on Si (111) substrate by MBE M.A. Pietrzyk[1], E. Zielony[2], M. Stachowicz[1], A. Wierzbicka[1], R. Szymon[2], E. Popko[2], A. Kozanecki[1] 1. Institute of Physics, Polish Academy of Sciences, Aleja Lotnikow 32/46 PL-02668, Warsaw, Poland; 2. Department of Quantum Technologies, Faculty of Fundamental Problems of Technology, Wroclaw University of Science and Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland	D.P2.16
	The effect of micro hole pattern and ITO nanograins on high efficiency III-nitride ultraviolet emitters Young-Ju Kwon[1], Joon-Sung Kwon[1], Beom-Rae Noh[1], Eun-Kyung Chu[1], Kwang-Gyun Im[1], Eung Hyuk Lee[3], and Kyoung-Kook Kim[1,2]* 1. Dept. of Advanced convergence Technology, and Research Institute of Advanced Convergence Technology, Korea Polytechnic University, 237, Sangidaehak-ro, Siheung-si,Gyeonggi-do 15073, Republic of Korea; 2. Dept. of Nano Optical Engineering, Korea Polytechnic University, 237, Sangidaehak-ro, Siheung-si, Gyeonggi-do 15073, Republic of Korea; 3. Dept. of Electronic Engineering, Korea Polytechnic University, 237, Sangidaehak-ro, Siheung-si, Gyeonggi-do 15073, Republic of Korea *E-mail: kim.kk@kpu.ac.kr	D.P2.17
	Characteristics comparison of shingled modules fabricated in various conditions Jeong Eun Park, Won Seok Choi, Jae Joon Jang, Donggun Lim Korea National University of Transportation	D.P2.18
	Effects of Structural modification in graphene by ion implantation on optical, electronic and sensing properties Priya Darshni Kaushik[1, 2], Marius Rodner[1], Ivan G. Ivanov[1], Jens Eriksson[1], G. Greczynski[1], Rositsa Yakimova[1], Mikael Syväjärvi[1], G. Reza Yazdi[1] 1. Department of Physics, Chemistry and Biology, Linköping University, SE-58183 Linköping, Sweden; 2. Department of Physics, Jamia Millia Islamia, New Delhi-110025 India	D.P2.19
	Characterization of p-type ZnO thin film grown by RF magnetron sputtering and thermal annealing Ye-Bin Im[1], Si-Won Kim[1], Gyu-Jae Yohn[1], So-Yeon Park[2], Suyeon Son[1], Eung Hyuk Lee[3] and Kyoung-Kook Kim[1,2,*] 1. Dept. of Advanced convergence Technology, and Research Institute of Advanced Convergence Technology, Korea Polytechnic University, 237, Sangidaehak-ro, Siheung-si, Gyeonggi-do 15073, Republic of Korea; 2. Dept. of Nano Optical Engineering, Korea Polytechnic University, 237, Sangidaehak-ro, Siheung-si, Gyeonggi-do 15073, Republic of Korea; 3. Dept. of Electronic Engineering, Korea Polytechnic University, 237, Sangidaehak-ro, Siheung-si, Gyeonggi-do 15073, Republic of Korea *E-mail address: kim.kk@kpu.ac.kr	D.P2.20
	InP nanowires grown on epitaxial graphene Ewa Dumiszewska[1], Piotr Caban[1], Piotr Knyps[1], Dariusz Czołak[1], Iwona Jóźwik[1], Jakub Kierdaszuk[2], Aneta Drabińska[2], Andrzej Wysmołek[2], JarosŁ,aw Gaca[1], Marek Wójcik[1] 1. Institute of Electronic Materials Technology, Wolczynska 133, 01-919, Warsaw, Poland; 2, Faculty of Physics, University of Warsaw, Pasteura 5, Warsaw, Poland	D.P2.21

	Graphene/ferroelectric HfO2-based nanostructures for nanoelectronic applications A. Radu, C. Berbecaru, S. Iftimie, V.-A. Antohe, L. Ion, S. Antohe and D. Dragoman University of Bucharest, Faculty of Physics, 405 Atomistilor Street, 077125, Magurele, Ilfov, Romania	D.P2.22
	Electrical Analysis of Laser Doped Selective Emitters by Nanosecond Green Laser Process Jae Joon Jang, Jeong Eun Park, Won Seok Choi, Donggun Lim Korea National University of Transportation	D.P2.23
	Cathodoluminescence characterization of AlN nanotube/CsI scintillator and AlN nanotube/polymer composites A.I. Popov[1], C. Balasubramanian[2], H.Klym[3], O.I. Aksimentyeva[4], E. Elsts[1], A.Moskina[1] 1. Institute of Solid State Physics, University of Latvia, Latvia; 2. Institute for Plasma Research, Bhat, Gandhinagar, 382 044. India; 3. Lviv Polytechnic National University, 12 Bandera St., Lviv, 79646, Ukraine; 4 Ivan Franko National University of Lviv, 79017 Lviv, Ukraine	D.P2.24
	Synthesis of pHEMA-TiO2 hybrid materials by photopolymerization. Effect of inorganic nanoparticles loading on the polymerization Luu Thi Thuy Hoa[1,2], Zixian Jia[1,2], Luc Museur[1], Mamadou Traore[2], Andrei Kanaev[2] 1. LPL, Laboratoire de Physique des Lasers, Université Paris 13, Sorbonne Paris Cité, 93430 Villetaneuse, France; 2. LSPM-CNRS, Laboratoire des Sciences des Procédés et des Matériaux, UniversitéParis 13, Sorbonne Paris Cité, 93430 Villetaneuse, France	D.P2.25
	Characterization of thin films according to various complexing agents in the production of ZnS buffer layer using solution reuse So Mang Park, Jeong Eun Park, Seon Wol Jeon, Eun Ji Bae, Donggun Lim **Korea National University of Transportation**	D.P2.26
	Leaf-mountable strain sensors using CNT-Ecoflex composite material Bonjin Koo, Yong Suk Yang, Sung Hoon Hong Electronics and Telecommunications Research Institute (ETRI)	D.P2.27
	Parylene based multi-layer encapsulation for organic light emitting diode with a single chamber Jae-Hyun Lee, Akpeko Gasonoo, Min-Hoi Kim, Yoonseuk Choi Hanbat National University, Republic of Korea	D.P2.28
	Three focused ion beam nanofabrication of plasmonic devices T. Leißner[1], Shailesh Kumar[2], Martin Thomaschewski[2], J. Adam[1], S. Chiriaev[1], J. Fiutowski[1], Sergey I. Bozhevolnyi[2], H.-G. Rubahn[1] 1. Center NanoSYD, Mads Clausen Institute, University of Southern Denmark, Alsion 2, DK-6400 Sønderborg, Denmark; 2Center Nano Optics, Mads Clausen Institute, University of Southern Denmark, Campusvej 55, 5230 Odense, Denmark	D.P2.29

Symposium D Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session IX: Nanomaterials based Photovoltaics : Jost Adam, Yogendra Mishra		
13:00	**INVITED: Plasmonic nanostructures for light trapping in photovoltaics** Seweryn Morawiec[1] and Isodiana Crupi[2] 1. Institute of Physics, Faculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University, ul. Grudziadzka 5, 87-100 Torun, Poland; 2. Engineering Department, University of Palermo, Viale delle Scienze, Ed. 9, I-90128 Palermo, Italy	D.9.1
13:30	**Current transport mechanisms in ZnO:N/n-SiC(6H) heterojunction LEDs** E. Przeździecka[1], S. Chusnutdinow[1], A. Wierzbicka[1], M. Guziewicz[2], S. Prucnal[3], M. Stachowicz[1], W. Zaleszczyk[4], S. Zhou[3], A. Kozanecki[1] 1. Polish Academy of Sciences, Institute of Physics, Al. Lotników 32/46, Warszawa; 2. Institute of Electron Technology, Al. Lotników 32/46, Warszawa; 3. Institute of Ion Beam Physics and Materials Research Bautzner Landstrasse 400, 01-328 Dresden, Germany; 4. International Research Centre MagTop, Polish Academy of Sciences, Institute of Physics, Al. Lotników 32/46, Warszawa	D.9.2
13:45	**Influence of cryogenic dry etching of silicon on defect formation** Baranov A.I.[1], Kudryashov D.A.[1], Morozov I.A.[1], Uvarov A.V.[1], Zelentsov K.S.[1], Gudovskikh A.S.[1,2] 1. St Petersburg Academic University of RAS, 194021 St Petersburg, Russia; 2. St Petersburg Electrotechnical University "LETI", 197376 St Petersburg, Russia	D.9.3
14:00	**Single organic molecules self-assembled on Silicon Nanowires** Sebastiano Caccamo, Corrado Bongiorno, Giuseppe Fisicaro, Giovanni Mannino, Antonino La Magna, Rosaria A. Puglisi CNR Institute for Microelectronics and Microsystems, Strada VIII n.5, Zona Industriale, 95121 Catania, Italy	D.9.4
14:15	**Solution-Process Feasible Blue-Hazard-Free Candlelight OLED** Deepak Kumar Dubey[1], Sudam Chavhan[1], Fu-Ching Tung[2] and Jwo-Huei Jou[1]* 1. Department of Materials Science and Engineering, National Tsing-Hua University, 101 Sec2 Kuang -Fu Road, Hsinchu -30013 Taiwan; 2. Mechanical and Mechatronics Systems Research Laboratories, Industrial Technology Research Institute, Hsinchu 31057, Taiwan, R.O.C.	D.9.5

14:30	**Nanodiamond surface chemistry controls assembly of organic dye and photovoltage** Daria Miliaieva[1], Petra Matunova[1,2], Jan Cermak[3], Stepan Stehlik[3], Adrian Cernescu[4], Zdenek Remes[3], Pavla Stenclova[3] and Bohuslav Rezek[1] 1. Institute of Physics of the Czech Academy of Sciences Faculty of Electrical Engineering of the Czech Technical University in Prague; 2. Walter Schottky Institut and Physik-Department, Technische Universität München, Am Coulombwall 4a, D-85748 Garching, Germany; 3. Institute of Physics of the Czech Academy of Sciences; 4. Neaspec GmbH,Bunsenstrasse 5,82152 Planegg, Germany	D.9.6
14:45	**Silicon Oxynitride thin films doped with Cerium for MOS-LED applications** F. Ehré[1], C. Dufour[1], F. Gourbilleau[1], X. Portier[1], J. Cardin[1], P. Marie[1], C. Frilay[1], B. Garrido[2], O. Blazquez[2], W.M. Jadwisienczak[3], David C. Ingram[4], C. Labbé[1] 1. CIMAP, Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 14000 Caen, France; 2. MIND-IN2UB, Departament d'Electrònica, Universitat de Barcelona, Martí i Franquès 1, E 08028, Barcelona, Spain; 3. School of Electrical Engineering and Computer Science, Ohio University, Stocker Center, Athens, OH 45701, USA; 4. Department of Physics and Astronomy, Ohio University, Athens, OH 45701, USA	D.9.7
15:00	**Density of States evaluation of Molybdenum Oxide for c-Si solar cell** Daniele Scirè, Yilong Zhou, Paul Procel, Guangtao Yang, Salvo Mirabella, Luca Spitaleri, Antonino Gulino, Olindo Isabella, Miro Zeman, Isodiana Crupi Università degli Studi di Palermo, Dipartimento di Ingegneria, Delft University of Technology, Photovoltaic Materials and Devices group, Delft University of Technology, Photovoltaic Materials and Devices group, Delft University of Technology, Photovoltaic Materials and Devices group, Università degli Studi di Catania, Dipartimento di Fisica e Astronomia, Università degli Studi di Catania, Dipartimento di Scienze Chimiche, Università degli Studi di Catania, Dipartimento di Scienze Chimiche, Delft University of Technology, Photovoltaic Materials and Devices group, Delft University of Technology, Photovoltaic Materials and Devices group, Università degli Studi di Palermo, Dipartimento di Ingegneria	D.9.8
15:15	**Thermally stimulated evolution of structural and optical properties of Er-doped Al2O3 thin films grown by ALD approach** L. Khomenkova, C. Labbé, C. Frilay, J. Cardin, X. Portier, F. Gourbilleau CIMAP, Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 6 Boulevard Maréchal Juin 14050 Caen Cedex 4, France	D.9.9
15:30	Coffee Break	
Session X: New Materials and Approaches : Jost Adam, Jean-Claude Grivel		
16:00	**Effects of Crystallite Size Distribution on the Raman-Scattering Profiles of Germanium Nanostructures** Chawki Awada*, Adil Alshoaibi, Abdullah Aljaafari Physics Department, College of Science, King Faisal University, Hofuf, AL-Hasa 31982, Kingdom of Saudi Arabia	D.10.1
16:15	**Intrinsic point defects in III-V nitrides and their solid solutions and interfaces: a atomistic approach** Lei Zhu, John Buckeridge, Alexey A. Sokol, Richard A. Catlow Department of Chemistry, University College London (UCL)	D.10.2

16:30	**Thin film Heusler alloys from the Rh-Mn-Sb and Ir-Mn-Sb ternary system** Stanislav Cichoň, Jarmila Balogová, Michal Rameš, Radek Ješko, Jan Vlček, Ján Lančok, Joris More-Chevalier Institute of Physics of the Czech Academy of Sciences Na Slovance 1999/2 Prague 18221 Czechia	D.10.3
16:45	**High-Resolution Infrared Laser Tomography of Pyroelectric Materials** Stefan Tappertzhofen, S. Bette aixACCT Systems GmbH, Aachen, Germany	D.10.4
17:00	**Phase equilibriums in the binary CdAs2-Mn system** E. Trifonofa, S. Marenkin, A. Ril, I. Fedorchenko, O. Rabinovich, S. Didenko Kurnakov Institute of General and Inorganic Chemistry, Russian Academy of Science NUST MISIS	D.10.5
17:15	**Effect of Ar energy implantation on the strain propagation in AlGaN** J.S. Cabaço, J.P. Araújo, E. Alves, S. Magalhães IFIMUP, Departamento de Física e Astronomia da Faculdade de Ciências da Universidade do Porto, Rua do Campo Alegre, 687, 4169-007 Porto, Portugal, IPFN, Campus Tecnológico e Nuclear, Instituto Superior Técnico, Universidade de Lisboa, Estrada Nacional 10, 2695-066, Bobadela LRS, Portugal	D.10.6
17:30	**Molecularly imprinted polymers for selective determination of genetically relevant hexa- and octanucleotides** Wlodzimierz Kutner[1,2], Katarzyna Bartold[1], Agnieszka Pietrzyk-Le[1], Karolina Golebiewska[1], Wojciech Lisowski[1], Tan-Phat Huynh[1,4], Zofia Iskierko[1], Marta Sosnowska[1,4], Krzysztof Noworyta[1], Silvia Cauteruccio[3], Emanuela Licandro[3] and Francis D'Souza[4] 1. Institute of Physical Chemistry, Polish Academy of Sciences, Kasprzaka 44/52, 01-224 Warsaw, Poland; 2. Faculty of Mathematics and Natural Sciences, School of Sciences, Cardinal Stefan Wyszynski University in Warsaw, Wóycickiego 1/3, 01-938 Warsaw, Poland; 3. Department of Chemistry, University of Milan, Via Golgi 19, I-20133 Milan, Italy; 4. Department of Chemistry, University of North Texas, 1155 Union Circle, No. 305070, Denton, Texas 76203-5017, United States	D.10.7
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium D Program

Thursday, September 19 th, 2019

Session XI: Carbon Nanomaterials (1D-3D) : Yogendra Mishra, Jean-Claude Grivel

08:00	**INVITED: Can the magnetic order of a 2D material be inferred from the absorption spectrum?** **An ab initio study of MnPS3** Magdalena Birowska, Jens Kunstmann University of Warsaw, Faculty of Physics, Pasteura 5, 02-093 Warsaw, Poland, Department of Chemistry and Food Chemistry TU Dresden, 01062 Dresden, German	D.11.1
08:30	**Luminescent properties of coaxial InGaN/GaN multi-quantum shell with AlGaN undershell grown on GaN nanowire** Weifang Lu[1]*, Nanami Goto[1], Naoki Sone[1,3], Kazuyoshi Iida[1,4], Atsushi Suzuki[1], Hedeki Murakami[1], Mizuki Terazawa[1], Masaki Ohya[1,4], Motoaki Iwaya[1], Tetsuya Tekeuchi[1], Satoshi Kamiyama[1] and Isamu Akasaki[1,2] 1. Department of Materials Science and Engineering, Meijo University, 1-501 Shiogamaguchi, Tenpaku-ku, Nagoya, 468-8502, Japan; 2. Akasaki Research Center, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 460-8601, Japan; 3. Koito Manufacturing CO., LTD.; 4. Toyoda Gosei CO., LTD.	D.11.2
08:45	**Graphene deposited on 3D AlGaN-based microcolumns: A role of strain** Ewelina Rozbiegała[1,2], Sebastian Zlotnik[1], Karolina Piętak[1,3] and Mariusz Rudziński[1] 1. Łukasiewicz Research Network - Institute of Electronic Materials Technology, Wolczynska 133, 01-919 Warsaw, Poland; 2. Warsaw University of Technology, Faculty of Materials Science and Engineering, Woloska 141, 02-507 Warsaw; 3. Warsaw University of Technology, Faculty of Chemistry, Noakowskiego 3, 00-664 Warsaw	D.11.3
09:00	**Pick and place transfer of CVD synthesized graphene for angle controlled twisted bi- and multi-layer graphene** Jaeyoung Lim, Dongmok Whang SAINT Sungkyunkwan University	D.11.4
09:15	**Wearable and Flexible Sensors based on Graphene, 2D TMDC and MXene** Choon-Gi Choi[1,2] 1. Graphene Research Lab. Electronics and Telecommunications Research Institute (ETRI), Daejeon, Korea; 2. School of ETRI (ICT-Advanced Device Technology), University of Science and Technology (UST), Daejeon, Korea Email address of presenting author: cgchoi@etri.re.kr	D.11.5

09:30	**Two dimensional indium sulfide with excellent optoelectronic properties** Azmira Jannat, Jian Zhen Ou School of Engineering, RMIT University, Melbourne, Australia	D.11.6
09:45	**Facile and General Method for the Layer-by-layer Thinning of 2D Materials** Jianbo Sun, Maurizio Passacantando, Luca Camilli Department of Physics, Technical University of Denmark, Department of Physical and Chemical Sciences, University of L'Aquila, Department of Physics, Technical University of Denmark	D.11.7
10:00	**Structural studies of ZnO/ZnMgO multilayer quantum structures on c-plane ZnO grown by MBE** M. Stachowicz[1], J.M. Sajkowski[1], A. Pieniazek[1], S. Kryvyi[1], M. Kozubal[2], A. Kozanecki[1] 1. Institute of Physics, Polish Academy of Sciences, Al. Lotników 32/46 PL-02-668 Warsaw, Poland; 2. Institute of Electron Technology, Al. Lotników 32/46 PL-02-668 Warsaw, Poland	D.11.8
10:15	Coffee Break	
Session XII: Carbon Nanomaterials (1D-3D) : Jost Adam, Rosaria Puglisi		
11:00	**INVITED: Towards carbon nanotube networks of tailored properties** Dawid Janas Faculty of Chemistry, Silesian University of Technology, B. Krzywoustego 4, 44-100 Gliwice, Poland	D.12.1
11:30	**Taste sensor applications using 2D materials** Chungwon Lee, Jun Min Suh, Ho Won Jang Seoul National University	D.12.2
11:45	**Towards Three-Dimensional Graphene Nanoelectronic Devices** Siva Reddy, Assaf Ya'akobovitz Faculty of Engineering Sciences Ben-Gurion University of the Negev, Israel	D.12.3
12:00	Lunch Break	
Session XIII: Nanodevices and Sensors : Yogendra Mishra, Rosaria Puglisi		
13:00	**INVITED: Metal and metal oxide 0D-3D structures in porous silicon by electrochemical methods for sensors and medicine** Yulia Spivak Saint-Petersburg Electrotechnical University "LETI"	D.13.1

13:30	**Highly sensitive piezotronic sensors based on GaAs Nanowires** Yonatan Calahorra[1], Anke Husmann[1], Alice Bourdelain[2], Wonjong Kim[3], Jelena Vukajlovic-Plestina[3], Chess Boughey[1], Qingshen Jing[1], Anna Fontcuberta i Morral[3], Sohini Kar-Narayan[2] 1. Materials Science and Metallurgy, University of Cambridge, 27 Charles Babbage Road, Cambridge, CB3 0FS, UNITED KINGDOM; 2. Ecole Centrale de Lyon, Ecully, Rhône-Alpes, FRANCE; 3. Ecole Polytechnique Federale de Lausanne, Institut des Materiaux, BM 2138 (Batiment BM), Station 17, CH-1015 Lausanne, Lausanne, SWITZERLAND	D.13.2
13:45	**Functionalization of CVD Compatible Polymer Films for Sensing Applications** Merve Ozpirin, Ozgenc Ebil Department of Chemical Engineering, Izmir Institute of Technology	D.13.3
14:00	**Hybrid Stretchable Conductor Comprising Ag Nanowires and Liquid Metal for Use in Electronic Skin Systems** Kunmo Chu, Yoonchul Sohn, Jai Kwang Shin Samsung Advanced Institute of Technology, Chosun University, Samsung Advanced Institute of Technology	D.13.4
14:15	**High Energy Conversion Efficient Bio-Piezoelectric Energy Harvester based on Nature Driven Spider Silk** Sumanta Kumar Karan, Bhanu Bhusan Khatua Materials Science Centre, Indian Institute of Technology Kharagpur, Kharagpur-721302, India	D.13.5
14:30	**Ultrathin, Flexible, and Highly Sensitive Triboelectric Sensor Based on Carbon Fiber Composite with Hierarchical Architecture** Changyoon Jeong, Young-Bin Park* UNIST (Ulsan National Institute of Science and Technolog)	D.13.6
14:45	**Synthesis of Fe-based metal organic frameworks films on Si for gas sensing** Francesca Monforte[1,2], Mario Falsaperna[2], Anna Lucia Pellegrino[2], Corrado Bongiorno[1], Giovanni Mannino[1], Guglielmo Guido Condorelli[2] 1. CNR-IMM, Strada VIII n°5 Zona Industriale, 95121 Catania, (Italy); 2. Dipartimento di Scienze Chimiche, Università di Catania and INSTM UdR Catania, Viale Andrea Doria 6, 95125, Catania, (Italy)	D.13.7
15:00	Coffee Break	

Symposium E

Sessions: Room 437a | Main Building
Poster Session: Small Hall | Main Building

INFORMATION AND COMMUNICATION TECHNOLOGIES:

Caloric materials for efficient heat management applications: advances and challenges

Symposium Organizers: **Emmanuel DEFAY**, LIST, Luxembourg
Hana URSIC, Jozef Stefan Institute, Slovenia
Magdalena WENCKA, Institute of Molecular Physics, Poland

SYMPOSIUM E TIMETABLE

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Symposium E location

Sessions: 437a | Main Building
Poster Session: Small Hall | Main Building

Symposium E Program

Tuesday, September 17 th, 2019

Session I: Electrocaloric materials and their properties I : Hana Ursic

09:00	**Recent Progress on the Development of Electrocaloric Multilayer Ceramic Capacitors** Sakyo Hirose[1], Tomoyasu Usui[1], Bhasi Nair[2], Xavier Moya[2], Emmanuel Defay[3], and Neil D. Mathur[2] 1. Murata Manufacturing Co., Ltd., Kyoto 617-8555, Japan; 2. Department of Materials Science, University of Cambridge, Cambridge CB3 0FS, UK.; 3. Luxembourg Institute of Science and Technology, Belvaux L-4422, Luxembourg.	E.1.1
09:30	**Experimental improvement of Electrocaloric heat exchangers by guidance of numerical modelling** A. Torelló[1-2]*, Y. Nouchokgwe[1-2], P. Lheritier[1], T. Usui[3], S. Hirose[3], and E. Defay[1] 1. Materials Research Technology Department, Luxembourg Institute of Science and Technology, 41 Rue du Brill, L-4422 Belvaux, Luxembourg; 2. University of Luxembourg, 2, avenue de l'Université, 4365 Esch-sur-Alzette; 3. Murata Manufacturing Co., Ltd., Nagaokakyo, Japan	E.1.2
09:45	**Direct measurements of Electro-Caloric Efficiency** Youri Nouchokgwe[1,2], Alvar Torello[1,2], Pierre Lhéritier[1], Régis Vaudemont[1], Olivier Bouton[1], Chang-Hyo Hong[3], Wook Jo[3], Tomoyasu Usui[4], Sakyo Hirose[4], Emmanuel Defay[1] 1. Luxembourg Institute of Science and Technology, 41 rue du Brill, L-4422 Belvaux, Luxembourg; 2. University of Luxembourg, 2 Avenue de l'Université, 4365 Esch-sur-Alzette, Luxembourg; 3. School of Materials Science and Engineering, Ulsan National Institute of Science and Technology, Ulsan 44919, South Korea; 4. Murata Manufacturing Co. Ltd., Higashikotari 1, Nagaokakyo, Kyoto 617–8555, Japan	E.1.3
10:00	**Temperature and electrical field dependence of PST thermal properties** Pierre Lhéritier[1], Alvar Torello[1,2], Youri Nouchokgwe[1,2], Emmanuel Defay[1] 1. Luxembourg institute of science and technology; 2. University of Luxembourg	E.1.4
10:15	**Defect-engineering for improving electrocaloric performances** Junning Li[1], Jing Lv1, Dawei Zhang[1], Lixue Zhang[1], Xihong Hao[2], Ming Wu[1], Bai-Xiang Xu[3], Mojca Otonicar[4], Turab Lookman[5], and Xiaojie Lou[1], Brahim Dkhil[6]* 1. Frontier Institute of Science and Technology and State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, Xi'an 710049, China; 2. Inner Mongolia Key Laboratory of Advanced Ceramic Materials and Devices, Inner Mongolia University of Science and Technology, Baotou 014010, China; 3. Institute of Materials Science, Technical University of Darmstadt, 64287 Darmstadt, Germany; 4. Electronic Ceramics Department, Jožef Stefan Institute, Jamova cesta 39, 1000 Ljubljana, Slovenia; 5. Theoretical Division, Los Alamos National Laboratory, Los Alamos, New Mexico, 87545, USA; 6. Laboratoire Structures, Propriétés et Modélisation des Solides, CentraleSupélec, CNRS-UMR8580, Université Paris-Saclay, 91190 Gif-sur-Yvette, France E-mail : brahim.dkhil@centralesupelec.fr	E.1.5

10:30	Coffee Break	
Session II: Electrocaloric materials and their properties II : Sakyo Hirose		
11:00	**Direct measurements on the large electrocaloric effect in ferroelectric and antiferroelectric PLZT based ceramics** X.D. Jian, X.W. Lin, Y.B. Yao, B. Liang, T. Tao, and S.G. Lu* Guangdong Provincial Research Center on Engineering and Technology of Smart Materials and Energy Conversion Devices, Guangdong Provincial Key Laboratory of Functional Soft Condensed Matter, School of Materials and Energy, Guangdong University of Technology, Guangzhou, 510006	E.2.1
11:30	**Electrocaloric properties of original lead-free barium titanate based ferroelectric relaxor material for cooling application** S. Bellafkih[1,2], E. Bsaibess[2], D. Fasquelle[2], P. Dumoulin[1], A. Hadj Sahraoui[2], S. Longuemart[2] 1. CEA Liten, 17 Avenue des Martyrs, 38000 Grenoble, France; 2. Univ. Littoral Côte d'Opale, EA 4476 UDSMM, Unité de Dynamique et Structure des Matériaux Moléculaires, F-59140 Dunkerque, France	E.2.2
11:45	**Large electrocaloric effect over a wide temperature range in BaTiO3-modified lead-free ceramics** Luo Zhao, Xiaoqin Ke, Xiaobing Ren Frontier Institute of Science and Technology	E.2.3
12:00	**Nanoconfinement-Induced Giant Electrocaloric Effect in Ferroelectric Polymer Nanowire Array Integrated with Aluminum Oxide Membr** Guangzu Zhang, Shenglin Jiang, Qing Wang School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, Hubei 430074, China Department of Materials Science and Engineering, The Pennsylvania State University, University Park, PA 16802, USA	E.2.4
12:15	**Modeling and simulation of switching - induced dissipation heating in polycrystalline ferroelectrics with two different methods** Andreas Warkentin, Marius Wingen, Andreas Ricoeur Institute of Mechanics, Chair of Engineering Mechanics / Continuum Mechanics, University of Kassel, Moenchebergstr. 7, 34109 Kassel, Germany	E.2.5
12:30	Lunch Break	
Session III: Electrocalorics and magnetocalorics : Emmanuel Defay		
14:00	**Making a difference in calorics** Vitalij K Pecharsky Ames Laboratory and Department of Materials Science and Engineering Iowa State University Ames, Iowa 50011 U.S.A.	E.3.1

14:30	**Magnetocaloric Properties and Critical Behavior of Co2Cr1-xMnxAl Heusler Alloys** Priyanka Nehla[1], V. K. Anand[2], Bastian Klemke[2], Bella Lake[2], and R. S. Dhaka[1] 1. Department of Physics, Indian Institute of Technology Delhi, Hauz Khas, New Delhi-110016, India; 2. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Hahn-Meitner Platz 1, D-14109 Berlin, Germany	E.3.2
14:45	**Microsecond Dynamics of the Magneto- and Electrocaloric Effect** Jago Döntgen, Jörg Rudolph, Daniel Hägele Ruhr University Bochum, Ruhr University Bochum, Ruhr University Bochum	E.3.3
15:00	**Multicaloric properties of (1-x)Pb(Fe0.5Nb0.5)O3-xBiFeO3 ceramic materials** Uros Prah[1,2], Tadej Rojac[1,2], Magdalena Wencka[3], Mirela Dragomir[1], Andreja Bencan[1,2], Rachel Sherbondy[4], Geoff Brennecka[4], Hana Ursic[1,2] 1. Jozef Stefan Institute, Jamova cesta 39, 1000 Ljubljana, Slovenia; 2. Jozef Stefan International Postgraduate School, Jamova cesta 39, 1000 Ljubljana, Slovenia; 3. Institute of Molecular Physics, Polish Academy of Sciences, ul. Smoluchowskiego 17, 61-179 Poznań, Poland; 4. Colorado School of Mines, 1500 Illinois St., Golden, CO 80401, USA	E.3.4
15:15	**Scanning transmission electron microscopy analysis of domain walls in BiFeO3** Andreja Benčan[1,2]*, Goran Dražić[1,2,3], Hana Uršič[1,2], Maja Makarovič[1,2] and Tadej Rojac[1,2] 1. Electronic Ceramics Department, Jožef Stefan Institute, Jamova cesta 39, 1000 Ljubljana, Slovenia; 2. Jožef Stefan International Postgraduate School, Jamova cesta 39, 1000 Ljubljana, Slovenia; 3. Department of Materials Chemistry, National Institute of Chemistry, Hajdrihova ulica 19, Ljubljana, Slovenia. *Corresponding author: andreja.bencan@ijs.si	E.3.5
15:30	Coffee Break	
Session IV: Magnetocaloric materials and devices : Vitalij Pecharsky		
16:00	**Magnetocaloric effect and magneto-structural transformation in materials with first-order field-induced transitions** Konstantin Skokov, Oliver Gutfleisch Technische Universität Darmstadt, Institut für Materialwissenschaft, D-64287 Darmstadt, Germany	E.4.1
16:30	**Influencing hysteresis in magnetocaloric epitaxial Ni-Mn-Ga-Co films by grain boundaries** Klara Lünser[1,2], Kornelius Nielsch[1,2], Sebastian Fähler[1] 1. Leibniz IFW Dresden, Institute for Metallic Materials, Dresden, D-01069, Germany; 2. TU Dresden, Institute of Materials Science, Dresden, D-01062, Germany	E.4.2

16:45	**Magnetocaloric effect and magnetic phase diagram of Ni-Mn-Ga-based Heusler shape-memory in static and pulsed magnetic fields** Yu.S. Koshkid'ko[1], E.T. Dilmieva[2], J. Cwik1, K. Rogacki[1], C. Salazar-Mejía[3], A.P. Kamantsev[2], V.V.Koledov[2], A.V. Mashirov[2], V.G. Shavrov[2], V.V. Khovaylo[4] 1. Institute of Low Temperature and Structure Research, PAS, WrocĹaw, Poland; 2. Kotelnikov Institute of Radio Engineering and Electronics of RAS, Moscow, Russia; 3. Dresden High Magnetic Field Laboratory (HLD-EMFL), Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. National University of Science and Technology MISiS, Moscow, Russia	E.4.3
17:00	**Investigation on the effect of Galinstan on structural and magnetic properties of MnFe(P,Si) and La(Fe,Mn,Si)H based compounds** Keerthivasan Rajamani[1], Fengqi Zhang[2], Ekkes Brück[2] and Mina Shahi[1] 1. Laboratory of Thermal Engineering, Faculty of Engineering Technology, University of Twente, Enschede, The Netherlands; 2. Fundamental Aspects of Materials and Energy (FAME), Faculty of Applied Sciences, Delft University of Technology, Delft, The Netherlands	E.4.4
17:15	**Surface and bulk magnetocaloric effect in Ni-Mn-Ga thin films** Ji-yeob Kim[1], Simone Fabbrici[2], Francesca Casoli[2], M. Ghidini[1,3,4], F. Maccherozzi[4], S.S. Dhesi[4], N. D. Mathur[1], Franca Albertini[2], Xavier Moya[1] 1. Department of Materials Science, University of Cambridge, Cambridge, CB3 0FS, UK; 2. IMEM-CNR, Parco Area delle Scienze 37/a, 43010 Parma, Italy; 3. Department of Mathematics, Physics and Computer Science, University of Parma, 43124 Parma, Italy; 4. Diamond Light Source, Chilton, Didcot, Oxfordshire, OX11 ODE, UK	E.4.5
17:30 Poster Session I: Andreja Benčan		
	Two-dimensional lead-free inorganic-organic hybrids: Magnetocaloric properties to critical exponents Madhu Bochalya and Sunil Kumar Department of Physics, Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110016	E.P.1
	Fluorides and Oxyfluorides: Successive Ferroelastic Phase Transitions and Barocaloric Effect Mikhail Gorev[1,2], Evgeniy Bogdanov[1,3], Igor Flerov[1,2] 1. Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russia; 2. Institute of Engineering Physics and Radioelectronics, Siberian Federal University, Krasnoyarsk, Russia; 3. Institute of Engineering Systems and Energy, Krasnoyarsk State Agrarian University, Krasnoyarsk, Russia	E.P.2
	Influence of neutron and gamma irradiation on the electrocaloric properties of (1-x) Pb(Mg1/3Nb2/3)-xPbTiO3 ceramics Hana Ursic, Anze Jazbec, Luka Snoj, Uros Prah, Andraz Bradesko, Tadej Rojac, Silvo Drnovsek, Marko Vrabelj and Barbara Malic Jozef Stefan Institute, Jamova cesta 39, 1000 Ljubljana, Slovenia, Jozef Stefan International Postgraduate School, Jamova cesta 39, 1000 Ljubljana, Slovenia, University of Ljubljana, Faculty of Mathematics and physics, Jadranska cesta 19, 1000 Ljubljana, Slovenia, current address of Marko Vrabelj: TDK Electronics GmbH & Co OG, Siemensstrasse 43, 8530 Deutschlandsberg, Austria	E.P.3

Anisotropy of piezocaloric effect at ferroelectric phase transitions in ammonium hydrogen sulphate E.P.4

E.A. Mikhaleva[1], M.V. Gorev[1,2], M.S. Molokeev[1,2,3], A.V. Kartashev[1,4], I.N. Flerov[1,2]

1. Kirensky Institute of Physics, Federal Research Center KSC SB RAS, 660036 Krasnoyarsk, Russia; 2. Institute of Engineering Physics and Radioelectronics, Siberian Federal University, 660074 Krasnoyarsk, Russia; 3. Department of Physics, Far Eastern State Transport University, Khabarovsk, Russia 680021; 4. Astafijev Krasnoyarsk State Pedagogical University, 660049 Krasnoyarsk, Russia

Multiferroic hybrid organic-inorganic perovskites with giant barocaloric effects E.P.5

Jorge Salgado-Beceiro[1], J.M. Bermudez-Garcia[1,2], X. Moya[2], A. Nonato[3], R. X. Silva[4], Alberto Garcia-Fernandez[1], Jorge Lopez-Beceiro[5], Ramón Artiaga[5], Socorro Castro-Garcia[1], Manuel Sanchez-Andujar[1], María Antonia Señaris-Rodriguez[1]

1. University of A Coruna, QuiMolMat Group, Dpt. Chemistry, Faculty of Science and Advanced Scientific Research Center (CICA), Zapateira, 15071 A CoruÃ±a, Spain; 2. University of Cambridge, Department of Materials Science and Metallurgy, Cambridge CB3 0FS, United Kingdom; 3. Coordenação de Ciências Naturais, Universidade Federal do Maranhão, Campus do Bacabal, 65700-000, Bacabal - MA, Brazil; 4. Coordenação de Ciências Naturais, Universidade Federal do Maranhão, Campus VII, 65400-000, Codó - MA, Brazil; 5. Department of Industrial Engineering II, University of A Coruña, Campus Ferrol, 15403 Ferrol, Spain

Spin crossover transition with a giant barocaloric effect in an organic-inorganic material E.P.6

Jorge Salgado-Beceiro[1], J.M. Bermudez-Garcia[1,2], Jiyeob Kim[2], X. Moya[2], Angela Arnosa-Prieto[1], Javier García Ben[1], Alberto Garcia-Fernandez[1], Jorge Lopez-Beceiro[3], Ramón Artiaga[3], Socorro Castro-Garcia[1], Manuel Sanchez-Andujar[1], María Antonia Señaris-Rodriguez[1]

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Tuning magnetic properties of nanostructured ferrite ceramics E.P.7

Václav Doležal, Ladislav Nádherný, David Sedmidubský

Department of Inorganic Chemistry, University of Chemistry and Technology Prague, Technická 5, 166 28 Prague 6, Czech Republic

Study of an Electrocaloric refrigeration prototype using heat transfer fluid motion E.P.8

S. Bellafkih[1], A. Hadj Sahraoui[2], P. Dumoulin[1], P. Kulinski[2], S. Longuemart[2]

1. CEA Liten, 17 Avenue des Martyrs, 38000 Grenoble, France; 2. Univ. Littoral Côte d'Opale, EA 4476 UDSMM, Unité de Dynamique et Structure des Matériaux Moléculaires, F-59140 Dunkerque, France

Fatigue and self-heating of electrocaloric ceramic materials E.P.9

Bradeško[1,3], M. Vrabelj[1], L. Fulanovic[1], M. Otonicar[1], H. Uršič[1,3], A. Henriques[2], C.C. Chung[2], J.L. Jones[2], Z. Kutnjak[1,3], B. Malic[1,3] and T. Rojac [1,3]

1. Jozef Stefan Institute, Jamova cesta 39, 1000 Ljubljana, Slovenia; 2. Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC 27695, USA; 3. Jozef Stefan International Postgraduate School, Jamova cesta 39, 1000 Ljubljana, Slovenia

	Barocaloric effects in superionic conductors Melony Dilshad, Xavier Moya University of Cambridge	E.P.11

Symposium E Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VI: Mechanocalorics : Brahim Dkhil		
14:00	**Organic barocalorics** E. Stern-Taulats[1], P. Lloveras [1,2], J. Kim[1], A. Avramenko[1], M. Dilshad[1], G. Nataf[1], J.M. Bermúdez-García[1], M. Barrio[2], J. Ll. Tamarit[2], A. Planes [3], Ll. Mañosa[3], N. D. Mathur[1] and X. Moya[1] 1. Department of Materials Science, University of Cambridge, Cambridge, CB3 0FS, UK; 2. Departament de Física i Enginyeria Nuclear, ETSEIB, Universitat Politècnica de Catalunya, Diagonal 647, 08028 Barcelona, Catalonia, Spain; 3. Facultat de Física, Departament de Matèria Condensada, Universitat de Barcelona, Martí i Franquès 1, 08028 Barcelona, Catalonia, Spain	E.6.1
14:30	**Conventional and inverse barocaloric effects in hybrid organic-inorganic perovskites** Juan Manuel Bermudez-Garcia[1,2], Enric Stern-Taulats[1], Meloni Dilshad[1], Jorge Salgado-Beceiro[2], Alberto Garcia-Fernandez[2], Manuel Sanchez-Andujar[2], Jorge Lopez-Beceiro[3], Ramon Artiaga[3], Socorro Castro-Garcia[2], Maria Antonia Señaris-Rodriguez[2], and Xavier Moya[1] 1. University of Cambridge, Department of Materials Science and Metallurgy, Cambridge CB3 0FS, United Kingdom; 2.University of A Coruna, QuiMolMat Group, Dpt. Chemistry, Faculty of Science and Advanced Scientific Research Center (CICA), Zapateira, 15071 A Coruña, Spain; 3. University of A Coruna, Dpt. Naval and Industrial Engineering, Esteiro, 15471 Ferrol, Spain	E.6.2
14:45	**Liquid crystals: the refrigerants of tomorrow?** G.F. Nataf, Y. Bernstein, E. Stern-Taulats, J. Bermúdez-García, A. Avramenko, P. Lloveras, M. Barrio, J. Ll. Tamarit, X. Moya Department of Materials Science & Metallurgy, University of Cambridge, 27 Charles Babbage Road, Cambridge CB3 0FS, UK; Departament de Física, EEBE, Campus Diagonal-Besòs and Barcelona Research Center in Multiscale Science and Engineering, Universitat Politècnica de Catalunya, Eduard Maristany, 10-14, 08019 Barcelona, Catalonia, Spain	E.6.3
15:00	**Elastocaloric effects in natural rubber** M. Kaminski, G. F. Nataf and X. Moya Department of Materials Science, University of Cambridge, UK	E.6.4

15:15	**Stable superelasticity and elastocaloric effect in a nanocrystalline Ti-Ni-Cu-Al alloy** Fei Xiao, Takashi Fukuda State Key Lab of Metal Matrix Composite, School of Materials Science and Engineering, Shanghai Jiao Tong University, Department of Materials Science and Engineering, Graduate School of Engineering, Osaka University	E.6.5
15:30	Coffee Break	
Session VII: Heat management and devices : Xavier Moya		
16:00	**Elastocaloric cooling: state-of-the-art and future perspective** Jaka Tušek Faculty of Mechanical Engineering, University of Ljubljana, Aškerčeva 6, 1000 Ljubljana, Slovenia	E.7.1
16:30	**Main key points for developing environmental friendly solid state cooling system based on the elastocaloric effect in rubber** Gael Sebald[1], Atsuki Komiya[1,2], Jean-Marc Chenal[3], Laurent Chazeau[3], Florent Dalmas[3], Mathieu Vigouroux[4], François Rousset[4], M'hamed Boutaous[4], Jacques Jay[4], Bertrand Garnier[5], Mohammad Rammal[5], Ahmed Ould El Moctar[5], Hiba Haissoune[6], Gildas Coativy[6], Laurence Seveyrat6, Kaori Yuse[6], Laurent Lebrun[6] 1. ELyTMaX UMI 3757, CNRS - Université de Lyon - Tohoku University, International Joint Unit, Sendai, Japan; 2. Institute of Fluid Science, Tohoku University, Sendai, Japan; 3. Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, MATEIS UMR5510, F-69621, Villeurbanne, France; 4. Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008, F-69621, Villeurbanne, France; 5. LTeN Laboratoire de Thermique et Energie, CNRS, Université de Nantes, France; 6. Univ Lyon, INSA Lyon, LGEF, EA682, Villeurbanne, France	E.7.2
16:45	**The rise of barocaloric materials: first challenges for their implementation** Enric Stern-Taulats[1], Juan M. Bermúdez-García[1], A.D'Ammaro[2], A. Robinson[2] and Xavier Moya[1] 1. Department of Materials Science, University of Cambridge, 27 Charles Babbage Road, Cambridge CB3 0FS, United Kingdom; 2. Beko PLC R&D Centre, 12 Cambridge Science Park, Milton Road, Cambridge CB4 0FQ, UK	E.7.3
17:00	**Using the aerosol deposition method in the preparation of caloric-cooling elements** M. Sadl[1,2], U. Tomc[3], U. Prah[1,2], A. Bradeško[1,2], B. Malic[1,2], U. Eckstein[4], N.H. Khansur[4], K.G. Webber[4], H. Ursic[1,2] 1. Electronic Ceramics Department, Jozef Stefan Institute, Jamova cesta 39, Ljubljana, Slovenia; 2. Jozef Stefan International Postgraduate School, Jamova cesta 39, Ljubljana, Slovenia; 3. Faculty of Mechanical Engineering, University of Ljubljana, Askerceva 6, Ljubljana, Slovenia; 4. Department of Materials Science and Engineering, Friedrich-Alexander-UniversitÄat Erlangen-NÄŁrnberg (FAU), 91058 Erlangen, Germany.	E.7.4

17:15	**Digital microfluidics in caloric cooling** Urban Tomc[1], Matej Sadl[2,3], Hana Ursic[2,3] 1. Faculty of Mechanical Engineering, University of Ljubljana, Askerceva 6, Ljubljana, Slovenia; 2. Electronic Ceramics Department, Jozef Stefan Institute, Jamova cesta 39, Ljubljana, Slovenia; 3. Jozef Stefan International Postgraduate School, Jamova cesta 39, Ljubljana, Slovenia	E.7.5
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium F

Sessions: Room 231 | Main Building
Poster Session: Small Hall | Main Building

INFORMATION AND COMMUNICATION TECHNOLOGIES:

Novel approaches for neuromorphic computing: materials, concepts and devices

Symposium Organizers: **Beatriz NOHEDA**, University of Groningen, The Netherlands
Christian WENGER, IHP GmbH, Germany
Martin ZIEGLER, TU Ilmenau, Germany
Sabina SPIGA, CNR-IMM, Italy

SYMPOSIUM F TIMETABLE

Symposium F				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30		Session IV	Plenary Session 09:00-12:30	(09:00-10:20) Session X
10:30 – 11:00	Coffee Break			Coffee Break
11:00 – 12:30		Session V		(11:00-12:20) Session XI
12:30 – 14:00	Lunch Break			
14:00 – 15:30	Session I	Session VI	Session VIII	
15:30 – 16:00	Coffee Break			
16:00 – 17:30	Session II	(16:00-17:50) Session VII	(16:00-17:35) Session IX	
17:30 – 19:30	Poster Session		Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium F location

Sessions: 231 | Main Building
Poster Session: Small Hall | Main Building

Symposium F Program

Monday, September 16 th, 2019

Session I: Materials Concepts - RRAM : Christian Wenger

14:00	**Optimized Filamentary RRAM for Neuromorphic Computing** Huaqiang Wu, Bin Gao, Jianshi Tang, and He Qian Institute of Microelectronics, Tsinghua University, Beijing, China	F.1.1
14:35	**Evaluation of the switching dynamics of HfO2/TiOx ReRAM devices for reliable analogue memristive behaviour** S. Hoffmann-Eifert[1], F. Cüppers[1], S. Menzel*[1], C. Bengel[2], A. Hardtdegen[1], M. von Witzleben[2], U. Böttger[2], R. Waser[1,2] 1. Peter Grünberg Institute (PGI 7&10) and JARA-Fit, Forschungszentrum Jülich GmbH, 52425 Jülich, Germany; 2. Institute of Materials in Electrical Engineering and Information Technology II and JARA-Fit, RWTH Aachen University, 52062 Aachen, Germany	F.1.2
14:55	**A mechanism of electroforming and reset in SiO2 based ReRAM devices** Jonathon Cottom, Alexander Shluger Department of Physics and Astronomy, University College London, UK	F.1.3
15:15	**Gradual Switching Dynamics Through Defect Engineering in Transition Metal Oxide-based Resistive Random Access Memory Devices** Eszter Piros[1], Stefan Petzold[1], Alexander Zintler[2], Sankaramangalam Ulhas Sharath[1], Nico Kaiser[1], Robert Eilhardt[2], Tobias Vogel[1], Seyma Topcu[1], Eric Jalaguier[3], Emmanuel Nolot[3], Christelle Charpin[3], Leopoldo Molina-Luna[2], Christian Wenger[4], Lambert Alff[1] 1. Institute for Materials Science, Advanced Thin Film Technology, Technische Universität Darmstadt, Germany; 2. Advanced Electron Microscopy Division, Institute of Materials Science, Technische Universität Darmstadt, Darmstadt, Germany; 3. CEA, LETI, Grenoble, France; 4. IHP, Leibniz-Institut für innovative Mikroelektronik, Frankfurt (Oder), Germany	F.1.4
15:30	Coffee Break	

Session II: Materials Concepts - RRAM : Christian Wenger

16:00	**RRAM based synapse and threshold switching based neuron device for neuromorphic system** Hyunsang Hwang Dept. of Materials Sci. & Eng. POSTECH, KOREA	F.2.1
16:35	**WO3/HfO2 based resistive devices for improved synaptic elements** V. Bragaglia, A. La Porta, D. Jubin, M. Halter, Y. Popoff, F. Horst, D. Dávila, S. Abel, J. Fompeyrine, B.J. Offrein IIBM Research-Zurich Säumerstrasse 4 CH–8803 Rüschlikon Switzerland	F.2.2
16:55	**Plasticity Property Engineering of Memristor on Single Crystalline LiNbO3 Thin Film for Neuromorphic Computing** Xinqiang Pan[1,2], Yao Shuai*[1], Chuangui Wu[1], Lu Zhang[3], Hongliang Guo[3], Hong Cheng[3], Yun Peng[1], Shijun Qiao[1], Wenbo Luo[1], Huizhong Zeng[1], Jianwei Zhang[2], Wanli Zhang[1], Xin Ou[4], Nan Du[5], Heidemarie Schmidt[5,6] 1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu 610054, China; 2. Institute of Technical Aspects of Multimodal Systems (TAMS), Department of Informatics, UniversitÄat Hamburg, D-22527, Hamburg, Germany; 3. The Center for Robotics, University of Electronic Science and Technology of China, Chengdu 611731, China; 4. State Key Laboratory of Functional Material for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, China; 5. Fraunhofer-Institut fÄĽr Elektronische Nanosysteme, Abteilung Back-End of Line, Technologie-Campus 3, 09126 Chemnitz, Germany; 6. Leibniz-Institut fÄĽr Photonische Technologien e.V. (IPHT), Albert-Einstein-Str. 9, 07745 Jena, Germany	F.2.3
17:15	**Self-rectified, forming-free, non-filamentary single layer and bilayer ReRAM cells based on Ta2O5/Ta interface** Kuzmichev Dmitriy, Bokov Valentin, Markeev Andrey Moscow Institute of Physics and Technologies	F.2.4

17:30 Poster Session: Christian Wenger

	Molecular-gap Atomic Switch Using a Co-deposited Active Electrode Masato Araki, Tsuyoshi Hasegawa Waseda Univ.	F.P.1
	Measurement of Change in Resistance of a Silver Sulfide Nanodot by Removal of Dopant Silver Atoms Nozomi Mishima, Tsuyoshi Hasegawa Waseda Univ.	F.P.2

	Control of precipitation and dissolution of doped Ag atoms on a tantalum oxide nano-island Wataru Hiraya, Tsuyoshi Hasegawa Waseda Univ.	F.P.3
	Ag2S-island network for reservoir computing studied using C-AFM Keita Ojima, Tsuyoshi Hasegawa Waseda Univ	F.P.4
	A Neuro-Fuzzy System for Predicting the Ageing Degradation of Tunneling Field-Effect Transistor T. Bentrcia[1,2]*, F. Djeffal[2] and H. Ferhati[2] 1. LEA, Department of Electronics, University of Batna 2, Batna 05000, Algeria; 2. LEPCM, University of Batna 1, Batna 05000, Algeria * Corresponding author: E-mail: faycaldzdz@hotmail.com	F.P.5
	Reduction of an operating bias in vacuum of molecular-gap atomic switches Chisato Arima[1], Tohru Tsuruoka[2], Yasuhisa Naitoh[3], Hisashi Shima[3], Hiroyuki Akinaga[3], Tsuyoshi Hasegawa[1] Waseda Univ. 1, NIMS2, AIST3	F.P.6
	Noise Properties of Oxygen Engineered Hafnium Oxide-based Resistive Random Access Memory Devices for Neuromorphic Applications Eszter Piros, Martin Lonsky, Stefan Petzold, Eric Jalaguier, Emmanuel Nolot, Christelle Charpin, Christian Wenger, Jens Müller, Lambert Alff Institute of Materials Science, Advanced Thin Film Technology, Technische Universitä Darmstadt, Darmstadt, Germany, Institute of Physics, Goethe-University Frankfurt, Frankfurt am Main, Germany, Institute of Materials Science, Advanced Thin Film Technology, Technische Universität Darmstadt, Darmstadt, Germany, CEA, LETI, Grenoble, France, CEA, LETI, Grenoble, France, CEA, LETI, Grenoble, France, IHP, Leibniz-Institut fÄĽr innovative Mikroelektronik, Frankfurt (Oder), Germany, Institute of Physics, Goethe-University Frankfurt, Frankfurt am Main, Germany, Institute of Materials Science, Advanced Thin Film Technology, Technische Universität Darmstadt, Darmstadt, Germany	F.P.7
	Parylene-based memristive devices: resistive switching mechanism and neuromorphic applications A.A. Minnekhanov[1], A.V. Emelyanov[1,2], M.N. Martyshov[3], K.E. Nikiruy[1,2], B.S. Shvetsov[3], V.V. Rylkov[1,4], V.A. Demin[1,2] 1. National Research Centre "Kurchatov Institute", 123182 Moscow, Russia; 2. Moscow Institute of Physics and Technology, 141700 Dolgoprudny, Moscow Region, Russia; 3. Lomonosov Moscow State University, 119991 Moscow, Russia; 4. Kotel'nikov Institute of Radio Engineering and Electronics RAS, 141190 Fryazino, Moscow Region, Russia	F.P.8

	Neuromorphic Pulsing of Planar Silver Nanowire Networks Alice Selby, Loukas Michalas, Themis Prodromakis,Jessamyn Fairfield School of Physics, National University of Ireland, Galway, Electronic Materials and Devices Research Group, Zepler Institute, University of Southampton, Electronic Materials and Devices Research Group, Zepler Institute, University of Southampton, School of Physics, National University of Ireland, Galway and CÚRAM,	F.P.9
	New approaches to implementation of synaptic plasticity in metal-oxide memristive devices D. Korolev, A. Belov, V. Lukoyanov, S. Gerasimova, M. Mischenko, A. Mikhaylov Lobachevsky University, Nizhny Novgorod, 603950, Russia	F.P.10
	HfO2 RRAMs: Harnessing the analog operation towards spiking neural networks Stefano Brivio, Sabina Spiga CNR- IMM, Unit of Agrate Brianza, via C. Olivetti 2, 20864 Agrate Brianza, Italy	F.P.11
	Trainable organic neuromorphic biosensors E.R.W. van Doremaele, S. Kazemzadeh, Y. van de Burgt University of Technology Eindhoven	F.P.12
	Light-induced synaptic effects in perovskites modified with heptazine quantum dots Piotr Zawal[1,2], Tomasz Mazur[1], Maria Lis[1,3], Konrad Szaciłowski[1] 1. Academic Centre for Materials and Nanotechnology AGH University of Science and Technology, Poland; 2. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Poland; 3. Faculty of Materials Science and Ceramics, AGH University of Science and Technology, Poland	F.P.13

Symposium F Program

Tuesday, September 17 th, 2019

Session IV: Materials Concepts - FeRAM : Christian Wenger

09:00	**The Trinity of Ferroelectric Memory Devices for Neuromorphic Computing** Stefan Slesazeck NaMLab gGmbH, Dresden, Germany	F.4.1
09:35	**The physics of the ferroelectric semiconductor GeTe in view of neuromorphic application** S. Varotto, L. Nessi, S, Petrò, G. Nicosia, S. Cecchi, R. Calarco, R. Bertacco, C. Rinaldi Dipartimento di Fisica, Politecnico di Milano, via Colombo 81, 20133 Milano, Italy Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Via Ponzio 34/5, 20133 Milano, Italy Paul-Drude-Institut für Festkörperelektronik, Hausvogteiplatz 5-7, 10117 Berlin, Germany	F.4.2
09:55	**Impact of Operation Schemes on Cycling Behavior of HfZrOx-Based Ferroelectric Devices** Yizhou Zhang, Yulin Feng, Chen Liu, Peng Huang, Mengqi Fan, Lifeng Liu, Xiaoyan Liu, Jinfeng Kang Institute of Microelectronics, Peking University	F.4.3
10:15	**Structural and electrical evidence for the stabilization of ultra-thin ferroelectric HfxZr1-xO2 by millisecond flash lamp anneal** M. Halter[1,2], A. Chanthbouala[3], É. O'Connor[1], F. Eltes[4,5], Y. Popoff[1], M. Sousa[1], S. Abel[1], V. Garcia[3], J. Fompeyrine[1] 1. Neuromorphic devices & systems, IBM Research GmbH - Zurich Research Laboratory, Säumerstrasse 4, CH-8803 Rüschlikon, Switzerland; 2. Integrated Systems Laboratory, ETH Zurich, Gloriastrasse 35, CH-8092 Zurich, Switzerland; 3. Unité Mixte de Physique, CNRS, Thales, Univ. Paris Sud, Université Paris-Saclay, Palaiseau 91767, France; 4. Currently at EPFL, Lausanne, Switzerland; Neuromorphic devices & systems, IBM Research GmbH - Zurich Research Laboratory, Säumerstrasse 4, CH-8803 Rüschlikon, Switzerland; 5. EMPA - Swiss Federal Laboratories for Materials Science and Technology, CH-8600 Dübendorf, Switzerland	F.4.4
10:30	Coffee Break	

Session V: Materials Concepts - Polymers : Martin Ziegler

11:00	**Neuromorphic Systems Based on Polyaniline Memristive Devices** V. Erokhin Institute of Materials for Electronic and Magnetism, Italian National Council of Research (IMEM-CNR) Parma, Italy	F.5.1
11:35	**Robust Mem-devices using Organometallic Molecules for Brain Inspired Computing** Sreetosh Goswami, T. Venkatesan National University of Singapore, National University of Singapore	F.5.2
11:55	**An artificial biomimetic tactile sensor with synaptic functions** Yu Rim Lee[1], Nae-Eung Lee[1-5] 1. Department of Advanced Materials Science & Engineering, Sungkyunkwan University, Suwon, Gyeonggi-do 16419, Republic of Korea; 2. SKKU Advanced Institute of Nano Technology (SAINT), Sungkyunkwan University, Suwon, Gyeonggi-do 16419, Republic of Korea; 3. Samsung Advanced Institute for Health Sciences and Technology (SAIHST), Sungkyunkwan University, Suwon, Gyeonggi-do 16419, Republic of Korea; 4. Institute of Quantum Biophysics (IQB), Sungkyunkwan University, Suwon, Gyeonggi-do 16419, Republic of Korea; 5. Biomedical Institute for Convergence at SKKU (BICS), Sungkyunkwan University, Suwon, Gyeonggi-do 16419, Republic of Korea	F.5.3
12:15	**Towards synapses made of ferroelectric PVDF polymer** Bobo Tian[1,2,3], Brahim Dkhil[1] 1. Laboratoire Structures, Propriétés et Modélisation des Solides, CentraleSupélec, CNRS-UMR8580, Université Paris-Saclay, 91190 Gif-sur-Yvette, France; 2. Key Laboratory of Polar Materials and Devices, Ministry of Education, East China Normal University, Shanghai 200241, China; 3. National Laboratory for Infrared Physics, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Shanghai 200083, China	F.5.4
12:30	Lunch Break	

Session VI: Memristive Hardware : Christian Wenger

14:00	**Solving matrix algebra problems in hardware with memory arrays** D. Ielmini, Z. Sun, G. Pedretti Politecnico Milano Dipartimento di Elettronica, Informazione e Bioingegneria Italy	F.6.1
14:35	**Neuromorphic hardware acceleration with segmented memristive crossbar** Iosif-Angelos Fyrigos, Vasileios Ntinas, Georgios Ch. Sirakoulis, Panagiotis Dimitrakis Democritus University of Thrace, Democritus University of Thrace - Universitat Politecnica de Catalunya, Democritus University of Thrace, NCSR Demokritos	F.6.2

14:55	**Are electroforming-free memristors prospective for machine learning?** Heidemarie Schmidt[1,2,3], Nan Du[1], Danilo Bürger[1], Ilona Skorupa[4], Ramona Ecke[1], Stefan E. Schulz[1] 1. Fraunhofer-Institut für Elektronische Nanosysteme, Abteilung Back-End of Line, Technologie-Campus 3, 09126 Chemnitz, Germany; 2. Faculty of physics, Friedrich-Schiller University of Jena Max-Wien-Platz 1, 07743 Jena, Germany; 3. Leibniz-Institut für Photonische Technologien e.V. (IPHT), Albert-Einstein-Str. 9, 07745 Jena, Germany; 4. Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Bautzner Landstraße 400, 01328 Dresden, Germany	F.6.3
15:15	**Improving the Inference Accuracy of RRAM-Based Physical Neural Networks** Dovydas Joksas, Mark Buckwell, Wing H. Ng, Anthony J. Kenyon, Adnan Mehonic University College London	F.6.4
15:30	Coffee Break	
Session VII: Neural Networks : Martin Ziegler		
16:00	**In-Memory Implementation of Binarized Deep Neural Networks with Hafnium Oxide Based Memristive Devices** D. Querlioz CNRS Centre de Nanosciences et de Nanotechnologies Palaiseau, France	F.7.1
16:35	**Antiferromagnets for spiking-neural networks** Xavi Marti, Marc Mateu Mateus Institute of Physics ASCR, v.v.i., Cukrovarnick 'a 10, 162 53, Praha 6, Czech Republic; Department of Electronic Engineering, Universitat Politècnica de Catalunya, 08034 Barcelona, Spain	F.7.2
16:55	**Two-Layer All-Optical Deep Neural Network with Photonic Integrated Weighted Addition** Bin Shi, Nicola Calabretta, Ripalta Stabile* Institute for Photonic Integration, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands (*presenting person)	F.7.3
17:15	**Conducting domain wall networks in TbMnO3** M. Salverda[1], R. Hamming-Green[1], C.P. Quinteros[1], P. Nukala[1], W.R. Acevedo[2], D. Rubi[2], S. Farokhipoor[1], B. Noheda[1,3] 1. Zernike Institute for Advanced Materials, University of Groningen, 9747 AG, The Netherlands; 2. INN-CNEA and CONICET, Av. Gral Paz 1499, San Martin (1650), Buenos Aires, Argentina; 3. CogniGron Center, University of Groningen, 9747 AG, The Netherlands	F.7.4
17:30	**Energy-efficient sound pre-processing at the sensor level using MEMS** Claudia Lenk[1], Lars Seeber[1], Stefanie Gutschmidt[2], Martin Ziegler[1] 1. Technische Universität Ilmenau, 98693 Ilmenau, Germany; 2. University of Canterbury, 8140 Christchurch, New Zealand	F.7.4

Symposium F Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VIII: Neuromorphic computing : Christian Wenger		
14:00	**Greedy Boolean learning in large photonic neural networks: empirical findings of convergence and scaling** Louis Andreoli[1], Stephane Chretien[2], Maxime Jacquot[1], Laurent Larger[1], Daniel Brunner[1] 1. FEMTO-ST, UMR CNRS 6174, Univ. Bourgogne Franche-Comté, 25030 Besançon, France; 2. National Physical Laboratory, Teddington, Middlesex TW11 0LW, UK	F.8.1
14:35	**Tuneable linearity in HfO2 based multilevel FeFETs for neuromorphic computing** M. Lederer, T. Kämpfe, T. Ali, K. Seidel Fraunhofer IPMS - Center Nanoelectronic Technologies (CNT)	F.8.2
14:55	**Reconfigurable quantum logic gates for neuromorphic computing** George Alexandru Nemnes[1,2], Daniela Dragoman[1,3] 1. University of Bucharest, Faculty of Physics, Materials and Devices for Electronics and Optoelectronics Research Center, 077125, Magurele-Ilfov, Romania; 2. Horia Hulubei National Institute for Physics and Nuclear Engineering, 077126, Magurele-Ilfov, Romania; 3. Academy of Romanian Scientists, Splaiul Independentei 54, Bucharest, 050094, Romania	F.8.3
15:15	**Neuromorphic - neurotransmitter biohybrid interface** Setareh Kazemzadeh[1], Scott T. Keene[2], Claudia Lubrano[3, 4], Armantas Melianas[2], Yaakov Tuchman[2], Giuseppina Polino3, Lucio CinÃ [5], Francesca Santoro[3], Alberto Salleo[2], Yoeri van de Burgt[1] 1. Institute for Complex Molecular Systems, Eindhoven University of Technology, 5612AJ Eindhoven, The Netherlands; 2. Department of Materials Science and Engineering, Stanford University, USA; 3. Center for Advanced Biomaterials for Healthcare, Istituto Italiano di Tecnologia, Italy; 4. Dipartimento di Chimica, Materiali e Produzione Industriale, UniversitÃ di Napoli Federico II, Italy; 5. Cicci Research, Italy	F.8.4
15:30	Coffee Break	

Session IX: Neuromorphic Computing and Materials Concepts : Martin Ziegler

16:00	**Neuromorphic Computing: a Productive Contradiction in Terms** H. Jaeger Jacobs University Bremen gGmbH Germany	F.9.1
16:35	**Correlation of sputter deposition parameters with current-voltage (I-V) characteristics in double barrier memristive devices** Finn Zahari[1], Felix Georg[2], Julian Strobel[3], Julia Cipo[2], Sven Dirkmann[4], Sven Gauter[2], Jan Trieschmann[4], Richard Marquardt[1], Lorenz Kienle[3], Thomas Mussenbrock[4], Martin Ziegler[5], Holger Kersten[2], Hermann Kohlstedt[1] 1. Nanoelectronics, Faculty of Engineering, Kiel University, Germany; 2. Plasma Technology, Department of Physics, Kiel University, Germany; 3. Synthesis and Real Structure, Faculty of Engineering, Kiel University, Germany; 4. Electrodynamics and Physical Electronics, Electrical Engineering and Information Science, BTU Cottbus-Senftenberg, Germany; 5. Department of Micro- and Nanoelectronic Systems, TU Ilmenau, 98693 Ilmenau, Germany	F.9.2
16:55	**Ionic Noise Stimulated by Pulse Trains in Analogue Filamentary RRAMs** Stefano Brivio, Jacopo Frascaroli, Erika Covi, Sabina Spiga CNR - IMM, Unit of Agrate Brianza, via C. Olivetti 2, 20864 Agrate Brianza, Italy	F.9.3
17:15	**Dopamine-assisted STDP modulation of nanocomposite memristive synaptic weight** K.E. Nikiruy, A.V. Emelyanov, I.A.Surazhevskiy, V.V. Rylkov, A.V.Sitnikov, V.A. Demin NRC Kurchatov Institute	F.9.4
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium F Program

Thursday, September 19 th, 2019

Session X: New Materials for Neuromorphic Computing I : Sabina Spiga

09:00	**SiOx-Based ReRAM Memory Window Optimization** Giueseppe Piccolboni Weebitnano Bâtiment de Haute Technologie, Bat. 52, 7 Prv Louis Neel 38000, Grenoble France	F.10.1
09:20	**Memristive and neuromorphic functionalities in a single crystalline ZnO nanowire model system** Gianluca Milano[1,2], Luca Boarino[3], Ilia Valov[4,5], Carlo Ricciardi[1]* 1. Applied Science and Technology Dep., Politecnico di Torino, Corso Duca degli Abruzzi 24, Torino, Italy; 2. Center for Sustainable Future Technologies, Istituto Italiano di Tecnologia (IIT), 10129, Torino, Italy; 3. Nanoscience and Materials Division, INRiM (Istituto Nazionale di Ricerca Metrologica), Strada delle Cacce 91, 10135 Torino, Italy; 4. Institut fur Werkstoffe der Elektrotechnik II, RWTH Aachen University, 52074 Aachen, Germany; 5. PGI-7 (Electronic Materials), Research Centre Juelich, 52425 Juleich, Germany, *Corresponding author Email: carlo.ricciardi@polito.it	F.10.2
09:40	**Nb-doped SrTiO3 Memristors for New Computing Paradigms** A.S. Goossens, T. Banerjee 1. University of Groningen, Zernike Institute for Advanced Materials, The Netherlands; 2. Groningen Cognitive Systems and Materials Center, University of Groningen, the Netherlands	F.10.3
10:00	**Prediction of new superhard materials with sunsequent industrial synthesis** A.G. Kvashnin, H.A. Zakaryan,Yu.A. Kvashnina, A.R. Oganov Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 121205, 3 Nobel Street, Moscow, Russia, Moscow Institute of Physics and Technology, 141700, 9 Institutsky lane, Dolgoprudny, Russia, Yerevan State University, 1 Alex Manoogian St., 0025, Yerevan, Armenia, Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 143026, 3 Nobel Street, Moscow, Russia, Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 121205, 3 Nobel Street, Moscow, Russia, Moscow Institute of Physics and Technology, 141700, 9 Institutsky lane, Dolgoprudny, Russia, International Center for Materials Discovery, Northwestern Polytechnical University, Xi'an, 710072, China	F.10.4
10:30	Coffee Break	

Session XI: New Materials for Neuromorphic Computing II : Sabina Spiga

11:00	**Lateral MoS2 Memristors** Zhansong Geng, Christian Ziebold, Sebastian Thiele, Miroslav Mikolasek, Juraj Breza, Jörg Pezoldt, Martin Ziegler and Frank Schwierz Technische Universität Ilmenau, Technische Universität Ilmenau, Technische Universität Ilmenau, Slovak University of Technology Bratislava, Slovak University of Technology Bratislava, Technische Universität Ilmenau, Technische Universität Ilmenau, Technische Universität Ilmenau	F.11.1
11:20	**Renewable Transparent Artificial Synaptic Device** Niloufar Raesi-Hosseini, Christos Papavassilioiu Imperial College London, Department of Electronics and Electrical Engineering	F.11.2
11:40	**Binary and analog resistive switching in LiCoO2-based, two-terminal, devices driven by reversible Li-ion migration** S.P. Ioannou[1], E. Kyriakides[1], O. Shcneegans[2] and J. Giapintzakis[1] 1. Department of Mechanical and Manufacturing Engineering, University of Cyprus, 75 Kallipoleos Av., PO Box 20537, 1678 Nicosia, Cyprus; 2. Group of Electrical Engineering of Paris (GeePs) UPMC and Paris-Sud Universities, CNRS, Centrale Supélec, Gif-sur-Yvette, France	F.11.3
12:00	**Observation of Resistive Switching with Vertically Aligned MoS2** Woon-Oh Choe, Ho Won Jang Department of Materials Science and Engineering, Research Institute of Advanced Materials, Seoul National University, Seoul 08826, Republic of Korea	F.11.4

Symposium G

Sessions: Room 437 | Main Building
Poster Session: Small Hall | Main Building

INFORMATION AND COMMUNICATION TECHNOLOGIES:

Diamond for electronic devices IV

Symposium Organizers: **Gauthier CHICOT**, DiamFab, France
Hitoshi UMEZAWA, Advanced Power Electronics Research Center, Japan
Oliver WILLIAMS, Cardiff University, U.K.
Philippe BERGONZO, Seki Diamond Systems, USA

SYMPOSIUM G TIMETABLE

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09:00-12:30</td><td></td></tr>
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Symposium G location

Sessions: 437 | Main Building
Poster Session: Small Hall | Main Building

Symposium G Program

Monday, September 16 th, 2019

Session I: Quantum Technologies : Oliver Williams		
14:00	**Levitated nanodiamonds towards fundamental physics** Gavin Morley University of Warwick	G.1.1
14:30	**Optical and spin control of group IV colour centres in diamond** Mete Atatüre University of Cambridge, JJ Thomson Ave., Cambridge CB3 0HE, UK	G.1.2
15:00	**Novel color centers in diamond for communication and sensing** Gergő Thiering and Adam Gali Wigner Research Centre for Physics, Hungarian Academy of Sciences & Department of Atomic Physics, Budapest University of Technology and Economics	G.1.3
15:30	Coffee Break	
Session II: Thermal Management of Semiconductor Devices with Diamond : Richard Jackman		
16:00	**Room Temperature Bonding of GaN to Si and Diamond by means of the Surface Activated Bonding (SAB) Method** Tadatomo Suga, Fengwen Mu Meisei University, Tokyo	G.2.1
16:30	**Direct bonding of gallium nitride thin-film transistors onto diamond substrates** Thomas Gerrer, Heiko Czap, Thomas Maier, Fouad Benkhelifa, Stefan Müller, Christoph Nebel, Patrick Waltereit, Rüdiger Quay, Volker Cimalla Fraunhofer Institute for Applied Solid State Physics	G.2.2

17:00	**Sub-mm thick diamond layer on aluminium nitride for thermal management applications** Soumen Mandal[1]*, Jerome A. Cuenca[1], Henry Bland[1], Chao Yuan[2], Fabien Massabuau[3], James W. Pomeroy[2], David Wallis[3,4], Rachel Oliver[3], Martin Kuball[2], Oliver A. Williams[1] 1. School of Physics and Astronomy, Cardiff University, Cardiff, UK; 2. Center for Device Thermography and Reliability, Bristol University, Bristol, UK; 3. Department of Materials Science & Metallurgy, University of Cambridge, Cambridge, UK; 4. School of Engineering, Cardiff University, Cardiff, UK Mandals2@cardiff.ac.uk, soumen.mandal@gmail.com	G.2.3
17:15	**4" freestanding diamond wafers for HEMT devices** Jae-Kap Lee Center for Opto-electronic Materials and Devices, Korea Institute of Science and Technology (KIST), Seoul 02792, South Korea.	G.2.4

Symposium G Program

Tuesday, September 17 th, 2019

Session III: Diamond Electronic Devices I : Gauthier Chicot		
09:00	**Field and leakage studies on vertical Schottky diode** David Eon Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut NÃ©el, 38000 Grenoble, France	G.3.1
09:30	**Device processing and crystallographic defects on diamond Schottky barrier diodes** T. Hanada, H. Umezawa, S. Ohmagari, H. Kawashima, D. Takeuchi, J. Kaneko Hokkaido University, AIST	G.3.2
09:45	**A novel, low cost, approach to the formation of Diamond-based Schottky diodes** Abdulkareem Afandi[1], Alexander C. Pakpour-Tabrizi[1], Evgeny Ekimov[2], Igor Vlasov[3], Nicholas Nunn[4], Olga Shenderova[4], Joseph O. Welch[1], Richard B. Jackman[1] 1. London Centre for Nanotechnology and Department of Electronic and Electrical Engineering, University College London (UCL), 17-19 Gordon Street, London, WC1H 0AH, UK; 2. Institute for High Pressure Physics, RAS, Kaluzhskoe Road 14, Troitsk, Moscow 142190, Russia; 3. General Physics Institute, RAS, Vavilov Street 38, 119991 Moscow, Russia; 4. Adámas Nanotechnologies, Inc., 8100 Brownleigh Drive, S.120, Raleigh, NC 27617, USA	G.3.3
10:00	**Field effect transistor based on diamond/h-BN heterostructures** Yamaguchi Takahide National Institute for Materials Science, Japan	G.3.4
10:30	Coffee Break	
Session IV: Diamond Electronic Devices II : Hitoshi Umezawa		
11:00	**Novel Lateral Diamond Nanowires displaying ballistic carrier transport and emergent devices** Alexander C Pakpour-Tabrizi, Richard B. Jackman London Centre for Nanotechnology and Department of Electronic and Electrical Engineering, University College London (UCL), 17-19 Gordon Street, London WC1H 0AH, UK	G.4.1

11:30	**Growth of phosphorous-doped (100) diamond layers and development of n-type doped V-shapes via catalytic etching** C. Schreyvogel[1], V. Zuerbig[1], J. Langer[1], C. Giese[1], V. Cimalla[1], S. Temgoua[2], J. Barjon[2] and C.E. Nebel[1] 1. Fraunhofer-Institute for Applied Solid State Physics (IAF), Tullastr. 72, 79108 Freiburg, Germany; 2. Groupe d'Etude de la Matière Condensée (GEMAC), Université Saint-Quentin en Yvelines, 45 Avenue des Etats-Unis,78000, Versailles, France	G.4.2
11:45	**Diamond and cBN surfaces as templates for the epitaxial growth of 2D overlayers** J.A. Durk[1,2], B.P. Reed[1,2,3], S.P. Cooil[1,4], D. Hu[1], A. Can[5], M. Motchelaho[5], D.A. Evans[1] 1. Department of Physics, Aberystwyth University, UK; 2. EPSRC Centre for Doctoral Training in Diamond Science and Technology, UK; 3. National Physical Laboratory, UK; 4. Department of Physics, NTNU, Trondheim, Norway; 5. Element Six Ltd, UK	G.4.3
12:00	**CVD growth of nanodiamonds by pulsed methane on pre-treated substrates** Jeroen Prooth, Milos Nesladek, Hans-Gerd Boyen Materials Research Institute, Hasselt University, Wetenschapspark 1, Diepenbeek, Belgium	G.4.4
12:15	**Characterisation of the Oxygen Terminated Diamond Surface for Near-Surface NV Centres** J. Ash[1,2], S. P. Cooil [1,3], D. Hu[1] and D.A. Evans[1] 1. Department of Physics, Aberystwyth University, Wales; 2. EPSRC Centre for Doctoral Training in Diamond Science and Technology, UK; 3. Department of Physics, Norwegian University of Science and Technology, Norway	G.4.5
12:30	Lunch Break	

Session V: Supercapacitors, electrodes and sensors : Robert Bogdanowicz

14:00	**Diamond supercapacitors** Jing Xu[1], Siyu Yu[1], Nianjun Yang[1],* Soumen Mandal[2], Oliver A. Williams[2], Kamatchi Jothiramalingam Sankaran[3], Ken Haenen[3], Xin Jiang[1] 1. Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany; 2. School of Physics and Astronomy, Cardiff University, Cardiff CF24 3AA, UK; 3. Institute for Materials Research (IMO), Hasselt University & IMOMEC, IMEC vzw, 3590 Diepenbeek, Belgium	G.5.1
14:30	**Diamond-based electrodes for determination of nitro-explosives in landfill leachate** Anna Dettlaff[1]*, Paweł Jakóbczyk[1], Michał Sobaszek[1], Mateusz Ficek[1], Tadeusz Ossowski[2], Robert Bogdanowicz[1] 1. Department of Metrology and Optoelectronics, Faculty of Electronics, Telecommunications and Informatics, Gdansk University of Technology, 11/12 G. Narutowicza St., 80-233, Gdansk, Poland; 2. Department of Analytical Chemistry, Faculty of Chemistry, University of Gdansk, 63 Wita Stwosza St., 80-308, Gdansk, Poland	G.5.2

14:45	**Diamond electrodes for high sensitivity mercury detection in the aquatic environment: Influence of surface preparation and gold** Maeve H.S. McLaughlin, Alexander C. Pakpour-Tabrizi, Richard B. Jackman London Centre for Nanotechnology and Department of Electronic and Electrical Engineering, University College London, UK	G.5.3
15:00	**A novel, durable, diamond based platform for surface enhanced Raman spectroscopy (SERS) sensing applications** Massimilianio Ramsay, Alexander C. Pakpour-Tabrizi and Richard B. Jackman London Centre for Nanotechnology and Department of Electronic and Electrical Engineering, University College London, 17-19 Gordon Street, London WC1H 0AH, UK	G.5.4
15:15	**Hybrid diamond nanosheets-polymer nanostructures: A route towards flexible diamond-based biosensing devices** M. Ficek[1]*, M. Rycewicz[1], J. Karczewski[2], W. Szymański[3], and R. Bogdanowicz[1] 1. Faculty of Electronics, Telecommunications, and Informatics, Gdańsk University of Technology, Poland; 2. Faculty of Applied Physics and Mathematics Gdańsk University of Technology, Gdańsk, Poland; 3. Łódź University of Technology, Institute of Materials Science and Engineering	G.5.5
15:30	Coffee Break	
Session VI: Detectors : Philippe Bergonzo		
16:00	**Machine learning for the prediction of stopping powers within diamond radiation detectors** William Parfitt, Richard B Jackman London Centre for Nanotechnology and Department of Electronic and Electrical Engineering, University College London (UCL), 17-19 Gordon Street, London WC1H 0AH, UK	G.6.1
16:15	**HPHT single crystal diamond substrate IIa type characterization for particle detectors** E.V. Trifonova, S.V. Chernykh, A.V. Chernykh,K.D. Shcherbachev, D.A. Kiselev, N.I. Polushin, M.N. Kondakov, O.I. Rabinovich, S.I. Didenko NUST MISIS	G.6.2
16:30	**Transient-Current Technique Characterization of Diamond Detector and Proposal of Signal Amplification in Diamond** M.J. Kholili*[1,2], A. Hara[1,2], T. Shimaoka[3], S, Koizumi[3], M. Shoji[2], M. M.Tanaka[1,2] 1. Graduate University for Advanced Studies (SOKENDAI). Tsukuba 305-0801, Japan; 2. The High Energy Accelerator Research Organization (KEK). Tsukuba 305-0801, Japan; 3. National Institute for Materials Science (NIMS). Tsukuba 305-0047, Japan	G.6.3

16:45	**Impact of dislocations on carrier lifetime and trapping in heteroepitaxial diamond** Patrik Ščajev[1], Matthias Schreck[2], Michael Mayr[2], Stefan Gsell[3], Martin Fischer[3] 1. Institute of Photonics and Nanotechnology, Vilnius University, LT-10257 Vilnius, Lithuania Phone Number: +37064712151, e-mail: patrik.scajev@ff.vu.lt; 2. Institute of Physics, University of Augsburg, D-86135 Augsburg, Germany; 3. Augsburg Diamond Technology GmbH, Am Technologiezentrum 5, 86159 Augsburg, Germany	G.6.4
17:00	**Development of Diamond Radiation Detector System for Post Severe Accident** Junichi H. Kaneko Graduate School of Engineering, Hokkaido University higedon@eng.hokudai.ac.jp	G.6.5
17:30 Poster Session:		
	Effect of Mg on diamond crystallization and properties in Fe-Co-C system T.V. Kovalenko, S.O. Ivakhnenko, V.V. Lysakovskyi V. Bakul Institute for Superhard Materials, National Academy of Sciences of Ukraine	G.P.1
	Enhanced electrical and optical performances of thin diamond-like carbon (DLC) transparent electrode films using metallic nanopa H. Ferhati[1], F. Djeffal[1,*], N. Boubiche[2] and F. Le Normand[2] 1. LEA, Department of Electronics, University Mostefa Benboulaid-Batna 2, Batna 05000, Algeria; 2. MaCEPV/ICube, Université de Strasbourg and CNRS, STRASBOURG, FRANCE. *E-mail: faycal.djeffal@univ-batna.dz, faycaldzdz@hotmail.com, Tel/Fax: 0021333805494	G.P.2
	Study of the mechanical properties of different types diamond singlecrystals with the deploymant of the "penetrating core" model O.M. Suprun, S.A. Ivakhnenko V. N. Bakul Institute for Superhard Materials, National Academy of Sciences of Ukraine	G.P.3
	First-principle studies on electronic transfer mechanism in carboxyl-modified boron-doped diamond surfaces Bartłomiej Dec, Robert Bogdanowicz Gdańsk University of Technology	G.P.4

Symposium G Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VII: Diamond implants and nanodiamond surface chemistry : Nianjun Yang		
14:00	**Full diamond implants, a new approach for chronical in-vivo applications** E. Scorsone, D. Nguyen, S. Picaud, O. Français, P. Bergonzo, P. Poulichet, G. Lissorgues, L. Rousseau CEA List LCD, IDV INSERM (UMR 7210), IDV INSERM (UMR 7210), ESYCOM / ESIEE Paris (FRE 2028), Seki Diamond, ESYCOM / ESIEE Paris (FRE 2028), ESYCOM / ESIEE Paris (FRE 2028), ESYCOM /ESIEE Paris (FRE 2028)	G.7.1
14:30	**Hybrid Diamond/ Carbon Fiber Microelectrodes Enable Multimodal Electrical/Chemical Neural Interfacing** Maryam A. Hejazi[1]*, Wei Tong[1,2,3], Michael R. Ibbotson[2,3], Melanie Stamp[1], Steven Prawer[1], Nicholas V. Apollo[1,4], David J. Garrett[1] 1. School of Physics, University of Melbourne, Parkville, Victoria, Australia; 2. National Vision Research Institute, Australian College of Optometry, Carlton, Victoria, Australia; 3. Department of Optometry and Vision Sciences, University of Melbourne, Parkville, Victoria, Australia; 4. Center for Neural Engineering and Therapeutics, University of Pennsylvania, Philadelphia, PA, USA *Mhejazi@student.unimelb.edu.au	G.7.2
15:00	**Functionalization of nanodiamond for the control of electronic surface properties** Benjamin Kiendl[1], Johannes Ackermann[1], Michael Drisch[2], Fabian Keppner[2], Benedikt Knichelmann[1], Amélie Venerosy[3], Hugues Girard[3], Jean-Charles Arnault[3], Karin Larsson[4], Maik Finze[2], Ann-Christin Pöppler[1], Anke Krueger[1] 1. Institut für Organische Chemie, Julius-Maximilians-Universität Würzburg, Am Hubland, D-97074 Würzburg, Germany; 2. Institut für Anorganische Chemie, Julius-Maximilians-Universität Würzburg, Am Hubland, D-97074 Würzburg, Germany; 3. CEA, LIST, Diamond Sensors Laboratory, Bâtiment 451, PC 45, 91191 Gif sur Yvette, France; 4. Angström Laboratory, Uppsala University, Lägerhyddsvägen 1, Uppsala, Sweden	G.7.3
15:30	Coffee Break	

Session VIII: Diamond processing, device fabrication and growth : Anke Krüger

16:00	**Surface characterization of chemical mechanical polished diamond surfaces** K. Koyama[1], Seong-Woo Kim[1], D. Craciun[2], I. Boerasu[2] and V. Craciun[2,3] 1. Adamant Namiki Precision Jewel Co., Ltd., Tokyo, Japan; 2. National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania; 3. Extreme Light Infrastructure-Nuclear Physics, Magurele, Romania	G.8.1
16:15	**Long-gate-width diamond MESFET for large drain current capability** Hiroyuki Kawashima, Hitoshi Umezawa, Shinya Ohmagari and Daisuke Takeuchi Advanced Power Electronics Research Center (ADPERC), AIST	G.8.2
16:30	**Electronics properties of thin diamond films grown in deuterium rich plasma** Michał Sobaszek, Anna Dettlaff, Marcin Gnyba, Jacek Ryl, Mirosław Sawczak, Piotr Caban and Rober Bogdanowicz Metrology and Optoelectronics, Gdansk University of Technology, Gdansk, Poland, Department of Electrochemistry, Corrosion and Materials Engineering, Faculty of Chemistry, Gdansk University of Technology, Narutowicza 11/12, 80-233 Gdansk, Poland, Institute of Fluid Flow Machinery, Gdansk, Poland, Department of Inorganic Chemistry, Chemical Faculty, Gdańsk University of Technology, 11/12 Narutowicza St., 80-233 Gdańsk, Poland, Institute of Electronic Materials Technology, Warsaw, Poland	G.8.3
16:45	**Optimising Reactive Ion Etching to Remove Sub-Surface Polishing Damage on Diamond** Marie-Laure Hicks[1], Alexander. C. Pakpour-Tabrizi[1], Verena Zuerbig[2], Lutz Kirste[2], Christoph Nebel[2] and Richard. B. Jackman[1] 1. London Centre for Nanotechnology and Department of Electronic and Electrical Engineering, University College London, 17-19 Gordon Street, London, WC1H 0AH, UK; 2. Fraunhofer Institute for Applied Solid State Physics IAF, Tullastrasse 72, 79108 Freiburg, Germany	G.8.4
17:00	**Studies on the thermally activated electronic transport in boron-doped diamond-on-graphene heterojunction** R. Bogdanowicz[1]*, M. Ficek[1], M. Sobaszek[1], A. Nosek[2], J. Karczewski[1], A. Jaramillo-Botero[3], W.A. Goddard[3], M. Bockrath[2] 1. Gdansk University of Technology, 11/12 G. Narutowicza St., 80-233, Gdansk, Poland; 2. University of California Riverside, 900 University Avenue, Riverside, California 92521, USA; 3. Materials and Process Simulation Center, California Institute of Technology, Pasadena, California 91125, USA	G.8.5
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium H

Sessions: Room 208 | Main Building
Poster Session: Small Hall | Main Building

INFORMATION AND COMMUNICATION TECHNOLOGIES:

New materials for photonics

Symposium Organizers: **Jean Pierre LOCQUET**, Katholieke Universiteit Leuven, Belgium
Laurent VIVIEN (main organizer), C2N - CNRS, France
Pablo SANCHIS, Nanophotonics Technology Center, Spain

SYMPOSIUM H TIMETABLE

Symposium H				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30		Session I	Plenary Session 09:00-12:30	(08:30-10:45) Session VIII
10:30 – 11:00	Coffee Break			Coffee Break
11:00 – 12:30		Session II		(11:15-12:15) Session IX
12:30 – 14:00	Lunch Break			
14:00 – 15:30		Session III	(14:15-15:15) Session VI	
15:30 – 16:00	Coffee Break			
16:00 – 17:30		(16:15-17:30) Session IV	(16:00-17:15) Session VII	
17:30 – 19:30		Poster Session	Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium H location

Sessions: 208 | Main Building
Poster Session: Small Hall | Main Building

Symposium H Program

Tuesday, September 17 th, 2019

Session I: Detection and sensing : Dr Laurent VIVIEN

09:00	**Detection and modulation of light wave with graphene** Jian-Bin Xu[1,2] * 1Department of Electronic Engineering and Materials Science and Technology Research Center, The Chinese University of Hong Kong, Shatin, Hong Kong SAR, China 2Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, 1068 Xueyuan Avenue, Shenzhen 518055, China *e-mail: jbxu@cuhk.edu.hk, jb.xu@siat.ac.cn	H.1.1
09:30	**Self-Assembled Monolayers as a novel passivation system for Strained Layer Superlattice infrared detectors** Ewa Papis-Polakowska[1], Krzysztof Czuba[1], Dariusz Smoczynski[1], Tomasz Runka[2], Tomasz Martynski[2], Agata Jasik[1] 1. Institute of Electron Technology (ITE), al. Lotników 32/46, Warszawa 02-668, Poland; 2. Poznan University of Technology, Faculty of Technical Physics, ul. Piotrowo 3, Poznań 60-965, Poland	H.1.2
09:45	**Tunable Broadband Plasmonic Titanium Nitride Sensors: A New material for Improved Plasmonic Sensing** Guangyu Qiu[1,2], Jing Wang[1,2] 1. Institute of Environmental Engineering, Department of Civil, Environmental and Geomatic Engineering, ETH Zürich, Switzerland 2. Laboratory for Advanced Analytical Technologies, EMPA, Switzerland	H.1.3
10:00	**Fast and sensitive thermoelectric bolometers based on silicon nanomembranes** Aapo Varpula, Kirsi Tappura, Jonna Tiira, Kestutis Grigoras, Kai Viherkanto, Jouni Ahopelto and Mika Prunnila VTT Technical Research Centre of Finland Ltd, Tietotie 3, 02150 Espoo, Finland	H.1.4
10:15	**Surface arrays of subwavelength nonimaging light concentrators for efficient light trapping** Ashish Prajapati, Ankit Chauhan, Sarah Sowmya Priya Konedana, Gil Shalev Department of electrical engineering, Ben-Gurion University of the Negev, Israel	H.1.5
10:30	Coffee Break	

Session II: Light emission, amplification and lasing : Prof. Pablo Sanchis

11:00	**Photonic-Crystal Lasers for Society 5.0** Susumu Noda and Menaka De Zoysa* Department of Electronic Science and Engineering, Kyoto University, Kyoto 615-8510, Japan snoda@kuee.kyoto-u.ac.jp (*presenting person)	H.2.1
11:30	**Erbium-doped yttria-stabilized zirconia for hybrid integration on silicon-based platforms for photonic applications** A. Ruiz-Caridad[1], G. Marcaud[1], J. M. Ramirez[2], J. Zhang[1], L. Largeau[1], T. Maroutian[1], S. Matzen[1], C. Alonso-Ramos[1], S. Collin[1], G. Agnus[1], S. Guerber[1,3], C. Baudot[3], F. Boeuf[3], E. Duran-Valdeiglesias[1], V. Vakarin[1], E. Cassan[1], D. Marris-Morini[1], P. Lecoeur[1], L. Vivien[1] 1. Centre de Nanosciences et Nanotechnologies (C2N), Université Paris-Saclay, CNRS UMR 9001, Palaiseau, 91120, France; 2. III-V lab, a joint lab from Nokia Bell Labs, Thales and CEA, 1 avenue Augustin Fresnel, 91767 Palaiseau Cedex, France; 3. TR&D STMicroelectronics SAS, Crolles, 38920 France	H.2.2
11:45	**Tunable Silicon Nanocrystal-Polymer Microresonators** Jonathan G.C. Veinot, I Teng Cheong Department of Chemistry, University of Alberta, Edmonton, Alberta, T6G 2G2, Canada	H.2.3
12:00	**Enhanced Photoluminescence Response of Ge(Si) Nanoislands in Photonic Crystal Slabs and Cavities** M. Stepikhova[1], S. Sergeev[1], O. Yermakov[2], S. Dyakov[3], E. Skorokhodov[1], D. Yurasov[1], A. Novikov[1], Z. Krasilnik[1] 1. Institute for Physics of Microstructures RAS, Nizhny Novgorod 603950, Russia; 2. ITMO University, St. Petersburg 197101, Russia; 3. Skolkovo Institute of Science and Technology, Moscow 143025, Russia	H.2.4
12:15	**Ag nanoplate-based Q-switched fiber laser** V. Scardaci[1], B. Fu[2,3], P. Wang[4], Y. Li[4], M. Condorelli[1], E. Fazio[5], G. Compagnini[1], D. Popa[6] 1. Dipartimento di Scienze Chimiche, UniversitÃ degli Studi di Catania, V.le A. Doria 6, 95125 Catania (Italy); 2. Beijing Advanced Innovation Center for Big Data-Based Precision Medicine, Interdisciplinary Innovation Institute of Medicine and Engineering, Beihang University, Beijing 100191, China; 3. School of Instrumentation and Optoelectronic Engineering, Beihang University, Beijing 100191, China; 4. State Key Laboratory of Precision Measurement Technology and Instruments, Department of Precision Instruments, Tsinghua University, Beijing 100084, China; 5. Dipartimento di Scienze Matematiche e Informatiche, Scienze Fisiche e Scienze della Terra, UniversitÃ di Messina, Messina, Italy; 6. Department of Engineering, University of Cambridge, Cambridge CB3 0FA, UK	H.2.5
12:30	Lunch Break	

Session III: Material growth: physical properties : Prof. Jean Pierre Locquet

14:00	**Solid-state dewetting of Si(Ge)-based complex nano-architectures and their applications in photonics** M. Abbarchi[1], M. Salvalaglio[2], M. Naffouti[1], A. Voigt[2], T. Wood[1], T. David[1], L. Favre[1], A. Ronda[1], I. Berbezier[1], D. Grosso[1], M. Lodari[3], M. Bollani[3] 1. AMU, CNRS IM2NP, UMR 7334, 13397 Marseille, France; 2. Institute of Scientific Computing, TU Dresden, 01062 Dresden, Germany; 3. IFN-CNR,Via Anzani 42, 22100 Como, Italy marco.abbarchi@im2np.fr	H.3.1
14:30	**Very low temperature epitaxial growth of GeSi alloys for optoelectronics** J.M. Hartmann UGA and CEA, LETI, Grenoble, France	H.3.2
15:00	**Interlacing quantum dot- and defect-formation in group-IV materials for optoelectronic applications** L. Spindlberger, J. Aberl, P. Rauter, T. Fromherz, F. Schäffler, Moritz Brehm Institute of Semiconductor and Solid State Physics, Johannes Kepler University Linz, Altenberger Strasse 69, 4040 Linz, Austria	H.3.3

Session III: ZnO: Growth and properties : Prof. Jean Pierre Locquet

15:15	**Properties of ZnO:Sb MBE layers grown on a-Al2O3** K.M. Paradowska[1], E. Przeździecka[2], E. Zielony[1], A. Wierzbicka[2], W. Lisowski[3], M. Stachowicz[2], R. Jakieła[2], A. Reszka[2], S. Chusnutdinow[2], E. PĹ,aczek-Popko[1], A. Kozanecki[2] 1. Department of Quantum Technologies, Faculty of Fundamental Problems of Technology, Wroclaw University of Science and Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland; 2. Institute of Physics, Polish Academy of Sciences, Al. Lotnikow 32/46, 02-668, Warsaw, Poland, 3 Institute of Physical Chemistry, Polish Academy of Sciences, M. Kasprzaka 44/52, 01-224 Warsaw, Poland	H.3.4
15:30	Coffee Break	

Session IV: Phase change materials : Dr Laurent VIVIEN

16:15	**All-optical neural networks with phase-change photonics** J. Feldmann[1], N. Youngblood[2], C.D. Wright[3], H. Bhaskaran[2] and W.H.P. Pernice[1] 1. Institute of Physics, University of Muenster, Heisenbergstr. 11, 48149 Muenster, Germany 2. Department of Materials, University of Oxford, Parks Road, OX1 3PH Oxford, UK 3Department of Engineering, University of Exeter, Exeter, EX4 QF, UK	H.4.1
16:45	**Metal-insulator transition materials and their applications in photonic devices** Mariela Menghini Functional Nanosystems Group, Dept. of Physics and Astronomy, KU Leuven, Leuven, Belgium IMDEA Nanociencia, Madrid, Spain	H.4.2

17:15	**Development of a 1.5-?m pixel-pitch holographic display with a phase -change device** Kyunghee Choi, Seong M. Cho, Sanghoon Cheon, Yong-Hae Kim and Chi-Sun Hwang Realistic Display Research Group, Electronics and Telecommunication Research Institute	H.4.3
17:30 Poster Session:		
	Mechanical and structural properties of nitride nanoceramics sintered from in situ made nanopowders of AlN, GaN, and AlxGa1-xN Jerzy F. Janik[1a], Mariusz Drygas[1a], Katarzyna Kapusta[1a], Kamil Wojteczko[1b], Miroslaw M. Bucko[1b], Swietlana Stelmakh[2], Stanisław Gierlotka[2], Bogdan Palosz[2] 1. AGH University of Science and Technology: (a) Faculty of Energy and Fuels, (b) Faculty of Materials Science and Ceramics, al. Mickiewicza 30, 30-059 Krakow, Poland; 2. Institute of High Pressure Physics, Polish Academy of Sciences, ul. Sokolowska 29/37, 01-142 Warszawa, Poland	H.P.1
	Synergistic effect from the dual oxidation states of Eu in the color-tuning of Ca3Mg3(PO4)4:Eu2+, Eu3+ thermometric phosphor HC Swart, Govind B. Nair, RE Kroon, JJ Terblans, Ashwini Kumar Department of Physics, University of the Free State, P. O. Box 339, Bloemfontein 9300, South Africa	H.P.2
	Optical properties of WOx thin films fabricated with Pulsed Laser Deposition A. Calugar[1], A. Andrei[1], V. Ion[1], N. Enea[1], D. Manica[1], F. Andrei[1], A. Moldovan[1], M. Dinescu[1], M. Filipescu[1], V. Teodorescu[2], N.D. Scarisoreanu[1] 1. National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania; 2. National Institute of Materials Physics, Magurele, Romania	H.P.3
	Photochromic properties of open and close dimethyldihydropyrene chromophores in solutions Ignas ?iplys[1], Irena Kulszewicz-Bajer[2], Renata Karpicz[1] 1. Center for Physical Sciences and Technology, Sauletekio ave. 3, LT-10257 Vilnius, Lithuania; 2. Warsaw University of Technology, ul. Noakowskiego 3, 00-664 Warszaw, Poland	H.P.4
	Systematic trends in ABO3 perovskite (001) surface ab initio calculations. Comparison with YAlO3, ReO3 and WO3 polar surfaces R.I. Eglitis, J. Purans, A.I. Popov, J. Gabrusenoks Institute of Solid State Physics, University of Latvia, 8 Kengaraga Str., Riga LV1063, Latvia	H.P.5

	Modification by thermal annealing of luminescence efficiency of Mn4 activated Mg2TiO4 red phosphors L. Borkovska[1], L. Khomenkova[1], I. Vorona[1], T. Stara[1], C. Labbé[2], X. Portier[2], J.Cardin[2], T. Kryshtab[3] 1V. Lashkaryov Institute of Semiconductor Physics, 45 Pr. Nauky, Kyiv 03028, Ukraine 2CIMAP, Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 6 Blvd. Maréchal Juin, 14050 Caen, France 3Instituto Politécnico Nacional – ESFM, Av. IPN, Ed.9 U.P.A.L.M., 07738 Ciudad de México, Mexico	H.P.6
	Printing of Highly Vivid Structural Colors on Bulk Stainless Steel and Aluminum Minseok Seo, Jaeyong Kim, Harim Oh, Junho Lee, and Myeongkyu Lee Yonsei Univerisity	H.P.7
	Photocatalytic oxidation of iodine ions by titanium dioxide, sensitized by zwitterionic dye Kobasa I.M.[1], Kondrachuk I.V.[1], Vorobets M.M.[1], Vorobets G.I.[2] 1. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, i.kondratieva@chnu.edu.ua, m.vorobets@chnu.edu.ua; 2. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	H.P.8
	Photosensitive properties and structure of the interface boundary in laser-epitaxial layers on Cd1-xMnŃ…Te and Cd1-xZnŃ…Te crystal Vorobets G.I., Strebezhev V.M., Fochuk P.M., Yuriychuk I.M., Strebezhev V.V. Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine	H.P.9
	Effect of the position with Alkali-metal layer on the Flexible CZTSSe thin-film solar cells Sammi Kim, Kee-Jeong Yang, Dae-Ho Son, Se-Yun Kim, KwangSeok Ahn, Dae-Hwan Kim, Jin-Kyu Kang Convergence Research Center for Solar Energy, Daegu Gyeongbuk Institute of Science & Technology(DGIST), Daegu, 42988,Republic of Korea	H.P.10
	Improvement of CZTSe thin film solar cells by manipulation selenization temperature Fang-I Lai, Jui-Fu Yang, Shou-Yi Kuo Electrical Engineering Program C, Yuan-Ze University, 135 Yuan-Tung Road, Chung-Li, 32003, Taiwan Department of Electronic Engineering, Chang Gung University, 259 Wen-Hwa 1st Road, Kwei-Shan, Taoyuan 333, Taiwan. Department of Urology, Chang Gung Memorial Hospital, Linkou, No.5, Fuxing Street, Kwei-Shan, Taoyuan 333, Taiwan	H.P.11
	A highly transparent, stretchable organic-inorganic hybrid elastomer for focus-tunable optical lenses Seung Koo Park, Bong Je Park, Mi Jeong Choi, Eun Jin Shin, Jae Woong Yoon, Sungryul Yun and Suntak Park Smart UI/UX Devices Research Section, SW Contents Basic Technology Research Group, SW Contents Research Laboratory, Electronics and Telecommunications Research Institute	H.P.12

	Growth of Molybdenum disulfide by sulfurization process P.Knyps[1], P.P. Michalowski[1], P.Ciepielewski[1], P.A.Caban[1], E.Dumiszewska[1], J.M.Baranowski[1], G.Kowalski[2] and M.Tokarczyk[2] 1. Lukasiewicz Research Network - Institute of Electronic Materials Technology, Warsaw, Poland; 2. Institute of Experimental Physics, Faculty of Physics, University of Warsaw, Warsaw, Poland	H.P.13
	Optical absorption of a donor in GaAs conical quantum dot with spherical edge: Effects of pressure and temperature A. El Aouami, M. EL-Yadri, N. Aghoutane, E. Feddi, F. Dujardin Laboratoire de Matière Condensée et Sciences Interdisciplinaires (LaMCScI), Group of Optoelectronic of Semiconductors and Nanomaterials, ENSET, Mohammed V University in Rabat, Morocco; Laboratoire de Matière Condensée et Sciences Interdisciplinaires (LaMCScI), Group of Optoelectronic of Semiconductors and Nanomaterials, ENSET, Mohammed V University in Rabat, Morocco; Laboratoire de Matière Condensée et Sciences Interdisciplinaires (LaMCScI), Group of Optoelectronic of Semiconductors and Nanomaterials, ENSET, Mohammed V University in Rabat, Morocco; Laboratoire de Matière Condensée et Sciences Interdisciplinaires (LaMCScI), Group of Optoelectronic of Semiconductors and Nanomaterials, ENSET, Mohammed V University in Rabat, Morocco; Institut de Chimie, Physique et Matériaux, LCP-A2MC, Université de Lorraine, Metz, France	H.P.14

Symposium H Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VI: Ferroelectric materials : Prof. Pablo Sanchis		
14:15	**A Strong Pockels Effect in Silicon Photonic Devices** Felix Eltes, Jean Fompeyrine, Stefan Abel IBM Research – Zurich, Säumerstrasse 4, 8803 Rüschlikon, Switzerland	H.6.1
14:45	**Spectroscopic ellipsometry of epitaxial ferroelectric films** Alexandr Dejneka, Marina Tyunina Institute of Physics of the Czech Academy of Sciences, Prague, 18221, Czech Republic	H.6.2
15:00	**Thin films of (Ba1?xCax)(ZryTi1?y)O3 obtained by Pulsed Laser Deposition (PLD)** V. Ion[1], N. Enea[1], A. Andrei[1], F. Craciun[2], R. Birjega[1], N.D. Scarisoreanu[1] and M. Dinescu[1] 1 National Institute for Laser, Plasma and Radiation Physics, 409 Atomistilor St, Magurele, Romania; 2. CNR-ISC, Istituto Dei Sistemi Complessi, Via del Fosso del Cavaliere 100, I-00133 Rome, Italy	H.6.3
15:15	Coffee Break	
Session VII: Oxide and nitride for photonics : Prof. Jean Pierre Locquet		
16:00	**Transferable epitaxial oxide perovskite thin films for novel electronic applications** Zhengdong Luo*, Marin Alexe Department of Physics, University of Warwick, Coventry, United Kingdom Email: Zhengdong.Luo@warwick.ac.uk	H.7.1

16:30	**In-plane dielectric properties of PZT thin films for electro-optic applications in nanophotonics** Tessa Van de Veire, John Puthenparampil George, Kristiaan Neyts, Dries Van Thourhout, Johan Lauwaert, Filip Beunis, Jeroen Beeckman Department of Electronics & Information Systems, Ghent University, Belgium, Department of Electronics & Information Systems, Ghent University, Belgium, Department of Electronics & Information Systems, Ghent University, Belgium, Department of Information Technology, Ghent University, Belgium, Department of Electronics & Information Systems, Ghent University, Belgium, Department of Electronics & Information Systems, Ghent University, Belgium, Department of Electronics & Information Systems, Ghent University, Belgium	H.7.2
16:45	**Integration of transparent conducting oxides in photonic circuits for enabling high performance functionalities** Jorge Parra, Sergi Hernández*, Blas Garrido*, Pablo Sanchis Nanophotonics Technology Center, Universitat Politècnica de València, Camino de Vera s/n, 46022 Valencia, Spain; *Departament d'Enginyeria Electrònica i Biomèdica, Universitat de Barcelona Carrer Martí i Franquès 1, 08028 Barcelona, Spain	H.7.3
17:00	**AlN thin films integration in power laser devices: Low temperature deposition using PVD method and etching under ICP** Mohammad Rammal[1], Ahmed Rhallabi[1], Delphine Néel[2], Alexandre Shen[2], Abdou Djouadi[1] 1. Institut des Matériaux Jean Rouxel, Université de Nantes, CNRS, 2 rue de la Houssinière 44322 Nantes, France; 2. III-V Lab, Campus de Polytechnique, 1, Avenue Augustin Fresnel, 91767 Palaiseau	H.7.4
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium H Program

Thursday, September 19 th, 2019

Session VIII: Nanomaterials for photonics : Dr Laurent VIVIEN

08:30	**Driving excitons in 2D semiconductors with uniform and non-uniform strain** Kirill Bolotin Freie University Berlin	H.8.1
09:00	**Near-infrared plasmonics in two-dimensional materials** Javier García de Abajo ICFO-Institut de Ciencies Fotoniques, The Barcelona Institute of Science and Technology, 08860 Castelldefels (Barcelona), Spain	H.8.2
09:30	**Momentum-resolved dielectric response of free-standing mono-, bi- and tri- layers black phosphorus** Etienne Gaufras 1. Laboratoire d'Etude des Microstructures, ONERA-CNRS, UMR104, Université Paris-Saclay, BP 72, 92322 Châtillon Cedex, France; 2. Département de physique, Université de Montréal, Montréal QC H3C 3J7, Canada; 3. Department of Physics, University of California at Berkeley, Berkeley, California 94720, USA; 4. Département de chimie, Université de Montréal, Montréal QC H3C 3J7, Canada; 5. Institut d'Optique & CNRS, LP2N UMR 5298, F-33400 Talence, France; 6. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California 94720, USA Corresponding authors : etienne.gaufres@u-bordeaux.fr	H.8.3
10:00	**Modification of optical, electrical and structural properties of two-dimensional materials using millisecond range flash lamp an** S. Prucnal[1], Juanmei Duan[1,2], H.-S. Tsai[1], Chia-Nung Kuo[3], Chin Shan Lue[3] and Shengqiang Zhou[1] 1. Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Bautzner Landstrasse 400, D-01328 Dresden, Germany; 2. Technische UniversitÄat Dresden, D-01062 Dresden, Germany, 3Department of Physics, National Cheng Kung University, Tainan, Taiwan	H.8.4
10:15	**Valley-Dependent Properties of Moiré Trapped Interlayer** Excitons Mauro Brotons-Gisbert, Hyeonjun Baek, Dale Scerri, and Brian D. Gerardot Institute of Photonics and Quantum Sciences, SUPA, Heriot-Watt University, United Kingdom	H.8.5
10:45	Coffee Break	

Session IX:

11:15	**Tailoring of defect centers in 3C-SiC for application in quantum information using sublimation epitaxial growth** Michael Schöler, Peter J. Wellmann Crystal Growth Lab, Materials Deparmtent 6, University of Erlangen-Nürnberg, Germany	H.9.1
11:30	**Influence of annealing conditions on spectral properties of the Li-doped ZnO screen-printed films** Chukova O.V.[1], Borkovska L.V.[2], KhomenkovaL.Yu.[2], Korsunska N.O.[2], Markevich I.V.[2], Androulidaki M.[3], Papadopoulos A.[3] 1. Taras Shevchenko National University of Kyiv, Volodymyrska Str., 64/13, Kyiv 01601, Ukraine; 2. V.Lashkaryov Institute of Semiconductor Physics of the National academy of sciences of Ukraine, 45 Prospekt Nauky, Kyiv 03028, Ukraine; 3. Institute of Electronic Structure & Laser of Foundation for Research & Technology Hellas (FORTH) P.O. BOX 1527,Vassilika Vuton, Heraklion 711 10 Crete, Greece	H.9.2
11:45	**Solution grown, well-ordered, highly crystalline multifunctional ZnO nanostructures: Urchin-like ZnO to flowers** Anisha Gokarna*, Hind Kadiri, Agnieszka Gwiazda, Sambhav Kumar and Gilles Lerondel L2n, Department of Physics, Mechanics, Materials and Nanotechnology Institute Charles Delaunay, CNRS University of Technology of Troyes 12 Rue Marie Curie, 42060 CS 10004 Troyes, France	H.9.3
12:00	**Towards a new application of MgO/ZnMgO based quantum structures** H. Teisseyre[1,2]*, I. Gorczyca[2], M. Wierzbowska[2], D. Jarosz[1], S. Kret[1], A. Reszka[2], J. Domagała[1] 1. Institute of Physics, Polish Academy of Sciences, Al. Lotników 32/34, 02-668 Warsaw, Poland; 2. Institute of High Pressure Physics, Polish Academy of Sciences, Sokołowska 29/37, 01-142 Warsaw, Poland *presenting author, e-mail: teiss@ifpan.edu.pl	H.9.4

Symposium I

Sessions: Room 219 | Main Building
Poster Session: Small Hall | Main Building

ENERGY AND ENVIRONMENT:

Materials for Energy Applications: Li-ion, Na-ion Batteries, supercapacitors and beyond, perovskite-type Solar cells and beyond

Symposium Organizers: **Manickam MINAKSHI**, Murdoch University, Australia
Rajeev AHUJA (Main Organizer), Uppsala University, Sweden
Yong-Mook KANG, Dongguk University, Korea

SYMPOSIUM I TIMETABLE

Symposium I				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30	Session I	Session V	Plenary Session 09:00-12:30	Session XI
10:30 – 11:00	Coffee Break			Coffee Break
11:00 – 12:30	(11:00-13:00) Session II	(11:00-13:00) Session VI		(11:00-13:00) Session XII
12:30 – 14:00	Lunch Break			
14:00 – 15:30	Session III	Session VII	Session IX	Session XIII
15:30 – 16:00	Coffee Break			
16:00 – 17:30	(16:00-18:00) Session IV	(16:00-18:00) Session VIII	(16:00-17:45) Session X	(16:00-17:45) Session XIV
17:30 – 19:30	(18:00-19:30) Poster Session I	(18:00-19:30) Poster Session II	Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium I location

Sessions: 219 | Main Building
Poster Session: Small Hall | Main Building

Symposium I Program

Monday, September 16 th, 2019

Session I:		
09:00	**Ferroelectricity in methylammonium lead iodide perovskite solar cells** Holger Röhm, Tobias Leonhard, Alexander D. Schulz, Susanne Wagner, Michael J. Hoffmann and Alexander Colsmann Material Research Center for Energy Systems, Karlsruhe Institute of Technology, Karlsruhe, 76131, Germany	I.1.1
09:30	**On the way to mass produced Silicon-Sulfur Li-ion batteries** Sandra Hansen, Helge Krüger, Heather Cavers, Jürgen Carstensen, Fabian Schütt, Yogendra Kumar Mishra, Rainer Adelung* Chair for Functional Nanomaterials, Kiel University, 24147 Kiel, Germany, ra@tf.uni-kiel.de	I.1.2
10:00	**Point Defect Concentrations and Charge Transfer Mechanisms in Energy Materials from First Principles** Craig A. J. Fisher[1], Ayako Taguchi[1], Takafumi Ogawa[1], Akihide Kuwabara[1], Yumi H. Ikuhara[1], Hiroki Moriwake[1], Yuichi Ikuhara[1,2] 1. Nanostructures Research Laboratory, Japan Fine Ceramics Center, 2-4-1 Mutsuno, Atsuta-ku, Nagoya 456-8587, Japan; 2. Institute of Engineering Innovation, The University of Tokyo, Bunkyo, Tokyo 113-8656, Japan	I.1.3
10:30	Coffee Break	
Session II:		
11:00	**Tailored New High Entropy Materials for Advanced Li-ion Batteries** Parvathy Anitha Sukkurji[1], Ibrahim Issac[1], Qingsong Wang[1], Leonardo Velasco Estrada[1], Wolfgang Bessler[2], Horst Hahn[1], Ben Breitung[1,3] 1. Institute of Nanotechnology, Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany; 2. Offenburg University of Applied Sciences, Offenburg, Germany 3Karlsruhe Nano Micro Facility, Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany	I.2.1

11:15	**Integration of Thin-film Photovoltaics into Vanadium Redox Flow Batteries for Unbiased Photocharge** S. Murcia-López, M. Chakraborty, N.M. Carretero, C. Flox, J.R. Morante, T. Andreu Catalonia Institute for Energy Research (IREC) C/ Jardins de les Dones de Negre 1, Sant Adrià de Besòs, Spain	I.2.2
11:30	**Numerical investigations of the impact of low cost fabrication of Cu2O on solar cell performances** Christyves Chevallier, Jean Zaraket, Sidi Ould Saad Hamady, Michel Aillerie, Thierry Aubert, Nicolas Fressengeas Université de Lorraine, CentraleSupélec, LMOPS, 57000 Metz, France	I.2.3
11:45	**Thin Films of Complexes Materials for Green Energy** Aldo J.G. Zarbin, Lucimara S. Roman, Samantha Husmann, Eduardo G.C. Neiva, Vitor Hugo R. Souza, Rodrigo V. Salvatierra Department of Chemistry, Federal University of Parana (UFPR), Curitiba-PR, Brazil,	I.2.4
12:00	**Material design/theory from a view of Eastern and Western philosophy** Wei Luo Department of Physics and Astronomy, Uppsala University, Sweden	I.2.5
12:30	**Surface active and defective metal-organic framework array for overall water splitting** Jian Zhou, Awu Zhou, Lun Shu, Yibo Dou, Jian-Rong Li College of Environmental and Energy Engineering, Beijing University of Technology, Beijing	I.2.6
12:45	**Neutron diffraction and spectroscopy investigations on a potential solid state Mg-ion conductor** Michael Heere[1,2], Volodia Gounaris[3], Xiao Li[3], Jian Wang[3] & Yaroslav Filinchuk[3] 1. Institute for Applied Materials-Energy Storage Systems (IAM-ESS), Karlsruhe Institute of Technology (KIT), 76344 Eggenstein, Germany; 2. Heinz Maier-Leibnitz Zentrum (MLZ), Technische Universität München, Lichtenbergstr. 1, 85748 Garching b. München, Germany; 3. Université Catholique de Louvain, 1348 Louvain-la-Neuve, Belgium	I.2.7
13:00	Lunch Break	
Session III:		
14:00	**Sol-gel preparation of doped-metal oxide nanostructures for the thermoelectric conversion of energy** Shashank Mishra[1]*, Alexandre Verchère[1], Stéphane Daniele[1], Sandrine Cottrino[2], Gilbert Fantozzi[2], Sylvie Le Floch[3] and Stéphane Pailhès[3] 1. Claude Bernard University of Lyon1, IRCELYON, 2 Avenue A. Einstein, 69626 Villeurbanne, France; 2. INSA-LYON, MATEIS, CNRS, UMR 5510, F-69621 Villeurbanne, France; 3. Claude Bernard University of Lyon1, ILM, CNRS, UMR 5306, F-69622 Villeurbanne, France	I.3.1

14:30	**Electrodes for asymmetrical supercapacitors prepared by electrochemical techniques** M.F. De Riccardis, M. Re, L. Capodieci, A. Cappello, D. Carbone, E. Pesce, M. Prato 1. Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, NL-2629JB Delft, The Netherlands; 2. Department of Applied Physics, Eindhoven University of Technology, NL-5600 MB Eindhoven, The Netherlands; 3. Photovoltaic Materials and Devices, Department of Electrical Engineering, Mathematics and Computer Sciences, Delft University of Technology, Mekelweg 4, NL-2628CD Delft, The Netherlands; 4. Solliance Solar Research, High Tech Campus 21, NL-5656 AE Eindhoven, The Netherlands; 5. Institut für Angewandte Physik und Messtechnik, Universität der Bundeswehr München, D-85579 Neubiberg, Germany; 6. Physics Department & Heinz Maier-Leibnitz Zentrum (MLZ), Technische Universität München, D-85748 Garching, Germany; 7. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan; 8 .Graduate School of Engineering, Nagoya University, Nagoya, Japan	I.3.2
14:45	**Local structure of glass-ceramic sodium sulfidic solid state electrolytes** Charlotte Fritsch, Dominik Stepien, Anna-Lena Hansen, Sylvio Indris, Michael Knapp, Helmut Ehrenberg	I.3.3
15:00	**New insight into structure-electrochemistry relationships of vanadium oxides for Li/Na-ion batteries using BVSE approach** Nicolas Emery, Rita Baddour-Hadjean, Barbara Laïk, Jean-Pierre Pereira-Ramos ICMPE, UMR 7182 CNRS-UPEC, F- 94320 THIAIS FRANCE	I.3.4
15:15	**Design optimization of low cost, highly efficient aqueous zinc-iodide flow battery** M. Chakraborty, B. Molinari, S. Murcia-López, J.R. Morante, T. Andreu M. Chakraborty[1], B. Molinari[1], S. Murcia-López [1], J.R. Morante[1,2], T. Andreu[1] 1. Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, Sant Adrià de Besós, 08930, Spain; 2. University of Barcelona (UB), Martí i Franquès 1, Barcelona, 08020, Spain	I.3.5
15:30	Coffee Break	

Session IV:

16:00	**Structural disorder in metal oxide electrodes observed during battery cycling** Dorthe B. Ravnsbæk Department of Physics, Chemistry and Pharmacy, University of Southern Denmark, Campusvej 55, 5230 Odense M, Denmark	I.4.1
16:15	**Understanding the recombination and transport mechanisms in the perovskite solar cells using bias dependent impedance study** Varun Srivastava, Manoj A.G. Namboothiry Indian Institutes of Science Education and Research, Thiruvananthapuram, India	I.4.2

16:30	**Hieratical carbon coated 3D-CZTS nano-flower anode material for high performance lithium ion battery** Boya Venu Gopal, Zeru Syum, Indrajit Shown, Amr Sabbah, Heng-Liang Wu, Chih-Wei Chu, Chih-Hao Lee, Li-Chyong Chen, Kuei-Hsien Chen 1. Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei 10617, Taiwan; 2. Research Centre for Applied Sciences, Academia Sinica, Taipei-115-29, Taiwan; 3. Nanoscience and Technology Program, Taiwan International Graduate Program, Academia Sinica, Taipei-115-29, Taiwan; 4. Department of Engineering and System Science, National Tsing Hua University, Hsinchu 30013, Taiwan; 5; Center for Condensed Matter Sciences, National Taiwan University, Taipei 10617, Taiwan	I.4.3
16:45	**Fast Operando GCMS Gas Analysis for Monitoring Electrolyte Decomposition in Lithium Ion Batteries** Juergen Kahr[1], Arlavinda Rezqita[1], Maria Antoniadou[2], Erwin Rosenberg[2], Daniela Fontana[3], Marcus Jahn[1] 1. AIT Austrian Institute of Technology GmbH, Center for Low-Emission Transport, Electric Drive Technologies, Giefinggasse 2, 1210 Vienna, Austria, juergen.kahr@ait.ac.at; 2. Vienna University of Technology, Institute of Chemical Technologies and Analytics, Austria, Getreidemarkt 9/164 AC, 1060, Vienna, Austria, maria.antoniadou@tuwien.ac.at; 3. Lithops srl, Strada del Portone 61, 10137 Torino, Italy, daniela.fontana@lithops.it	I.4.4
17:00	**NMC electrode stabilization study for high-voltage battery applications** Maciej Boczar[1], Justyna Frąckiewicz[1,2], Hui Wang[3], Andrzej Czerwiński[1], Dominika Ziółkowska[1] 1. Faculty of Chemistry, University of Warsaw, Warsaw,Poland; 2. Faculty of Physics, Warsaw University of Technology, Warsaw, Poland; 3. Department of Mechanical Engineering, University of Louisville, USA	I.4.5
17:15	**PV-Battery power unit based on Perovskite and Lithium-ion storage cells** Li-chung Kin[1,2], Oleksandr Astakhov[1], Shicheng Yu[2], Hermann Tempel[2], Hans Kungl[2], Solomon N. Agbo[1], Uwe Rau[1], Ruediger-A. Eichel[2], Tsvetelina Merdzhanova[1] 1. IEK 5-Photovoltaics, Forschungszentrum Jülich GmbH, D-52425 Jülich, Germany; 2. IEK 9-Fundamental Electrochemistry, Forschungszentrum Jülich GmbH, D-52425 Jülich, Germany	I.4.6
17:30	**Realizing Stabilized OrthorhombicΥ-CsPbI3 by Antimony Incorporation for inorganic perovskite solar cell** Anupriya Singh[1,2], Chih-Wei Chu[2]* 1. Department of Physics, National Taiwan University No. 1, Sec. 4, Roosevelt Road, Taipei 106, Taiwan; 2. Research Center for Applied Science, Academia Sinica,128 Academia Road, Section 2, Nangang Taipei 115-29 Taiwan (R.O.C.) and Nano Science and Technology Program Taiwan International Graduate Program Academia Sinica	I.4.7
17:45	**Chalcogenide nanostructures for thermoelectric applications** Ice Tee Research scientist	I.4.8

18:00 Poster Session I:

	Ultralight energy storage devices using 3 dimensional pristine graphene aerogels Dong Won Kim, Sung Mi Jung, Hyun Young Jung Gyeongnam National University of Science and Technology, Korea Institute of Toxicology, Gyeongnam National University of Science and Technology	I.P1.1
	Magnesioferrite-carbon black nanocomposites prepared by green method via Moringa Olefeira natural extract for high electrochemic N. Matinise, N. Mayedwaa, K. Kaviyarasua, Z. Y. Nuru, I.G. Madiba, M. Maaza Nanosciences African Network (NANOAFNET), iThemba LABS-National Research Foundation, 1 Old Faure Road, Somerset West 7129, PO Box 722, Western Cape, SA UNESCO-UNISA Africa Chair in Nanosciences-Nanotechnology, College of Graduate Studies, University of South Africa, Muckleneuk Ridge, PO Box 392, Pretoria, SA	I.P1.2
	High Performance Photodetectors Based on All-inorganic Perovskite Thin Single Crystal Tiebin Yang, Xingmo Zhang, Feng Li, Rongkun Zheng School of Physics, The University of Sydney, Sydney, NSW 2006, Australia, The University of Sydney Nano Institute, The University of Sydney, Sydney, NSW 2006, Australia, Australian Centre for Microscopy and Microanalysis, The University of Sydney, Sydney, NSW 2006, Australia	I.P1.3
	Novel polycrystalline material based surface metallization for highly reliable high temperature thermoelectric devices Sang Hyun Park, Yeongseon Kim, Hana Yoon and Chung-Yul Yoo Separation and Conversion Materials Laboratory, Korea Institute of Energy Research, Gajeong-ro Youseong-Gu, 305-343, Daejeon, Republic of Korea	I.P1.4
	Polyaniline-mwcnts composites for high performance supercapacitor application Muhammad Tayyab Ahsan, Muhammad Aftab Akram, Ramsha Khan School of Chemical & Materials Engineering, National University of Sciences and Technology (NUST), Islamabad, Pakistan	I.P1.5
	Hydrogenated TiO2 as efficient electrode materials for energy storage and conversion Dong Wang, Yong Yan, Ge Chen, Peter Schaaf 1. Institute of micro and nanotechnologies and Institute of materials science and engineering, TU Ilmenau, Germany; 2. College of Environmental & Energy Engineering, Beijing University of Technology, China	I.P1.6
	Rare-earth Ce element for electrocatalysis Yongquan Qu Center for Applied Chemical Research, Frontier Institute of Science and Technology, Xi?an Jiaotong University, Xi?an, 710054, China	I.P1.7

	Co-electrodeposition of crystalline copper-manganese oxide containing CuMn2O4 spinel for high energy supercapacitor application M. Sheikhzadeh[1], S. Sanjabi[1]*, Seyedsina Hejazi[2], Shiva Mohajernia[2] and Patrik Schmuki[2]* 1. Nanomaterials Group, Department of Materials Engineering, Tarbiat Modares University, P.O. Box 14115-143, Tehran, Iran; 2. Department of Materials Science and Engineering WW4-LKO, University of Erlangen-Nuremberg, Martensstrasse-7, Erlangen D-91058, Germany	I.P1.8
	Extremely Stable Unencapsulated Perovskite Solar Cells Hsin-Hsiang Huang[1,2], King-Fu Lin[2], Leeyih Wang[1]* 1. Center for Condensed Matter Sciences, National Taiwan University, Taipei 10617, Taiwan; 2. Department of Materials Science and Engineering, National Taiwan University, Taipei 10617, Taiwan, * Center of Atomic Initiative for New Materials (AI-Mat), National Taiwan University, Taipei 10617, Taiwan	I.P1.9
	Post-Fabrication Strategies to Improve Light Harvesting in Perovskite Solar Cells Shynggys Sadyk[1], Timur Atabaev[1], Dorota Bacal[2], Askhat N. Jumabekov[3] 1. Department of Chemistry, Nazarbayev University, Nur-Sultan, 010000, Kazakhstan; 2. Department of Chemical Engineering, Monash University, Clayton, VIC 3800, Australia; 3. CSIRO Manufacturing, Clayton, VIC 3168, Australia; 4. Department of Physics, Nazarbayev University, Nur-Sultan, 010000, Kazakhstan	I.P1.10
	Hydrophobic-O2 Selective Membrane for Gas Diffision Electrodes in Metal-Air Batteries Gizem Cihanoglu, Ozgenc Ebil Department of Chemical Engineering, Izmir Institute of Technology	I.P1.11
	Nanocrystalline perovskite layers for white light generation P. Scajev, D. Litvinas, P. Baronas, G. Kreiza, R. Toma?i?nas and S. Jur??nas Institute of Photonics and Nanotechnology, Vilnius University, Sauletekio al. 3, LT 10257, Vilnius, Lithuania	I.P1.12
	Study of nano-sized cathode material for flexible Li-ion batteries with organic/inorganic hybrid electrolyte Kookjin Heo, Jehong Im, Jinsub Lim* Korea Institute of Industrial Technology (KITECH), 6, Cheomdan-gwagiro 208-gil, Buk-gu, Gwangju 61012, Republic of Korea	I.P1.13
	SiNWs sinthesized by Cu-catalysed CVD for lithium-ion batteries Flaminia Rondino[1], Michela Ottaviani[2,3], Margherita Moreno[2], Alessandro Rufoloni[1], L. Della Seta[2], Valerio Orsetti[1], Mauro Pasquali[3], Antonino Santoni[1], Pier Paolo Prosini[2] 1. ENEA Frascati Research Centre, FSN-TECFIS-MNF, via E. Fermi 45, 00044 Frascati, Italy; 2. ENEA Casaccia Research Centre, DTE-PCU-SPCT, Via Anguillarese 301, 00123 Santa Maria di Galeria, Rome, Italy; 3. Sapienza University, SBAI Department, Via del Castro Laurenziano 7, 00161 Rome, Italy	I.P1.14

	Highly Efficient Large-area Polymer Solar Cells Processed at Room Temperature by Molecular Engineering of Copolymers Shafket Rasool, Doan Van Vu, Won Suk Shin, Chang-Eun Song and Sang-Jin Moon Energy Materials Research Center, Korea Research Institute of Chemical Technology(KRICT)	I.P1.15
	Synthesis of Li2CoTi3O8 nanoparticles via a citric acid method toward electrochemical capacitor applications Yuya Nakamura[1], Yoshikazu Suzuki[1,2] 1. Graduate School of Pure and Applied Sciences, University of Tsukuba, Ibaraki 305-8573, Japan; 2. Faculty of Pure and Applied Sciences, University of Tsukuba, Ibaraki 305-8573, Japan	I.P1.16
	Perovskite solar cells prepared by a modified 3-step method using non-TiO2 electron transport layer Yota Sakuma[1], Yoshikazu Suzuki[1,2] 1. Graduate School of Pure and Applied Sciences, University of Tsukuba, Ibaraki 305-8573, Japan; 2. Faculty of Pure and Applied Sciences, University of Tsukuba, Ibaraki 305-8573, Japan	I.P1.17
	Theoretical prediction of the 5 Volt rechargeable Li ion battery using Li2CoMn3O8 as a cathode Roberts Eglitis Institute of Solid State Physics, University of Latvia, 8 Kengaraga Str., Riga LV1063, Latvia	I.P1.18
	The effect of exposed crystal facets of LiNi0.5 Mn1.5O4 on cathode-solid electrolyte interface in lithium-metal batteries Joosun Kim[1]*, Seung-Hwan Lee[1,2], Hyunjung Shin[2], Jooho Moon[3], Sangbaek Park[1] 1. Center for Energy Materials Research, Korea Institute of Science and Technology, Hwarang-ro 14-gil 5, Seongbuk-gu, Seoul 136-791, Korea; 2. Department of Energy Science, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon 440-746, Korea,, 3Department of Materials Science and Engineering, Yonsei University 50 Yonsei-ro Seodaemun-gu, Seoul 03722, Korea	I.P1.19
	Transfer of Vertically Aligned Silicon Nanowire Arrays using Sacrificial Porous Silicon Layer Mihir Kumar Sahoo, Paresh Kale Department of Electrical Engineering, NIT Rourkela, Odisha, 769008, India	I.P1.20
	Enhancement of Ionic Conduction in Bi2O3 based Solid Electrolyte through Multiple Doping based on Thermodyamics Consideration Inechia Ghevanda, Kuan-Zong Fung Department of Materials Science and Engineering, National Cheng Kung University, Taiwan	I.P1.21

	Derivation of minority carrier mobility by ultrafast transient absorption spectroscopy in a band gap graded high-efficiency CIGS Yu-Han Chang, James Durrant*, Ludmilla Steier* Department of Chemistry and Centre for Plastic Electronics, Imperial College London, White City Campus, 80 Wood Lane, London W12 0BZ	I.P1.22
	Do surface reactions contribute to the additional capacity of ZnMn2O4 anodes for Lithium Ion Batteries? Lydia Gehrlein[1], Zijian Zhao[1], Chittaranjan Das[1], Sonia Doske[1,2], Julia Maibach[1] 1. Institute for Applied Materials (IAM), Karlsruhe Institute of Technologie (KIT); 2. Helmholtz Institute Ulm for Electrochemical Energy Storage (HIU)	I.P1.23
	Modeling of Perovskite solar cells including time-related degradation effects F. Djeffal[1], A. Maoucha[1], T. Bentrcia[2,*] and A. Benhaya[1] 1. LEA, Department of Electronics, University Mostefa Benboulaid-Batna 2, Batna 05000, Algeria; 2. LEPCM, University of Batna 1, Batna 05000, Algeria. *E-mail: faycal.djeffal@univ-batna.dz, faycaldzdz@hotmail.com, Tel/Fax: 0021333805494	I.P1.24
	Effect of Mix Conducting Ba0.5Sr0.5Co0.8Fe0.2O as Cathode Electrocatalyst into Capacity and Cycling Stability of Lithium Oxygen Octavina Novita Sari, Kuan-Zong Fung National Cheng Kung University	I.P1.25
	Extended defects states in semiconductors heterojunction photocell B.A. Orlowski[1], M. Galicka[1], K. Goscinski[1], S. Chusnutdinow[1], K. Gwozdz[2], E. Placzek-Popko[2], M.A. Pietrzyk[1], E. Guziewicz[1], B.J. Kowalski[1] 1. Institute of Physics, Polish Academy of Sciences, Al. Lotnikow 32/46 ,Warsaw, Poland; 2. Department of Quantum Technology, Faculty of Fundamental Problems of Technology, Wroclaw University of Science and Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland	I.P1.26
	Biomass-based highly porous carbons by chemical activation with sodium thiosulfate and their use in electrochemical capacitors Marta Sevilla, Noel Diez, Guillermo A. Ferrero and Antonio B. Fuertes Instituto Nacional del Carbón (CSIC), Fco. Pintado Fe 26, Oviedo 33011, Spain	I.P1.27
	GARNET-PEO composite solid electrolytes: a multiscale view on Li transport Jakub Zagorski*[1], Juan Miguel Lopez del Amo[1], Frederic Aguesse[1], Anna Llordes[1,2] 1. CIC Energigune, Parque Tecnologico de Alava,01510 Miñano, Spain, 2. IKERBASQUE, The Basque Foundation for Science, María Díaz de Haro 3, 48013 Bilbao, Spain	I.P1.28

	High Performance Asymmetrical Supercapacitors Based on Bi-Metallic Transition Metal Phosphide Nanocrystals Nan Zhang[1], Yifan Li[2], Junyuan Xu[1], Junjie Li[1], Bin Wei[1], Isilda Amorim[1], Rajesh Thomas[1], Sitaramanjaneva Mouli Thalluri[1], Yuanyue Liu[2], Guihua Yu[2] and Lifeng Liu[1] 1. International Iberian Nanotechnology Laboratory (INL), Av. Mestre Jose Veiga, 4715-330 Braga, Portugal; 2. Department of Mechanical Engineering, University of Texas at Austin, Austin, Texas 78712, United States	I.P1.29
	Thermomagnetic materials for harvesting low temperature waste heat Daniel Dzekan[1,2], Anja Waske[3], Kornelius Nielsch[1,2], Sebastian Fähler[2] 1. Technical University of Dresden, Dresden; 2. Leibnitz Institute for Solid State and Material Research, Dresden; 3. Bundesanstalt für Materialforschung und – prüfung (BAM)	I.P1.30
	Laser Reduction of Zn-Infiltrated Multilayered Graphene Oxide as Electrode Materials for Supercapacitors Seung-Mo Lee*[1,2], Yong-Jin Park[1,3] and Jae-Hyun Kim[1,2] 1. Department of Nanomechanics, Korea Institute of Machinery and Materials (KIMM), 156 Gajeongbuk-ro, Yuseong-gu, Daejeon 34103, South Korea; 2. Nano Mechatronics, Korea University of Science and Technology (UST), 217 Gajeong-ro, Yuseong-gu, Daejeon 34113, South Korea; 3. Department of Energy Science and Technology, Graduate School of Energy Science and Technology (GEST), Chungnam National University, 99 Daehak-Ro, Yuseong-Gu, Daejeon 34134, South Korea	I.P1.31
	Cathodes for Aluminium-Ion Batteries Shalini Divya, Thomas Nann School of Chemical and Physical Sciences, Victoria University of Wellington, New Zealand, School of Mathematical and Physical Sciences, Faculty of Science, The University of Newcastle, Australia	I.P1.32
	Hexaazatriphenylene-based polymer cathode for ultrafast and stable Li-, Na- and K-ion batteries Roman R. Kapaev, Keith J. Stevenson, Pavel A. Troshin Skolkovo Institute of Science and Technology, Nobel str. 3, 143026 Moscow, Russia	I.P1.33
	Synthesis and properties of s-triazine insensitive high-energy material with strong intramolecular hydrogen bonding Gui-Juan Fan, Qing Ma Institute of Chemical Materials, Chinese Academy of Engineering Physics, Mianyang 621900, China	I.P1.34
	Optical characterization of Graphene / HfO2 heterostructures Yosra Ben Maad[1], Mehrez Oueslati[1], Hosni Ajlani[1,2], Ali Madouri[3], Abdelaziz Meftah[1] 1. Faculty of Sciences of Tunis, University of Tunis El Manar, 2092 El Manar Tunis, Tunisia. UR Nanomaterials and Photonics; 2. ISAMM, University of La Manouba, 1120 Tunis, Tunisia; 3. CNRS/LPN, Route de Nozay, F-91460 Marcoussis, France	I.P1.35

	Metallized Nitrogenated Holey Graphene Nanosheets (C2N): A Promising Material for High Capacity Clean Energy Storage S.R. Naqvi[1], T. Hussain[2]*, A. Karton[2], R. Ahuja[1,3] 1. Condensed Matter Theory Group, Department of Physics and Astronomy, Box 516, Uppsala University, S-75120 Uppsala, Sweden; 2. School of Molecular Sciences, University of Western Australia, Perth, WA 6009, Australia; 3. Applied Materials Physics, Department of Materials and Engineering, Royal Institute of Technology (KTH), S-100 44 Stockholm, Sweden	I.P1.36
	New organic redox-active polymers for metal-ion batteries E.V. Shchurik[1], O. A. Kraevaya[1,2], A.V. Mumyatov[1], A. F. Shestakov[1], K.J. Stevenson[2] 1. Institute for Problems of Chemical Physics of Russian Academy of Sciences, Semenov ave 1, Chernogolovka, Moscow region, 142432, Russia; 2. Skolkovo Institute of Science and Technology, Nobel St. 3, Moscow, 143026, Russia	I.P1.37
	Nanocarbon materials of plant origin for supercapacitors Boledzyuk V.B.[1], Kovalyuk Z.D.[1], Mintyanskii I.V.[1], Yurtsenyuk S.P.[1], Shevchyk V.V.[1], Strebezhev V.M.[2], Vorobets G.I.[2], Yuriychuk I.M.[2] 1. Frantsevich Institute for Materials Science Problems, National Academy of Sciences of Ukraine, Chernivtsi Branch, Chernivtsi, Ukraine; 2. Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine	I.P1.38
	Controlled PDMS wetting through monomer implanting to realize high crystalline transfer printed perovskite solar cells Anisha Mohapatra[1], Anupriya Singh[2], Chih-Wei Chu[3]* 1. Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan, Republic of China, Nano Science and Technology, Taiwan International Graduate Program, Academia Sinica and National Taiwan University, 115, Taiwan (R.O.C.); 2. Department of Physics, National Taiwan University, Sec. 4, Roosevelt Road, Taipei 106, Taiwan (R.O.C.); 3. Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan	I.P1.39
	Accelerated, massive screening of non-lithium high-performance battery cathode materials with deep neural networks Eun Gong Ahn, Jin-Hoon Yang, Joo-Hyoung Lee School of Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), Korea, School of Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), Korea, School of Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), Korea	I.P1.40
	Electrospun membranes as separators for supercapacitors M.F. De Riccardis, M. Re, L. Capodieci, A. Cappello, D. Carbone, E. Pesce, M. Prato ENEA-Italian National Agency for New Technologies, Energy and Sustainable Economic Development CR Brindisi SS7 Appia, km 706, 72100 Brindisi (Italy)	I.P1.41

	Atmospheric pressure surface-diffusion dielectric barrier discharge (SDDBD) plasma treatment processes for perovskite solar cell Jui-Hsuan Tsai[1,4], I-Chun Cheng[2], Cheng-Che Hsu[3], Chu-Chen Chueh[3,4], Jian-Zhang Chen[1,4] 1. Graduate Institute of Applied Mechanics, National Taiwan University, Taipei City 10617, Taiwan; 2. Department of Electrical Engineering & Graduate Institute of Photonics and Optoelectronics, National Taiwan University, Taipei City 10617, Taiwan; 3. Department of Chemical Engineering, National Taiwan University, Taipei City 10617, Taiwan; 4. Advanced Research Center for Green Materials Science and Technology, National Taiwan University, Taipei City 10617, Taiwan,	I.P1.42
	Characterisation of carbon supercapacitor electrodes prepared by electrophoretic deposition M.F. De Riccardis, M. Re, L. Capodieci, A. Cappello, D. Carbone, E. Pesce, M. Prato ENEA-Italian National Agency for New Technologies, Energy and Sustainable Economic Development CR Brindisi SS7 Appia, km 706, 72100 Brindisi (Italy)	I.P1.43
	Application of the PbSe Nanorods in Solar Cells with Enhanced Stability and Photoconversion Efficieny Tugba Haciefendioglu, Ümmügülsüm ?ahin, Firdevs Ayd?n, Demet Asil Middle East Technical University (METU), Department of Chemistry, Ankara, 06800, Turkey, Middle East Technical University (METU), Department of Chemistry, Ankara, 06800, Turkey, Middle East Technical University (METU), Department of Chemistry, Ankara, 06800, Turkey, Middle East Technical University (METU), Department of Chemistry, Ankara, 06800, Turkey, The Center for Solar Energy Research and Application, METU, Ankara, 06800, Turkey, Department of Micro and Nanotechnology, METU, Ankara, 06800, Turkey, Department of Polymer Science & Technology, METU, Ankara, 06800, Turkey	I.P1.44
	Original microporous layer based on directionnal carbon nanotubes forests Fontana Marie, Dijon Jean, Morin Arnaud, Ramos Raphaël Université Grenoble Alpes and CEA-LITEN, CEA-LITEN, CEA-LITEN, CEA-LITEN	I.P1.45
	Electrolyte decomposition at Li-ion cathodes: surface reactions and their impact on the stability window René Hausbrand Technical University of Darmstadt, Institute of Materials Science	I.P1.46
	Exploring the impact of polymeric hole transport layer materials on the efficiency and stability of perovskite solar cells Marina M. Tepliakova[1]*, Alexander V.Akkuratov[2], Ilya E. Kuznetsov[2], Keith J. Stevenson[1] and Pavel A. Troshin[1,2] 1. Skolkovo Institute of Science and Technology, Moscow, Russia; 2. Institute for Problems of Chemical Physics of RAS, Chernogolovka, Russia	I.P1.47

	Enhanced thermoelectric performance of p-type unfilled CoSb3 Skutterudites: a theoretical and experimental study Ruchi Bhardwaj, Bhasker Gahtori, Kishor Kumar Johari, Sivaiah Bathula, S.R. Dhakate, Sushil Auluck, Ajay Dhar CSIR-National Physical Laboratory, Dr. K.S. Krishnan Marg, New Delhi 110012, India, Academy of Scientific & Innovative Research (AcSIR), CSIR-NPL Campus, New Delhi 110012, India	I.P1.48
	Improving perovskite solar cell operation lifetime by incorporation of stabilizing additives L.A. Frolova[1,2], A. F. Akbulatov[2], A. I. Davletkhanov[3], K.J. Stevenson[1] and P.A. Troshin[1,2] 1. Skolkovo Institute of Science and Technology, Nobel st. 3, Moscow, Russia; 2. Institute for Problems of Chemical Physics of RAS, Chernogolovka, Moscow region, Russia; 3. Moscow Institute of Physics and Technology, Institutskiy per. 9, Dolgoprudny, Moscow Region, Russia	I.P1.49
	Ni-electroless Plated Silicon Monoxide Negative Electrode Materials for Lithium-ion Batteries Tae Hun Kim, Eunbi Go, Haebeen Kim, Ji Heon Ryu Graduate School of Knowledge-based Technology and Energy, Korea Polytechnic University	I.P1.50
	Phase transformations during battery operation in vanadium phosphate cathode materials Daniel Risskov Sørensen, Dorthe Bomholdt Ravnsbæk University of Southern Denmark	I.P1.51
	Electrical properties of ferroelectric crystal 1,4-diaminobutane by using high hydrostatic pressure Anna Szeremeta[1], Sebastian Pawlus[1], Adam Sieradzki[2], Andrzej Nowok[1], Paulina Peksa[1], Andrzej Soszyński[1] 1. Institute of Physics, University of Silesia, ul. 75 Pułku Piechoty 1, 41-500 Chorzów, Polska; 2. Department of Experimental Physics, Wrocław University of Technology, Wybrzeże Wyspiańskiego 27, 50-370, Wrocław, Polska	I.P1.52

Symposium I Program

Tuesday, September 17 th, 2019

Session V:		
09:00	**First-principles studies of radiative and nonradiative recombination in halide perovskites** Chris G. Van de Walle Materials Department, University of California, Santa Barbara, California, USA	I.5.1
09:30	**Layered Sodium Transition Metal Oxides as Cathode Materials for Na-ion Batteries** Shin Gwon Lim, Mi-Sook Kwon, Kyu Tae Lee School of Chemical and Biological Engineering, Seoul National University	I.5.2
10:00	**Modeling of battery and hydrogen storage materials** ShinYoung Kang Lawrence Livermore National Laboratory, 7000 East Ave., Livermore, CA 94552, USA	I.5.3
10:30	Coffee Break	
Session VI:		
11:00	**New layer- and tunnel- Structured Materials for Rechargeable Sodium-Ion Batteries** Kyung-Wan Nam Department of Energy and Materials Engineering, Dongguk University, Seoul 04620, Republic of Korea E-mail: knam@ dongguk.edu	I.6.1
11:30	**Bi-functional Electrocatalysts for water splitting and metal-ion batteries** Hong Jin Fan School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore. Email: fanhj@ntu.edu.sg	I.6.2
12:00	**Mapping sustainable electrode for lithium-ion supercapacitors** Manickam Minakshi Discipline of Engineering and Energy, College of Science, Health, Engineering and Education, Murdoch University, WA 6150, Australia	I.6.3

12:15	**Operando XAS Investigation of Silicon Thin Film Anodes for Li-Ion Batteries** Martin Schellenberger, Dennis Hein, Garlef Wartner, Dr. Robert Seidel Helmholtz-Zentrum Berlin, Humboldt-Universität zu Berlin	I.6.4
12:30	**Li-ion conducting behaviors of lithium hafnates for all-solid-state batteries** Ryounghee Kim[1], Yan Eric Wang[2], Hyeokjo Gwon[1], Sung-Kyun Jung[1], Sewon Kim[1], Lincoln Miara[2] and Ju-Sik Kim[1] 1. Next Generation Battery Lab., SAIT, Samsung Electronics Co., LTD., Korea; 2. Advanced Materials Lab., SRA, Samsung Electronics Co., LTD., United States	I.6.5
12:45	**May electrolytes based on ammonia lead to cost-effective sodium metal and ion batteries?** Débora Ruiz-Martínez, Roberto Gómez Universitat d'Alacant, Departament de Química Física i Institut Universitari d'Electroquímica, Spain	I.6.6
13:00	Lunch Break	

Session VII:

14:00	**Application of Monolayered 2D Inorganic Nanosheets for Energy Conversion and Storage** Seong-Ju Hwang* Department of Materials Science and Engineering, Yonsei University, Seoul 03722, Korea	I.7.1
14:30	**Advanced Characterization of Iron and Nitrogen doped Carbon Catalysts** Ulrike I. Kramm Technische Universitat Darmstadt, Germany kramm@ese.tu-darmstadt.de	I.7.2
15:00	**Design of Hierarchical Nanostructures as Electrocatalysts for Electrochemical Water Splitting** Johnny C. Ho City University of Hong Kong	I.7.3
15:30	Coffee Break	

Session VIII:

16:00	**Electronic, energy harvesting and solar water splitting application of water-borne polymer colloids** Dae Sung Chung Department of Energy Science & Engineering, Daegu Gyeongbuk Institute of Science & Technology (DGIST), Daegu 42988, Republic of Korea	I.8.1

16:30	**Highly Efficient Blue LEDs using Quasi-2D Inorganic mixed Halide Perovskite** Parth Vashishtha[1], Michael Ng[2], Sunil B. Shivarudraiah[2] and Jonathan E. Halpert[1,2] 1. School of Materials Science and Engineering, Nanyang Technological University (NTU), 50 Nanyang Avenue, Singapore 639798, Republic of Singapore, 2. Department of Chemistry, Hong Kong University of Science and Technology (HKUST), Clear Water Bay Road, Kowloon, Hong Kong	I.8.2
16:45	**Enhancing the sustainability of Li4Ti5O12 lithium-ion anodes** Yun Xu, Stefano Passerini, Dominic Bresser Helmholtz Institute Ulm (HIU), Helmholtzstrasse 11, 89081 Ulm, Germany Karlsruhe Institute of Technology (KIT), P.O. Box 3640, 76021 Karlsruhe, Germany	I.8.3
17:00	**Effect of Zn Electrode Morphology Change on Ni-Zn Battery Performance** Gizem Cihanoglu, Ozgenc Ebil Department of Chemical Engineering, Izmir Institute of Technology	I.8.4
17:15	**Fast-charging anode for lithium-ion batteries based on vertically aligned tungsten oxide nanorods** Raman Bekarevich[1]*, Yuriy Pihosh[2,3], Kei Nishikawa[4], Takanobu Hiroto[5], Yoshitaka Matsushita[5], Yoshinori Tanaka[4], Takahisa Ohno[6], Kazutaka Mitsuishi[1]* 1. Research Center for Advanced Measurement and Characterization, National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, 305-0051, Japan; 2. Department of Applied Chemistry, The University of Tokyo, 7-3-1 Hongo, Bunkyo, Tokyo, 113-8656, Japan; 3. Department of Chemical System Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo, Tokyo, 113-8656, Japan; 4. Center for Green Research on Energy and Environmental Materials, National Institute for Materials Science, 1-1 Namiki, Tsukuba, 305-0044, Japan; 5. Materials Analysis Station, National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, 305-0051, Japan; 6. International Center for Materials Nanoarchitectonics, National Institute for Materials Science, 1-1 Namiki, Tsukuba, 305-0044, Japan * Bekarevich.Raman@nims.go.jp, Mitsuishi. Kazutaka@nims.go.jp	I.8.5
17:30	**Thermochemical Energy Storage Utilising Metal Carbonates** Kasper T. Møller, Craig Buckley, Mark Paskevicius Department of Imaging and Applied Physics, Fuels and Energy Technology Institute, Curtin University, GPO Box U1987, Perth 6845, WA, Australia.	I.8.6
17:45	**Structural evolution of Lithium Manganate cathodes during the first cycles of charge and discharge** R. Gunnella, R. Parmar, S. J. Rezvani, F. Nobili 1. Physics Division, School of Science and Technology, University of Camerino, 62032 Camerino (MC), Italy; 2. Chemistry Division, School of Science and Technology, University of Camerino, 62032 Camerino (MC), Italy 3INFN – National Laboratory Frascati - Frascati	I.8.7

18:00 Poster Session II:

	To possibility of using of CdTe/CdS nanocrystals for quantum cutting approach to improve Si solar cells efficiency O.M. Babenko[1], R.A. Red'ko[2,3], M.O. Semenenko[2], G.Okrepka[4], S.M. Red'ko[2] 1. National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" 37, Prosp.Peremohy, 03056, Kyiv, Ukraine,E-mail: olha.shevo@gmail.com; 2. V. Lashkaryov Institute of Semiconductor Physics of the National Academy of Sciences of Ukraine, 41 Nauky Pr., 03028 Kyiv, Ukraine, E-mails: redko.rom@gmail.com, semenenko_myk@ukr.net; 3. State University of Telecommunications, 7, Solomenska str., 03680 Kyiv, Ukraine; 4. Chernivtsi National University (ChNU), 2, Kotsiubinsky Str., Chernivtsi 58012, Ukraine E-mail: okrepkagalinka@gmail.com	I.P2.1
	An Omnidirectionally Stretchable Piezoelectric Nanogenerator Based on Nanofibers for Multi-modal Straining & Energy Harvesting Saqib Siddiqui, Syed Zameer Ul Hassan, Syed Kamran Sami Balochistan University of IT, Engineering and Management Sciences, Quetta, 87300. Pakistan	I.P2.2
	Novel Anion Exchange Membranes Based on Poly Tetra-Aryl phosphonium Ionomer for Electrochemical Energy Conversion M. Arunachalam[1], B.A. Merzougui[1,3], S.E. Creager[2], R. Smith[2], S. Mariyam[3], F. Fasmin[1], A. Sodiq[3], B. Aïssa[1,3] and F.H. Aidoudi[1] 1. Qatar Environment and Energy Research Institute, Hamad Bin Khalifa University, Qatar Foundation, Doha, Qatar.; 2. Advanced Materials Research Lab, Depertment of Chemistry, Clemson University, Clemson, SC 29634, USA; 3. College of Science and Engineering, Hamad Bin Khalifa University, Qatar Foundation, Doha, Qatar	I.P2.3
	Magnesioferrite-carbon black nanocomposites prepared by green method via Moringa Olefeira natural extract for high electrochemic N. Matinise, N. Mayedwa, K. Kaviyarasu, I.G. Madiba, Z.Y. Nurua, M. Maaza iThemba Laboratory of Accelerator-based Science	I.P2.4
	A core-sheath holey graphene/graphite composite fiber intercalated with MoS2 nanosheets for high-performance fiber supercapacito Chaojun Wang, Shengli Zhai, Ziwen Yuan, Junsheng Chen, Xinshi Zhang, Qianwei Huang, Yanqing Wang, Xiaozhou Liao, Li Wei, Yuan Chen The University of Sydney, School of Chemical and Biomolecular Engineering, Sydney, New South Wales, Australia, 2006	I.P2.5
	Polyacrylic Acid Hydrogel Electrolyte Assisted Realization of Superb Energy Density and Long-cycling Life in A Fiber Zn-ion Hybr Xinshi Zhang, Chaojun Wang Zengxia Pei	I.P2.6

	Nitrogen-doped porous carbon derived from imidazolefunctionalized polyhedral oligomeric silsesquioxane Felix Ofori Boakye, Meiling Fan, Haopeng Cai and Haining Zhang Wuhan University of Technology	I.P2.7
	Photovoltaic effect in BFO)(1-x)?/(LFO)x? superlattices J. Belhadi[1], J. Ruvalcaba[1,2], S.Yousfi[1], T. Cordova[2], S. Matzen[3], P. Lecoeur[3], H. Bouyanfif[1] and M. El Marssi[1] 1. LPMC EA2081, Université de Picardie Jules Verne 33 Rue Saint Leu, 80000 Amiens, France; 2. División de Ciencias e Ingenierías, Universidad de Guanajuato campus León, México; 3. Centre de Nanosciences et de Nanotechnologies, Univ. Paris-Sud, CNRS, Université Paris-Saclay, Orsay, France	I.P2.8
	Molybdenum Sulfo-selenides (MoSSe) Alloy as Anode Material for Sodium-ion Batteries Archana Sharma, Mohd. Shahid Khan, Mushahid Husain Department of Physics, Jamia Millia Islamia (Central University), New Delhi, India	I.P2.9
	Anthraquinonyl compounds as promising cathode materials for low-temperature sodium metal batteries using an uncommon electrolyte Débora Ruiz-Martínez*, Roberto Gómez Department of Physical Chemistry and University Institute of Electrochemistry, University of Alacant, Apartat 99, E-03080 Alicante, Spain. debora.rm@ua.es	I.P2.10
	Thermal properties analysis and thixotropy of gel polymer electrolytes consisting of PVdF-HFP and hydroxypropylcellulose Jumi Kim, Jimin Oh, Ju Young Kim, Young-Gi Lee, Kwang Man Kim Research Group of Multidisciplinary Sensors, Electronics and Telecommunications Research Institute (ETRI), Daejon 34129, Republic of Korea	I.P2.11
	MoS2/rGo nanocomposite and pristine rGO based electrodes for supercapacitor applications and their electrochemical studies Sunny Khan, Shumaila, M. Husain, M. Zulfequar Jamia Millia Islamia, New Delhi, India	I.P2.12
	Multi-layered barrier films for the encapsulation of perovskite solar cells via plasma-enhanced atomic layer deposition Seong Hyun Lee[1]*, Gayoung Kim[1,2], Jung Wook Lim[1,2] and Man Gu Kang[1,2] 1. Electronics and Telecommunications Research Institute, 218 Gajeong-ro, Yuseong-gu, Daejeon 34129, Republic of Korea; 2. Department of Advanced Device Engineering, University of Science and Technology (UST), 217 Gajeong-ro, Yuseong-gu, Daejeon 305-350, S. Korea, *corresponding author: dalsimlee@etri.re.kr	I.P2.13

Crossliked Poly (acrylic acid) with Pentaerythritol as a Novel Water-Soluble Binder for Si-Anodes in Li-Ion Batteries I.P2.14

Jiarong He, Chittaranjan Das, Julia Maibach

Institute for Applied Materials - Energy Storage Systems (IAM-ESS), Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, D-76344 Eggenstein-Leopoldshafen

Selenophene based benzodithiophene and quinoxaline containing alternating conjugated polymers for organic solar cells I.P2.15

Meric Caliskan, Sultan Taskaya Aslan, Ali Cirpan

Department of Chemistry, Middle East Technical University, 06800 Ankara, Turkey, Department of Chemistry, Middle East Technical University, 06800 Ankara, Turkey, Department of Chemistry, Middle East Technical University, 06800 Ankara, Turkey, Department of Polymer Science and Technology, Middle East Technical University, 06800 Ankara, Turkey, The Center for Solar Energy Research and Application (GUNAM), Middle East Technical University, 06800 Ankara, Turkey, Department of Micro and Nanotechnology, Middle East Technical University, 06800 Ankara, Turkey

Preparation and Piezoelectric Properties of PVDF Fibers by Electrospinning I.P2.16

Soroush Dashtizad, Parvin Alizadeh, Amin Yourdkhani

Materials Engineering Department, Faculty of Engineering, Tarbiat Modares University, Tehran, Iran, 14115

Photovoltaic performance of an oxadiazole bearing conjugated polymer synthesized via alternating synthetic methods I.P2.17

Mert Can Erer, Seza Göker, Gonul Hizalan, Levent Toppare and Ali Cirpan

Department of Chemistry, Middle East Technical University, 06800, Ankara, Turkey, Department of Chemistry, Middle East Technical University, 06800, Ankara, Turkey, Department of Chemistry, Middle East Technical University, 06800, Ankara, Turkey, Center for Solar Solar Energy Research and Applications (GUNAM), Middle East Technical University, 06800, Ankara, Turkey, Department of Chemistry, Middle East Technical University, 06800, Ankara, Turkey, Center for Solar Solar Energy Research and Applications (GUNAM), Middle East Technical University, 06800, Ankara, Turkey, Department of Polymer Science and Technology, Middle East Technical University, 06800, Ankara, Turkey, Department of Biotechnology, Middle East Technical University, 06800, Ankara, Turkey, Department of Chemistry, Middle East Technical University, 06800, Ankara, Turkey, Center for Solar Solar Energy Research and Applications (GUNAM), Middle East Technical University, 06800, Ankara, Turkey, Department of Polymer Science and Technology, Middle East Technical University, 06800, Ankara, Turkey, Department of Micro and Nanotechnology, Middle East Technical University, 06800, Ankara, Turkey

Improved Stability and Photoconversion Efficiency of the Solar Cells Based on Dually Passivated PbTe Quantum Dots I.P2.18

Tuğba Hacıefendioğlu, Taha Kerim Solmaz, Merve Erkan, Demet Asil

Middle East Technical University (METU), Department of Chemistry, Ankara, 06800, Turkey, Middle East Technical University (METU), Department of Chemistry, Ankara, 06800, Turkey, Middle East Technical University (METU), Department of Chemistry, Ankara, 06800, Turkey, Middle East Technical University (METU), Department of Chemistry, Ankara, 06800, Turkey,The Center for Solar Energy Research and Application, METU, Ankara, 06800, Turkey, Department of Micro and Nanotechnology, METU, Ankara, 06800, Turkey, Department of Polymer Science & Technology, METU, Ankara, 06800, Turkey

	Spray Pyrolyzed Indium Sulfide Thin Films for Photoelectrochemical Vanadium Redox Batteries Alihan Kumtepe*, Cigdem Tuc Altaf, Nazire Simay Sahsuvar, Nurdan Demirci Sankir, Mehmet Sankir TOBB University of Economics and Technology, Materials Science and Nanotechnology Engineering	I.P2.19
	Incorporation of self-assembled monolayer in inverted perovskite solar cell Neha Singh, Yu-Tai Tao Molecular Science and Technology Program, Taiwan International Graduate Program, Academia Sinica,Institute of Chemistry, Academia Sinica, Taipei ? 115, Taiwan, Department Physics, National Central University, Zhongli, Taiwan	I.P2.20
	Enhancing the stability and optical properties of CH3NH3PbI3 solar cells by tuning their dimensionality ? Limitations and challe Sylvester Sahayaraj, Barbara Wilk, Shyantan Dasgupta, and Konrad Wojciechowski 1. Saule Research Institute (SRI), division of Saule Technologies, 11 Dunska, 54-130, Wroclaw, Poland; 2. Saule Technologies, 11 Dunska, 54-130, Wroclaw, Poland; 3. Wydział Fizyki Technicznej ul.Piotrowo 3, 60-965, Poznan, Poland; 4. Politechnika Wrocławska, Wydział Podstawowych Problemów Techniki Wyb. Wyspiańskiego, 27 50-370 ,Wrocław, Poland	I.P2.21
	Development of novel imaging techniques for quality control of organic solar cells using artificially introduced defects André Karl[1], Andres Osvet[1], Andreas Vetter[1,2], Philipp Maisch[2], Ning Li[1], Hans-Joachim Egelhaaf[2], Christoph J. Brabec[1,2] 1. Institute of Materials for Electronics and Energy Technology (i-MEET), Friedrich- Alexander-University Erlangen-Nuremberg, Martensstraße 7, 91058 Erlangen, Germany; 2. Bavarian Center for Applied Energy Research (ZAE Bayern), Immerwahrstraße 2, 91058 Erlangen, Germany	I.P2.22
	?Improved Colloidal stability of Precursor solution by a novel Hydroiodic acid free synthesis route of Methylammonium Iodide for Shyantan Dasgupta[1,2], Kasjan Misztal[3], Rosinda Fuentes Pineda[3], Barbara Wilka[4], Sylvester Sahayaraj[1], Alina Dudkowiak[2] and Konrad Wojciechowskia[3] 1. Saule Research Institute(SRI),division of Saule Technologies,11 Dunska,54-130,Wroclaw, Poland; 2. Faculty of technical physics,Poznan University of Technology, Piotrowo, 3 street,60-965 Poznan,Poland; 3. Saule Tehnologies,11 Dunska,54-130,Wroclaw, Poland; 4. Department of Physics, Polytechnic Wroclawska, Wroclaw, Poland	I.P2.23
	DFT Study of TiO2 Rutile (110) Modified with Metal Chalcogenide Modifiers for the Promotion of Hydrogen Evolution Reaction Stephen Rhatigan, Lorenzo Niemtiz, Michael Nolan Tyndall National Institute, University College Cork, Tyndall National Institute, University College Cork, Tyndall National Institute, University College Cork	I.P2.24

Optimising the polymerisation of furfuryl alcohol as carbon coating method for LiNi0.6Mn0.2Co0.2 cathode materials for high ener I.P2.25

Anish Raj Kathribail, Arlavinda Rezqita, Jürgen Kahr, Raad Hamid, Marcus Jahn, Shovon Goutam, Noshin Omar, Joeri Van Mierlo

AIT Austrian Institute of Technology GmbH, Center for Low-Emission Transport, 1210 Vienna, Austria, Vrije Universiteit Brussel, Mobility, Logistic and Automotive Technology Research Center (MOBI), Department of Electrical Engineering and Energy Technology (ETEC), 1050 Brussels, Belgium

Nanocomposite Gel Polymer Electrolytes: Thermophysical, Electrical Properties and Electrochemical Applications I.P2.26

Debalina Deb, Pallab Bose, Subhratanu Bhattacharya

University Research Scholar Department of Physics

A facile surface modification method for improving the cyclic performance of Ni-rich cathode material I.P2.27

Xiaoxue Lu[1], Ningxin Zhang[1], Marcus Jahn[1], Wilhelm Pfleging[2], Hans J. Seifert[2]

1. Center for Low-Emission Transport, Austrian Institute of Technology GmbH, Giefinggasse 2, 1210 Vienna, Austria; 2. Institute for Applied Materials - Applied Materials Physics, Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany

New polymeric material with a variable band gap I.P2.28

Shamil R. Saitov[1], Dmitry V. Amasev[2], Mikhail N. Martyshov[1], Alexey R. Tameev[3], Andrei G. Kazanskii[1]

1. Faculty of Physics, Lomonosov Moscow State University. Moscow 119991, Russia; 2. Prokhorov General Physics Institute of the Russian Academy of Sciences. Moscow 119991, Russia; 3. Frumkin Institute of Physical Chemistry and Electrochemistry of the Russian Academy of Sciences. Moscow 119071, Russia

Ionic Liquid Based Nano?uid Electrolytes With Higher Lithium Salt Concentration for High-E?ciency, Safer, Lithium Metal Batteries I.P2.29

Pallab Bose, Debalina Deb, Subhratanu Bhattarcharya

University Research Scholar, Department of Physics

Nanostructured Vanadium oxide/CNTs/felt binder-free electrodes I.P2.30

Rahul Parmar[1,2], Dècio Batista de Freitas Neto[2], Elaine Yoshiko Matsubara[2], M. Minicucci[1], R. Gunnella[1] and J.M. Rosolen[2]

1. Physics Division, School of Science and Technology, University of Camerino, 62032 Camerino (MC), Italy; 2. Department of Chemistry, FFCLRP, University of Sào Paulo,14040-930 Ribeirào Preto-SP, Brazil

A Novel Route to Large Scale Production of High Energy Density Dielectric Nanocomposites I.P2.31

Binod Subedi, Josh Shipman, Madhu Gaire, Kurt Schroder, Stan Fransworth, Douglas B. Chrisey

1. Department of Physics and Engineering Physics, Tulane University, New Orleans, Lousiana, United States; 2. Novacentrix Inc, Austin, Texas, United States

	Fabrication of Poly(vinylidene fluoride) (PVdF)-based Hybrid Solid Electrolyte Filled with Surface Modified Cubic Li7La3Zr2O12 Myeong Ju Lee[1,2], Ju Young Kim[1], Jimin Oh[1], Jumi Kim[1], Seok Hun Kang[1], Kwang Man Kim[1], Young-Gi Lee[1], Dong Ok Shin[1,2] 1. Research Group of Multidisciplinary Sensor, Electronics and Telecommunications Research Institute (ETRI), 218 Gajeong-ro, Yuseong-gu, Daejeon 34129, Republic of Korea; 2. Department of Advanced Device Technology, University of Science and Technology (UST), 217 Gajeong-ro, Yuseong-gu, Daejeon 34113, Republic of Korea	I.P2.32
	Lead substitution in APbI3 perovskites: impact on the efficiency and stability of solar cells Marina I.Ustinova[1], Nadezhda N. Dremova[2], Keith J. Stevenson[1], Pavel A. Troshin[1,2] 1. Skolkovo Institute of Science and Technology, Moscow, Russia; 2. Institute for Problems of Chemical Physics of RAS, Chernogolovka, Moscow region, Russia	I.P2.33
	Atomic carbon layers supported Pt nanoparticles for minimized CO poisoning and maximized methanol oxidation Gailing Bai, Xili Tong, Nianjun Yang State Key Laboratory of Coal Conversion, Institute of Coal Chemistry?CAS	I.P2.34
	Computational Analysis of the Lithium Amide-Imide Solid Solution and its Role as a Catalyst and a Hydrogen Storage System Leandro Liborio, Simone Sturniolo, Eli Chadwick Theoretical and Computational Physics Group, Scientific Computing Department, Rutherford Appleton Laboratory, UKRI, Harwell, Oxfordshire, UK	I.P2.35
	Highly Efficient Halogen-Free solvent Processed Large Area Polymer Solar Cell Module Enabled via Molecular Engineering of Copoly Shafket Rasool[1,2], Vu Van Doan[1], Song Chang Eun[1,2], Hang Ken Lee[1], Won Suk Shin[1,2] 1. Energy Materials Research Center, Korea Research Institute of Chemical Technology, Daejeon, South Korea; 2. Department of Advanced Materials, University of Science & Technology, Daejeon, South Korea	I.P2.36
	Contemporary solar cell based on perovskite improvements E. Trifonova, D. Saranin, S. Yurchuk, S. Didenko, M. Orlova, O. Rabinovich, S. Sizov NUST MISIS	I.P2.37
	A flexible solid-state zinc ion hybrid supercapacitors based on co-polymer derived hollow carbon spheres Shengmei Chen, Longtao Ma, Juan Antonio Zapien City University of Hongkong	I.P2.39

	Cooling and anti-pollution characteristics of functional film for PV module characterized by annealing method Ma Minh Trang[1], Chang Yeon Lee[1], Wonseok Choi[1], Yeun-Ho Joung[2] 1. Department of Electrical Engineering, Hanbat National University, Daejeon 34158, Republic of Korea; 2. Department of Electronic Engineering, Hanbat National University, Daejeon 34158, Republic of Korea	I.P2.40
	Electronic and optical properties of ultrasmall ABX3 perovskite quantum dots Athanasios Koliogiorgos, Christos S. Garoufalis, Iosif Galanakis, Sotirios Baskoutas Czech Technical University in Prague, Czech Republic, University of Patras, Greece, University of Patras, Greece, University of Patras, Greece	I.P2.41
	Stabilizing the cathode/electrolyte and current collector/electrolyte interface in lithium-ion batteries by realizing protective Arefeh Kazzazi, Dominic Bresser, Matthias Kuenzel and Stefano Passerini Helmholtz Institute Ulm (HIU), 89081, Ulm, Germany Karlsruhe Institute of Technology (KIT), 76021 Karlsruhe, Germany	I.P2.42
	Novel photoactive tellurium halide complexes for electronic applications A.V. Novikov[1,2], A.N. Usoltsev[3], S.A. Adonin[3,4], P.A. Abramov[3,4], M.N. Sokolov[3,4], K.J. Stevenson[1], V.P. Fedin[3,4] and P.A. Troshin[1,2] 1. Skolkovo Institute of Science and Technology, Moscow, Russia; 2. Institute for Problems of Chemical Physics of RAS, Chernogolovka, Russia; 3. Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia; 4. Novosibirsk State University, Novosibirsk, Russia *E-mail: artyom.v.novikov@gmail.com	I.P2.43
	Growth and characterization of Cu2SnS3 single crystal by the melting method for thin film solar cells Rania Mahdadi, Abdesselam Bouloufa Ferhat Abbas Sétif-1 University	I.P2.44
	Photoelectrochemical behaviour of a-SiC:H:Al thin film for solar water-splitting M. Mejia[1], M. Kurniawan[2], L. Eggert[2], L.F. Sanchez[1], M. Camargo[3], R. Grieseler[1], F. Rumiche[4], I. Diaz[3], A. Bund[2], J.A. Guerra[1] 1. Departamento de Ciencias, Sección Física, Pontificia Universidad Católica del Perú, Lima, Perú; 2. Institut für Werkstofftechnik, FG Elektrochemie und Galvanotechnik, Fakultät für Elektrotechnik und Informationstechnik, Technische Universität Ilmenau, Kirchhoff-Str. 6, Ilmenau, 98693, Germany; 3. Instituto de Corrosión y Protección, Pontificia Universidad Católica del Perú, Lima, Perú; 4. Departamento de Ingeniería, Sección Ingeniería Mecánica, Pontificia Universidad Católica del Perú, Lima, Perú	I.P2.45

	Degradation of perovskite absorber layers for solar cells investigated by spectroscopic ellipsometry S. Peters[1], A. Tejada[2a,3], A. Al-Ashouri[2b], S. Turren-Cruz[2c], N. Phung[2c], A. Abate[2c], S. Albrecht[2b], F. Ruske[2a], L. Korte[2a], J.A. Guerra[3] 1. SENTECH Instruments GmbH, Schwarzschildstr. 2, 12489 Berlin, Germany; 2a. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Institut für Silizium-Photovoltaik, Kekuléstraße 5, 12489 Berlin, Germany; 2b. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Young Investigator Group for Perovskite Tandem Solar Cells, Kekuléstraße 5, 12489 Berlin, Germany; 2c. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Young Investigator Group Active Materials and Interfaces for Stable Perovskite Solar Cells, Kekuléstraße 5, 12489 Berlin, Germany; 3. Departamento de Ciencias, Sección Física, Pontificia Universidad Católica del Perú, Av. Universitaria 1801, Lima 32, Peru	I.P2.46
	Metal surface plasmon resonance as a mechanism to improve solar energy harvesting in thin film organic solar cells Genene Tessema Mola and Saheed O. Oseni School of Chemistry Physics, University of KwaZulu-Natal, Pietermaritzburg Campus, Private Bag X01, Scottsville 3209, South Africa	I.P2.47
	Wasteless low-energy production of pv-ready silicon continously grown from tin melt on temperature sensitive substrates David Uebel, Christian Ehlers, Roman Bansen, Thomas Teubner, Torsten Boeck Leibniz-Institut für Kristallzüchtung (IKZ)	I.P2.48
	Frequency dependence polarization and strain of inclusion-type and layer-type 0.74Bi0.5Na0.5TiO3-,0.26SrTiO3 ceramic composite for energy harvesting devices Mohsin Saleem[1]*, Muhammad Shoaib Butt[1], Hadiqa Kayani[2] and Sarah Malik[1] 1, 2 School of Chemical and Material Engineering (SCME), National University of Science and Technology (NUST), Islamabad, Pakistan	I.P2.49
	Uncovering the Shuttle Effect in Organic Batteries and Counter-Strategies Thereof: A Case Study of N,N'-Dimethylphenazine as Active Material Vincent Wing-hei Lau, Junghoon Yang, Suwon Lee, Jiliang Zhang, Yong-Mook Kang* Department of Energy & Materials Engineering, Dongguk University, Seoul, Korea * dake1234@dongguk.edu	I.P2.50
	Using Machine Learning to Optimize an All Small-Molecule Organic Photovoltaic System Aaron Kirkey[1,2], Erik Luber[1,2], Brian Olsen[1,2] and Jillian Buriak[1,2]* 1. Department of Chemistry, University of Alberta, 11227 Saskatchewan Drive, Edmonton, Alberta T6G 2G2, Canada 2. National Institute for Nanotechnology, National Research Council Canada, 11421 Saskatchewan Drive, Edmonton, Alberta T6G 2M9, Canada *jburiak@ualberta.ca	I.P2.51

Symposium I Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session IX:		
14:00	**Nanostructured Photocatalytic Thin Films and Their Functional Applications** Salih Veziroglu, Majid Hussain, Marie Ullrich, Jaeho Hwang, Alexander Vahl, Thomas Strunskus, Franz Faupel, Oral Cenk Aktas Institute of Materials Science-Engineering Faculty-Christian Albrechts University	I.9.1
14:30	**High-capacity and high-rate metal-ion batteries based on organic redox-active materials** Kapaev R.R.[1], Obrezkov F.A.[1], Yarmolenko O.V.[2], Shestakov A.F.[2], Stevenvson K.J.[1] and Troshin P.A.[1,2] 1. Skolkovo Institute of Science and Technology, Nobel str. 3, Moscow 143026, Russian Federation, e-mail: troshin2003@ inbox.ru; 2. Institute for Problems of Chemical Physics of RAS, Semenov ave. 1, Chernogolovka, Moscow region, 142432, Russian Federation	I.9.2
15:00	**Solid-electrolytes (SEs) promise better safety by eliminating the flammable organic liquid electrolytes and higher energy density by enabling Li metal as an anode material** Syed Atif Pervez[1,2], Venkataraman Thangadurai[3], Maximilian Fichtner[1] 1. Helmholtz Institute Ulm, Helmholtzstr. 11, 89081, Ulm, Germany Email: syedatif.pervez@partner.kit.edu; 2. Alexander von Humboldt Foundation Jean-Paul-Str. 12, 53173 Bonn, Germany; 3. University of Calgary, Calgary, 2500 University Dr NW, Calgary, AB T2N 1N4, Canada	I.9.3
15:30	Coffee Break	
Session X:		
16:00	**Light elements in energy materials: characterization in ex- and in-situ approaches** Daniel Primetzhofer Department of Physics and Astronomy, Uppsala University, Box 516, 75120 Uppsala, Sweden	I.10.1

16:30	**Insights from Pulse-reverse Charging for the inhibition of Branched Evolution of Dendrites** Asghar Aryanfar, Agustin Colussi, Michael Hoffmann, William A. Goddard III California Institute of Technology, Pasadena, CA, 91125 USA Bahcesehir University, Besiktas, Istanbul, Turkey 34349	I.10.2
16:45	**Heteroatom Modified Carbon Materials** Jonathan Tzadikov, Yair Ein-Eli, Menny Shalom Department of Chemistry, Ben-Gurion University of the Negev, Beer-Sheva, Israel, 8410501, Department of Materials Science and Engineering, Technion-Israel Institute of Technology, Haifa, Israel, 3200003 , Department of Chemistry, Ben-Gurion University of the Negev, Beer-Sheva, Israel, 8410501	I.10.3
17:00	**Zero e-waste energy from polyaniline functionalized paper** Suman Nandy, Guilherme Ferreira, Sumita Goswami, Luís Pereira, Rodrigo Martins, Elvira Fortunato i3N/CENIMAT, Department of Materials Science, Faculty of Science and Technology, Universidade NOVA de Lisboa and CEMOP/UNINOVA, Campus de Caparica, 2829-516 Caparica, Portugal	I.10.4
17:15	**Synthesis of Polyaniline/Co(OH)2/Ni(OH)2 Nanocomposite Electrode Material for Supercapacitor Applications** Vijaykumar V. Jadhav School of Chemistry, University College of Cork, Ireland	I.10.5
17:30	**Use of amorphous TiO2 nanotubes anodes and an electrolyte based on liquid ammonia to develop room-temperature sodium batteries** Débora Ruiz-Martínez*, Roberto Gómez Department of Physical Chemistry and University Institute of Electrochemistry, University of Alacant, Apartat 99, E-03080 Alicante, Spain. debora.rm@ua.es	I.10.6
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium I Program

Thursday, September 19 th, 2019

Session XI:		
09:00	**Novel nitride and oxide thin-film materials for energy harvesting studied by experiments and theory** Per Eklund Energy Materials Unit, Thin Film Physics Division, Dept. of Physics, Chemistry and Biology (IFM), Linköping University, SE-58183 Linköping, Sweden	I.11.1
09:30	**Comparative study of conductive carbon additives in metal porphyrin cathodes for ultrafast rechargeable batteries** Ebrahim Abouzari-Lotf[1], Zhirong Zhao-Karger[1], Svetlana Klyatskaya[2], Zhi Chen[2], Mario Ruben[2], Maximilian Fichtner[2] 1. Helmholtz Institute Ulm (HIU) Electrochemical Energy Storage, Helmholtzstrasse 11, D-89081 Ulm, Germany; 2. Institute of Nanotechnology, Karlsruhe Institute of Technology, Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany	I.11.2
10:00	**Electronic Properties of Various B-doped Diamond(111)// Dye Molecule Interfaces** Y. Song and K. Larsson Dept. Chemistry-Angstrom Laboratory, Uppsala University Lägerhyddsvägen 1, 75121 Uppsala Sweden	I.11.3
10:30	Coffee Break	
Session XII:		
11:00	**Amorphous silicon nanoparticles as alternative to crystalline silicon for anodes of the next generation lithium-ion batteries** Asbjørn Ulvestad, Samson Y. Lai, Carl Erik Lie Foss, Hanne F. Andersen, Jan Petter Mæhlen, Alexey Y. Koposov Battery Technology Department, Institute for Energy Technology (IFE), Kjeller, Norway	I.12.1
11:15	**Clarification of impacts on halide perovskite film formation via optical in-situ methods** Carolin Rehermann[1], Aboma Merdasa[1], Klara Suchan[2] and Eva Unger[1,2] 1. Helmholtz-Zentrum Berlin, Berlin, 12489, Germany; 2. Lund University, Lund, SE-22100, Sweden	I.12.2

11:30	**Hydroborates as solid electrolytes for all-solid-state batteries** Arndt Remhof[1], Léo Duchêne[1,2], Ryo Asakura[1,2], Seyedhosein Payandeh[1], Ruben-Simon Kühnel[1], Hans Hagemann[2], Corsin Battaglia[1] 1. Empa, Swiss Federal Laboratories for Materials Science and Technology, 8600 Dübendorf, Switzerland, 2. Département de Chimie-Physique, Université de Genève, 1211 Geneva 4, Switzerland	I.12.3
11:45	**High Photoresponse of Marcasite–Pyrite Heterojunction and Its Origin: Insights from First-Principles DFT Calculation** Nelson Y. Dzade[1]*, Longfei Wu[2], Emiel J. M. Hensen[2], Nora H. de Leeuw[1] and Jan P. Hofmann[2] 1. School of Chemistry, Cardiff University, Main Building, Park Place, CF10 3AT, Cardiff, United Kingdom; 2. Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, P.O. Box 513, 5600 MB, Eindhoven, The Netherlands	I.12.4
12:00	**A high-voltage and long-lifespan aqueous Zn-ion battery based on cobalt oxide-based cathode** Longtao Ma, Shengmei Chen, Chunyi Zhi Department of Materials Science and Engineering, City University of Hong Kong	I.12.5
12:15	**Microstructured electrodes supported on serpentine interconnects for stretchable electronics** M. Nasreldin, R. DelattreB, Marchiori, M. Ramuz, J. L.D. de la Tocnaye and T. Djenizian Mines Saint-Etienne, Center of Microelectronics in Provence, Department of Flexible Electronics, F – 13541 Gardanne, France - IMT Atlantique, Opt Dept, CS 83818, F-29238 Brest 3, France	I.12.6
12:30	**Photoluminescence Dynamics of Photon Recycling in CsPbBr3 Nanocrystals** Marco van der Laan, Chris de Weerd, Leyre Gomez, Lucas Poirier, Antonio Capretti, Peter Schall, Tom Gregorkiewicz University of Amsterdam	I.12.7
12:45	**Super-activated biochar from poultry litter for electrodes in supercapacitors** D. Pontiroli, S. Scaravonati, G. Magnani, L. Fornasini, G. Bertoni, C. Milanese, F. Ridi, R. Verucchi, L. Mantovani, A. Malcevschi, M. Riccò DSMFI, Università di Parma, Parma, Italy, CNR - Istituto Nanoscienze, Modena, Italy, Pavia Hydrogen Lab, C.S.G.I. & Dipartimento di Chimica, Università di Pavia, Pavia, Italy, Dipartimento di Chimica "Ugo Schiff" & C. S. G. I., Università di Firenze, Firenze, Italy, IMEM – CNR, Trento, Italy, SCVSA, Università di Parma, Parma, Italy	I.12.8
13:00	Lunch Break	

Session XIII:

14:00	**Phase equilibria and lithiation of heterogeneous tin sulfide anode materials for lithium ion batteries** Damian M. Cupid[1], Martin Artner[2], Raad Hamid[1], Arlavinda Rezqita[1], Viktor Bauer[2], Albina Glibo[1,3], Hans Flandorfer[3], Marcus Jahn[1] 1. AIT Austrian Institute of Technology GmbH, Electric Drive Technologies, Giefinggasse 2, 1210, Vienna, Austria; 2. FRIMECO Produktions GmbH, Aspernbrueckengasse 2, 1020 Vienna, Austria; 3. University of Vienna, Department of Inorganic Chemistry-Functional Materials, Waeringerstrasse 42, 1090 Vienna, Austria	I.13.1
14:15	**Relaxor-like Ferroelectric PVDF Homopolymer with Ultrahigh Energy Storage Density for Dielectric Capacitors** Xintong Ren, Nan Meng, Giovanni Santagiuliana, Leonardo Ventura, Han Zhang, Jiyue Wu, Haixue Yan, Michael J Reece, Emiliano Bilotti School of Engineering and Materials Science, Queen Mary University of London, Mile End Road, E1 4NS, UK	I.13.2
14:30	**Ni(OH)2@Ni core-shell nanochains as low-cost high-rate performance electrode for energy storage applications** Mario Urso[1]*, Giacomo Torrisi[1], Simona Boninelli[2], Corrado Bongiorno[2], Francesco Priolo[1] and Salvo Mirabella[1] 1. MATIS IMM-CNR and Dipartimento di Fisica e Astronomia "Ettore Majorana", Università di Catania, via S. Sofia 64, 95123 Catania, Italy; 2. IMM-CNR, Z.I. VIII Strada 5, 95121 Catania, Italy	I.13.3
14:45	**Rate-independent and ultra-stable low-temperature sodium storage in pseudocapacitive TiO2 nanowires** Dongmei Lin, Kaikai Li, Qian Wang, Linlong Lyu, Baohua Li* and Limin Zhou* 1. Department of Mechanical Engineering, The Hong Kong Polytechnic University, Hong Kong, China; 2. Engineering Laboratory for the Next Generation Power and Energy Storage Batteries, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China	I.13.4
15:00	**Designing Novel MXene Alloys for Clean-Energy Applications via High-Throughout DFT Calculations** Teck Leong Tan Agency for Science, Technology and Research, Institute of High Performance Computing, 1 Fusionopolis Way, #16-16 Connexis, 138632, Singapore	I.13.5
15:15	**Layered perovskite nanoplatelets enable low-loss luminescent solar concentrators** Mingyang Wei, Edward H. Sargent Department of Electrical and Computer Engineering University of Toronto, Toronto, Ontario, Canada	I.13.6
15:30	Coffee Break	

Session XIV:

16:00	**Influence of hole-selective layer on the electrochemical stability of perovskite solar cells** Olga R.Yamilova[1,2], Yuri S. Fedotov[3], Andrei V. Danilov[3], Sergey I. Bredikhin[3], Lyubov A. Frolova[1,2], Keith J. Stevenson[1] and Pavel A. Troshin 1. Skolkovo Institute of Science and Technology, Moscow, Russia; 2. Institute for Problems of Chemical Physics of RAS, Chernogolovka, Russia; 3. Institute of Solid State Physics of RAS, Chernogolovka, Russia	I.14.1
16:15	**Water mediated synthesis of ultra-microporous Few-Layer-Graphene/carbon electrodes for high volumetric capacitance** Anurag Mohanty, Izabela Janowska Institut de Chimie et Procédés pour l'Énergie, l'Environnement et la Santé (ICPEES), CNRS UMR-7515 University of Strasbourg, 25 rue Becquerel 67087 Strasbourg, France	I.14.2
16:30	**Understanding aging mechanisms of a-Si/c-FeSi2 alloy/graphite composite anode for high-capacity Li ion batteries** Praveen Kumar, Christopher L. Berhaut, Diana Zapata Dominguez, Samuel Tardif, Stéphanie Pouget, Sandrine Lyonnard, Pierre-Henri Jouneau UGA, CEA, INAC-MEM-LEMMA, 38054 Grenoble, France, UGA, CEA, INAC-SyMMES, 38054 Grenoble, France, UGA, CEA, INAC-MEM, 38054 Grenoble, France	I.14.3
16:45	**Investigating the role of selective transport layers in perovskite solar cells using impedance spectroscopy** Nadine Tchamba Yimga[1,2], Stijn Lammar[1,2], Yinghuan Kuang[1], Afshin Hadipour[1], Tom Aernouts[1], Jef Poortmans[1,2] 1. Imec - Partner in Solliance and EnergyVille, Thor Park 8320, 3600 Genk, Belgium; 2. Department of Electrical Engineering (ESAT), KU Leuven, Kasteelpark Arenberg 10, 3001 Leuven	I.14.4
17:00	**Sustainable tannic acid-derived carbons with hierarchical porosity for use as electrode material in supercapacitors** Noel Díez, Guillermo A. Ferrero, Marta Sevilla, Antonio B. Fuertes Instituto Nacional del Carbón (CSIC), P.O. Box 73, Oviedo 33080, Spain	I.14.5
17:15	**Mn3O4 Nanoparticles Decorated Nitrogen-Doped Hollow Carbon Spheres for Zinc Air Batteries** Jonathan G.C. Veinot, Yingjie (Jay) He, Drew Aasen, Douglas Ivey Department of Chemistry, University of Alberta, Edmonton, Alberta, Canada, T6G2G2, Department of Chemistry, University of Alberta, Edmonton, Alberta, Canada, T6G2G2, Chemical and Materials Engineering Department, University of Alberta, Edmonton, Alberta, Canada, T6G 2H5, Chemical and Materials Engineering Department, University of Alberta, Edmonton, Alberta, Canada, T6G 2H5	I.14.6

17:30	**Evolution of point defects in perovskite and BaSi2 thin film solar cells examined by positron annihilation and ab-initio methods** S.W.H. Eijt[1], D. Koushik[2], F. Naziris[1], A. Montes[3], Y. Tian[3], R. Gram[1], C. Burgess[2], J. Melskens[2], H. Schut[1], V. Zardetto[4], W. Egger[5], M. Dickmann[5], C. Hugenschmidt[6], T. Suemasu[7], N. Usami[8], W.M.M. Kessels[2], M. Creatore[2], O. Isabella[3], M. Zeman[3] 1. Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, NL-2629JB Delft, The Netherlands; 2. Department of Applied Physics, Eindhoven University of Technology, NL-5600 MB Eindhoven, The Netherlands; 3. Photovoltaic Materials and Devices, Department of Electrical Engineering, Mathematics and Computer Sciences, Delft University of Technology, Mekelweg 4, NL-2628CD Delft, The Netherlands; 4. Solliance Solar Research, High Tech Campus 21, NL-5656 AE Eindhoven, The Netherlands; 5. Institut für Angewandte Physik und Messtechnik, Universität der Bundeswehr München, D-85579 Neubiberg, Germany; 6. Physics Department & Heinz Maier-Leibnitz Zentrum (MLZ), Technische Universität München, D-85748 Garching, Germany; 7. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan; 8 .Graduate School of Engineering, Nagoya University, Nagoya, Japan	I.14.7

Symposium J

Sessions: Room 111 | Faculty of Physics Building
Poster Session: Main Aula | Faculty of Physics Building

ENERGY AND ENVIRONMENT:

Computational materials science for sustainable energy using nanocatalysts from abundant elements

Symposium Organizers: **Florian LIBISCH**, Vienna University of Technology, Austria
Francesc ILLAS, University of Barcelona, Spain
Maytal CASPARY TOROKER, Technion – Israel Institute of Technology, Israel
Michele PAVONE, University of Naples Federico II, Italy

SYMPOSIUM J TIMETABLE

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Symposium J location

Sessions: 111 | Faculty of Physics Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium J Program

Monday, September 16 th, 2019

Session I:

09:00	**Catalytic reactions on multimetallic surfaces: The alloying effect** José L. C. Fajín [1], M. Natália D. S. Cordeiro[1] and José R.B. Gomes[2] 1. LAQV@REQUIMTE, Departamento de Química e Bioquímica, Faculdade de Ciências, Universidade do Porto, P-4169-007 Porto, Portugal; 2. CICECO – Instituto de Materiais da Universidade de Aveiro, Departamento de Química, Universidade de Aveiro, Campus Universitário de Santiago, P-3810-193 Aveiro, Portugal	J.1.1
09:30	**First principles calculations of oxygen reduction reaction rate on the surfaces of fuel cell cathodes** E.A. Kotomin, Yu.A. Mastrikov, R. Merkle, M.M. Kuklja, J. Maier Max Planck Institute for Solid State Research, Stuttgart, Germany, Institute for Solid State Physics, University of Latvia, Riga, Latvia, Materials Science and Engineering Department, University of Maryland, USA	J.1.2
10:00	**Impedance Spectra and Cyclic Voltammetry Curves Simulated Directly from the Electrochemical Reaction Mechanism** Kiran George, Matthijs van Berkel, Xueqing Zhang, Rochan Sinha, Anja Bieberle-Hütter Dutch Institute for Fundamental Energy Research (DIFFER), Eindhoven, 5612AJ, The Netherlands	J.1.3
10:15	**Interplay Between Size, Morphology and Energy Gap in Realistic TiO2 Nanoparticles** Ángel Morales-García, Antoni Macià, Stefan T. Bromley, Francesc Illas Departament de Ciència de Materials i Química Física & Institut de Química Teórica i Computacional (IQTCUB), Universitat de Barcelona, c/ Martí i Franquès 1-11, 08028 Barcelona, Spain, Departament de Ciència de Materials i Química Física & Institut de Química Teórica i Computacional (IQTCUB), Universitat de Barcelona, c/ Martí i Franquès 1-11, 08028 Barcelona, Spain, Departament de Ciència de Materials i Química Física & Institut de Química Teórica i Computacional (IQTCUB), Universitat de Barcelona, c/ Martí i Franquès 1-11, 08028 Barcelona, Spain. Institució Catalana de Recerca i Estudis Avançats (ICREA) Passeig Lluis Companys 23, 08010 Barcelona, Spain, Departament de Ciència de Materials i Química Física & Institut de Química Teórica i Computacional (IQTCUB), Universitat de Barcelona, c/ Martí i Franquès 1-11, 08028 Barcelona, Spain	J.1.4
10:30	Coffee Break	

Session II:

11:00	**Graphene based artificial leaf** Bartłomiej M. Szyja Division of Fuels Chemistry and Technology, Wroctaw University of Technology	J.2.1
11:30	**Modelling photo and electro nanocatalysts for water splitting in water** Cristiana Di Valentin Dipartimento di Scienza dei Materiali Università di Milano Bicocca, Italy	J.2.2
12:00	**Evolution of moiré patterns in graphene overlayers on Ni(100): insight from density functional theory and kinetic Monte Carlo** Maria Peressi[1], Virginia Carnevali[1], German Soldano[2], Marcelo M. Mariscal[2], Mirko Panighel[3], Alessandro Sala[1,3], Zhiyu Zou[3,4], Cinzia Cepek[3], Giovanni Comelli[1,3], Cristina Africh[3] 1. Department of Physics, University of Trieste, Italy; 2. INFIQC, CONICET and Universidad Nacional de Córdoba, Argentina; 3. IOM-CNR Laboratorio TASC, Italy; 4. Abdus Salam International Centre for Theoretical Physics, Trieste, Italy	J.2.3
12:15	**Breaking Scaling Relations Does Not Always Lead to Enhanced Oxygen Evolution Electrocatalysts** Federico Calle-Vallejo Departament de Ciència de Materials i Química Fisica & Institut de Química Teòrica i Computacional. Carrer de Marti i Franques 1, 08028, Barcelona, Spain	J.2.4
12:30	Lunch Break	

Session III:

14:00	**Modified TiO2 for hydrogen production and co2 reduction** Michael Nolan Tyndall National Institute, Lee Maltings, UCC, T12 R5CP, Cork, Ireland	J.3.1
14:30	**Ab initio study of oxygen electrocatalysis on Mn and Fe co-doped BaZrO3: toward effective cathodes for PC-SOFCs** Mariarosaria Tuccillo[1], Ana B. Muñoz García[2], Michele Pavone[3] 1. ISC-CNR UOS, Sapienza; 2. Physic Department, University of Naples Federico II; 3. Chemistry Department, University of Naples Federico II	J.3.2
15:00	**Theoretical modeling of Fe2O3 nano-sheets for water splitting** Maytal Caspary Toroker Department of Materials Science and Engineering, Technion - Israel Institute of Technology	J.3.4

15:15	Coffee Break	
Session IV:		
15:45	**Ab initio benchmark study of the MoS2 : WS2 2D-heterostructure** Adriana Pecoraro[1], Ana B. Muñoz-Garcia[2], Eduardo Schiavo[1], Felice Gesuele[2], Pasqualino Maddalena[2], Michele Pavone[1] 1. Università degli Studi di Napoli Federico II, Dipartimento di Scienze Chimiche, via Cintia 26, 80126, Napoli, Italia; 2. Università degli Studi di Napoli Federico II, Dipartimento di Fisica "E. Pancini", via Cintia 26, 80126, Napoli, Italia	J.4.1
16:00	**Parametrizing Implizit Solvation Models** Harald Oberhofer Chair for Theoretical Chemistry, Technical University Munich	J.4.2
16:30	**Effect of the Solvent on the Oxygen Evolution Reaction at the TiO2 -Water Interface** Patrick Gono, Francesco Ambrosio, Alfredo Pasquarello Chaire de Simulation à l'Echelle Atomique (CSEA) Ecole Polytechnique Fédérale de Lausanne (EPFL)	J.4.3
16:45	**Coarse-grained molecular dynamics of PEEK and PEKK** Sandipan Chattaraj, Sumit Basu Indian Institute of Technology Kanpur, Indian Institute of Technology Kanpur	J.4.4
17:30 Poster Session:		
	Adsorption of CO2 on (La,Sr)FeO3-delta surfaces Denis Gryaznov, Eugene Kotomin Institute of Solid State Physics, University of Latvia, 8 Kengaraga, LV-1063, Riga, Latvia	J.P.1
	Analysis of local atomic structure of Ti-perovskite solid solutions Leonid L. Rusevich, Guntars Zvejnieks, Eugene A. Kotomin Institute of Solid State Physics, University of Latvia, Riga, Latvia	J.P.2
	Defects in CeO2: DFT and site symmetry approach Andrew Chesnokov[1], Denis Gryaznov[1], Eugene A. Kotomin[1,2] 1. Institute of Solid State Physics, University of Latvia, Riga, Latvia; 2 Max Planck Institute for Solid State Research, Stuttgart, Germany	J.P.3

	First principle calculations of hybrid GaN/WS2 nanotubes for photocatalytical water splitting Inta Isakovica, Sergei Piskunov Institute of Solid State Physics, University of Latvia, 8 Kengaraga str., Riga LV-1063, Latvia	J.P.4
	CO2 and O2 stability on the Bi2O3 surfaces: DFT study Marcin Roland Zemła, Tomasz Wejrzawnoski Faculty of Materials Science and Engineering, Warsaw University of Technology, Woloska 141, 02-507 Warsaw, Poland	J.P.5
	Band Edge Alignment at NiO/H2O and Ni2P/H2O interfaces Stefano Falletta EPFL, Switzerland	J.P.7

Symposium J Program

Tuesday, September 17 th, 2019

Session V:		
09:00	**First Principle Modeling of Materials and Processes in Dye-Sensitized Photoactive Interfaces** Mariachiara Pastore Laboratoire de Physique et Chimie Théoriques (LPCT) UMR 7019 CNRS - Université de Lorraine Nancy, France	J.5.1
09:30	**Quantum embedding theory based on Hohenberg-Kohn Theorems for multi-level simulations** Tomasz A. Wesolowski Department of Physical Chemistry, University of Geneva, Switzerland	J.5.2
10:00	**Diffusion of Hydrogen Ions in Nickel Oxide Phases** Yuval Elbaz, Maytal Caspary-Toroker Department of Materials Science and Engineering, Technion - Israel Institute of Technology, Haifa 3200003, Israel	J.5.3
10:15	**Mechanical response and crack propagation of Ni-Ti-Cu cantilevers by in-situ TEM compression and molecular dynamics simulation** Shih-Wei Liang and Te-Hua Fang* Department of Mechanical Engineering, National Kaohsiung University of Science and Technology, Kaohsiung 80778, Taiwan	J.5.4
10:30	Coffee Break	
Session VI:		
11:00	**Structure and reactivity of two-dimensional silica and zeolites** Joachim Sauer Humboldt University	J.6.1
11:45	**Scale bridging in materials science with machine learning** Patrick Rinke Department of Applied Physics, Aalto University, Helsinki, Finland	J.6.2

12:15	**Understanding the Interplay between Size, Morphology and Energy Gap in Photoactive TiO2 Nanoparticles** Ángel Morales-García[1], Antoni Macià Escatllar[1], Francesc Illas[1], Stefan T. Bromley[1,2] 1. Departament de Ciència de Materials i Química Física & Institut de Química Teòrica i Computacional (IQTCUB), Universitat de Barcelona, c/ Martí i Franquès 1-11, 08028 Barcelona, Spain; 2. Institució Catalana de Recerca i Estudis Avançats (ICREA), Passeig Lluis Companys 23, 08010 Barcelona, Spain	J.6.3
12:30	**DFT Study of TiO2 Rutile (110) Modified with Alkaline Earth Oxide Modifiers for the Promotion of Water Oxidation** Stephen Rhatigan, Gerardo Colón, Michael Nolan Tyndall National Institute, University College Cork, Instituto de Ciencia de Materiales de Sevilla, CSIC Sevilla, Tyndall National Institute, University College Cork,	J.6.4
12:45	Lunch Break	
Session VII:		
14:00	**First principles reaction kinetics over metal nanoparticles** Henrik Grönbeck Competence Centre for Catalysis and Department of Physics, Chalmers University of Technology, Sweden	J.7.1
14:30	**Multiscale Modeling of Electrochemical Interfaces: A Case Study of Fe2O3 for Water Splitting** K. George, M. Van Berkel, X. Zhang, R. Sinha and Anja Bieberle-Hütter Dutch Institute for Fundamental Energy Research (DIFFER), Eindhoven, 5612AJ, The Netherlands	J.7.2
15:00	**DFT modeling of band alignment at interfaces between semiconductors** José C. Conesa Instituto de Catálisis y Petroleoquímica, CSIC. Madrid, Spain	J.7.3
15:15	**Doped Graphene and Ag(111) hybrid material as fuel cell electrode: new insights from Dispersion-corrected DFT** Eduardo Schiavo[1], Ana B. Muñoz-García[2] and Michele Pavone[1] 1. Department of Chemical Sciences, University of Naples "Federico II", Comp. Univ. Monte Sant'Angelo Via Cintia 21, 80126 Naples, Italy; 2. Department of Physics "Ettore Pancini", University of Naples Federico II, Comp. Univ. Monte Sant'Angelo Via Cintia 21, 80126 Naples, Italy	J.7.4
15:30	Coffee Break	

Session VIII:

16:00	**Computational design of photocatalytic metal-organic frameworks** Ricardo Grau-Crespo[1], Alex Aziz[1], Norge C. Hernández[2], A. Rabdel Ruiz-Salvador[3], Said Hamad[3] 1. Department of Chemistry, University of Reading, UK; 2. Department of Applied Physics I, Escuela Técnica Superior de Ingeniería Informática, Universidad de Sevilla, Spain; 3. Department of Physical, Chemical and Natural Systems, Univ. Pablo de Olavide, Seville, Spain	J.8.1
16:30	**A Computational Characterization of Trap States in Monolayer MoS2 with Sulfur Vacancies** Gabriela Ben-Melech Stan, Maytal Caspary Toroker Department of Materials Science and Engineering, Technion – Israel Institute of Technology, Haifa, Israel, Department of Materials Science and Engineering, Technion – Israel Institute of Technology, Haifa, Israel, and The Nancy and Stephen Grand Technion Energy Program, Technion – Israel Institute of Technology, Haifa, Israel	J.8.2
16:45	**Controlling preferential motion of chiral molecular walkers at a surface** David Abbasi-Pérez[1], Hongqian Sang[1,2], Lluïsa Pérez-García[3], Andrea Floris[4], David B. Amabilino[5], Rasmita Raval[6], J. Manuel Recio[7] and Lev Kantorovich[1] 1. Department of Physics, King's College London, London, WC2R 2LS, (UK); 2. Institute for Interdisciplinary Research, Jianghan University, Wuhan 430056, (China); 3. School of Pharmacy, University of Nottingham, University Park, Nottingham, NG7 2RD, (UK); 4. School of Mathematics and Physics, University of Lincoln, Brayford Pool, Lincoln LN6 7TS, (UK); 5. School of Chemistry GSK Carbon Neutral Lab. for Sust. Chemistry, University of Nottingham, Triumph Road, NG7 2TU(UK); 6. Surface Science Research Centre, Department of Chemistry, University of Liverpool Liverpool L69 3BX (UK); 7. MALTA-Consolider Team and Department of Analytical and Physical Chemistry, Universidad de Oviedo, Oviedo, 33006, (Spain)	J.8.3

Symposium K

Sessions: Room 213| Main Building
Poster Session: Main Aula| Faculty of Physics Building

ENERGY AND ENVIRONMENT:

Nuclear materials under extreme conditions

Symposium Organizers: **Christian EKBERG**, Chalmers, Sweden

David SIMEONE, CEA, CEN Saclay, France

Manuel A. POUCHON, Paul Scherrer Institut, Switzerland

Valentin CRACIUN, National Institute for Laser, Plasma and Radiation Physics and Extreme Light Infrastructure for Nuclear Physics, Romania

SYMPOSIUM K TIMETABLE

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Symposium K location

Sessions: 213 | Main Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium K Program

Monday, September 16 th, 2019

Session I:

14:00	**Properties of nuclear waste materials from atomistic simulations: what have we learnt?** Piotr. M. Kowalski[1,2], Steve Lange[1,2], Guido Deissmann[1,2], Victor. L. Vinograd[1,2], Andreas Wilden[1,2], Giuseppe Modolo[1,2], Mengli Sun[1,2], Robert Baker[3], Dirk Bosbach[1,2] 1. Institute of Energy and Climate Research (IEK-6), Forschungszentrum Jülich, Wilhelm-Johnen-Straβe, 52425 Jülich, Germany; 2. JARA High-Performance Computing, Schinkelstraβe 2, 52062 Aachen, Germany; 3. School of Chemistry, University of Dublin, Trinity College, College Green, Dublin 2, Ireland	K.1.1
14:30	**Unravelling Pressured Induced Uranium Bond Expansion and the Implications for Chemistry and Stability of Nuclear Materials** Gabriel L. Murphy[1], Evgeny V. Alekseev[1], Piotr Kowalski[1], Philip Kegler[1], Brendan J. Kennedy[2], Zhaoming Zhang[3] and Helen Maynard-Casely[3] 1. Institute of Energy and Climate Research, Forschungszentrum Jülich GmbH, 52428 Jülich, Germany; 2. School of Chemistry, The University of Sydney, Sydney, NSW 2006, Australia; 3. Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW 2234, Australia	K.1.2
14:45	**U1-xPuxO2±δ fuel precursor synthesis through advanced thermal denitration in presence of organic additive** Martin Leblanc, Gilles Leturcq, Eléonore Welcomme, Xavier Deschanels, Thibaud Delahaye CEA, DEN, MAR, DMRC, SFMA, LPCA, F-30207 Bagnols-sur-Cèze Cedex, France, CEA, DEN, MAR, DMRC, SFMA, LPCA, F-30207 Bagnols-sur-Cèze Cedex, France,CEA, DEN, MAR, DMRC, SFMA, LPCA, F-30207 Bagnols-sur-Cèze Cedex, France, Institut de Chimie Séparative de Marcoule, ICSM UMR5257, Centre de Marcoule, F-30207 Bagnols/Cèze, France, CEA, DEN, MAR, DIR, F-30207 Bagnols-sur-Cèze Cedex, France	K.1.3
15:00	**Chemical and structural evolution of simple and complex uranium oxides under high-temperature/high-pressure conditions** Evgeny V. Alekseev, Piotr Kowalski, Philip Kegler, Mike Cooper, Thomas E. Albrecht-Schmitt Institute of Energy and Climate Research (IEK-6) Forschungszentrum Jülich,Institute of Energy and Climate Research (IEK-6) Forschungszentrum Jülich,Institute of Energy and Climate Research (IEK-6) Forschungszentrum Jülich, Los Alamos National Lab, Florida State University	K.1.4
15:15	Coffee Break	

Session II:

15:45	**Quantification of radiation damage in ceramics utilized in the Nuclear Fuel Cycle** Gordon Thorogood[1], Christoph Lenz[1,2], Robert Aughterson[1], Daniel Gregg[1], Joel Davis[1], Greg Lumpkin[1] and Mihail Ionescu[1] 1. Australian Nuclear Science and Technology Organisation, Sydney, NSW, Australia; 2. Institut für Mineralogie und Kristallographie, Universität Wien, Vienna, Austria	K.2.1
16:15	**Green fuel production: application of the hot compressed water decomposition of oxalates for PuO2 and MOX** Karin Popa, Olaf Walter European Commission, Joint Research Centre, P.O. Box 2340, D-76125 Karlsruhe, Germany	K.2.2
16:30	**Effect of processing parameters on the dispersoid formation in oxide dispersion strengthened steel fabricated by SLM** P. Warnicke[1], A. Cavaliere[1], A. De Luca[2], C. Leinenbach[2] and M. Pouchon[1] 1. Paul Scherrer Institut, 5232 Villigen, Switzerland; 2. EMPA, Swiss Federal Laboratories for Materials Science and Technology, 8600 Duebendorf, Switzerland	K.2.3
16:45	**Complex transmutation targets produced by additive manufacturing - Theoretical study of new fuel forms** Manuel A. Pouchon Laboratory for Nuclear Materials, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland	K.2.4

Symposium K Program

Tuesday, September 17 th, 2019

Session III:		
09:00	**Optical coatings as mirrors for fusion reactor optical diagnostics** Laurent Marot, Lucas Moser, Kunal Soni, Roland Steiner, Ernst Meyer Department of Physics, University of Basel, Klingelbergstrasse 82, 4056 Basel, Switzerland	K.3.1
09:30	**Behavior of mesoporous silica under ion irradiation** X. Deschanels, Y. Lou, S. Dourdain, C. Rey Institut de Chimie Séparative de Marcoule, CEA/CNRS/UM/ENSCM, 30207 Bagnols-sur–Cèze (France)	K.3.2
09:45	**He and H effects on structural materials in fusion and accelerator driven systems** Yong Dai Paul Scherrer Institute, 5232 Villigen PSI, Switzerland	K.3.3
10:00	**EPR investigations of fs-Laser irradiated Hafnium Oxide** A.M. Rostas[1], D. Craciun[2], S. Irimiciuc[2], B. Hodoroaba[2,3], G. Dorcioman[2], I. Anghel[2], P. Garoi[2], O. Uteza[4] and V. Craciun[2,5] 1. National Institute for Materials Physics, Magurele, Romania; 2. National Institute for Laser, Plasma, and Radiation Physics, Bucharest-Magurele, Romania; 3. Physics Faculty, University of Bucharest, Magurele, Romania; 4. Laboratoire LP3, Universite de Marseille, Campus de Luminy, Marseille, France; 5. Extreme Light Infrastructure for Nuclear Physics, Bucharest-Magurele, Romania	K.3.4
10:15	Coffee Break	
Session IV:		
10:45	**The Effect of Ion Irradiation on Optical Properties of Ceramic Thin Films** C. Martin, I. Sydoryk, K.H. Miller, R.M. Martin Ramapo College of New Jersey, Mahwah, New Jersey 07430, USA, Ramapo College of New Jersey, Mahwah, New Jersey 07430, USA, NASA Goddard Space Flight Center, Greenbelt, MD 20771, USA, Montclair State University, Montclair, NJ 07043	K.4.1

11:15	**Phase separation in fluorite-related U_{1-y}Ce_{y}O_{2 - x}: a re-examination by x-ray and neutron diffraction** P. Garcia, D. Simeone CEA, DEN, DEC, Centre de Cadarache, 13108, Saint-Paul-Lez-Durance Cedex CEA/DEN/DMN/SRMA/LA2M-LRC CARMEN, CEA, Universit'e Paris-Saclay, F-91191, Gif-sur-Yvette, France & CNRS/CentraleSupelec/UMR 8085, Grande voie des vignes, Chatenay Malabry France	K.4.2
11:30	**Grain specific stress/strain analysis in irradiated UO2 fuel using synchrotron based microbeam X-ray diffraction** G. Kuri, M. Martin, J. Bertsch Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland	K.4.3
11:45	**Grain Boundary Energy and Population Distributions in TWIP Austenitic Steel** Rajchawit Sarochawikasit[1], Rachanon Thongprong[2] and Sutatch Ratanaphan[2,3]* 1. Department of Computer Engineering, King Mongkut's University of Technology Thonburi, 126 Pracha Uthit Rd, Thung Khru, Bangkok 10140, Thailand; 2. Nanoscience and Nanotechnology Graduate Research Program, King Mongkut's University of Technology Thonburi, 126 Pracha Uthit Rd, Thung Khru, Bangkok 10140, Thailand; 3. Department of Tool and Materials Engineering, King Mongkut's University of Technology Thonburi, 126 Pracha Uthit Rd, Thung Khru, Bangkok 10140, Thailand	K.4.4
12:00	Lunch Break	

Session V:

14:00	**Defect properties of fcc Fe-Cr-Mn-Ni high entropy alloys from first principles** Mark Fedorov[1], Jan Wróbel[1], Antonio Fernández-Caballero[2], Kamil Czelej[1], Krzysztof Kurzydłowski[1,3], Duc Nguyen-Manh[4] 1. Faculty of Materials Science and Engineering, Warsaw University of Technology, ul. Woloska 141, 02-507 Warsaw, Poland; 2. EPSRC Centre for Doctoral Training in Materials for Demanding Environments, Faculty of Science and Engineering, University of Manchester, M13 9PL Manchester, United Kingdom; 3. Faculty of Mechanical Engineering, Bialystok University of Technology, ul. Wiejska 45C, 15-351 Bialystok, Poland; 4. CCFE, United Kingdom Atomic Energy Authority, Abingdon, OX14~3DB, United Kingdom	K.5.1
14:15	**Phase stability and radiation resistance of W-based high-entropy alloys** D. Sobieraj[1,2], O. El-Atwani[3], N. Li[4], M. Li[5], A. Devaraj[6], J. K.S. Baldwin[4], M.M. Schneider[3], S.A. Maloy[3], E. Martinez[7], J.S. Wróbel[1], T. Rygier[1], G. Cieślak[1], K.J. Kurzydłowski[1], D. Nguyen-Manh[2] 1. Faculty of Materials Science and Engineering, Warsaw University of Technology, Woloska 141, 02-507 Warsaw, Poland; 2. CCFE, United Kingdom Atomic Energy Authority, Abingdon OX14 3DB, UK; 3. Materials Science and Technology Division, Los Alamos National Laboratory, Los Alamos, NM, USA.; 4. Center for Integrated Nanotechnologies, MPA-CINT, Los Alamos National Laboratory, Los Alamos, NM 87545, USA.; 5. Division of Nuclear Engineering, Argonne National Laboratory, Argonne, IL, USA.; 6. Physical and Computational Sciences Directorate, Pacific Northwest National Laboratory, Richland, WA, USA.; 7. Theoretical Division, T-1, Los Alamos National Laboratory, Los Alamos, NM, USA.,	K.5.2

14:30	**Laser induced breakdown spectroscopy investigations of high entropy metallic alloys** Bianca Cristiana Hodoroaba[1,2], Stefan Andrei Irimiciuc[1], Andrei Stancalie[1], Emanuel Axente[1], Doina Craciun[1], Petronela Garoi[1], Dan Cristea[3], Victor Geanta[4], Ionelia Voiculescu[4], Valentin Craciun[1] 1. National Institute for Laser, Plasma and Radiation Physics – NILPRP, 409 Atomistilor Street, Bucharest, Romania; 2. University of Bucharest, Faculty of Physics, Bucharest-Magurele, Romania; 3. Materials Science Department Transilvania University, Brasov, Romania; 4. Polytechnic University of Bucharest, Bucharest, Romania	K.5.3
14:45	**Irradiation induced Segregation analyses by using APT/TEM in RAFM steels after irradiated in SINQ** Lijuan Cui[1]*, Yong Dai[1], Stephan Gerstl[2], Manuel Pouchon[1], Xing Huang[2], Willinger M. Georg[2], Robin Schäublin[2] 1. Laboratory for Nuclear Materials, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland; 2. Scientific Center for Optical and Electron Microscopy, ETH Zurich, 8093 Zurich, Switzerland	K.5.4
15:00	Coffee Break	

Session VI:

15:30	**Accelerated multiscale modelling of ionising radiation in structural nuclear materials** Darío Fernández-Pello, María Ángeles Cerdeira, Roberto Iglesias Department of Physics, University of Oviedo, Federico García Lorca 18, Oviedo, E-33007, Spain	K.6.1
16:00	**Native defects in MgAl2O4 spinel: ab initio study** A. Platonenko, D. Gryaznov, A. I. Popov, E. K. Kotomin Institute of Solid State Physics, University of Latvia, Kengaraga st. 8, LV1063, Riga, Latvia	K.6.2
16:15	**Fe-Cr grain boundary with He impurities: atomic-level modelling** Marcin Roland Zemła[1], Jan S. Wróbel[1], Duc Nguyen-Manh[2], Chu-Chun Fu[3], Frederic Soisson[3], Tomasz Wejrzawnoski[1] 1. Faculty of Materials Science and Engineering, Warsaw University of Technology, Woloska 141, 02-507 Warsaw, Poland; 2. CCFE, United Kingdom Atomic Energy Authority, Abingdon OX14 3DB, UK; 3. DEN-Service de Recherches de Métallurgie Physique, CEA, Université Paris-Saclay, F-91191, Gif-sur-Yvette, France	K.6.3
16:30	**Analysis of nuclear materials** Claude Degueldre Lancaster University, UK	K.6.4

17:00 Poster Session:

	Could color centers exist in CeO2? E.A. Kotomin, A.I. Popov, D. Gryaznov, J. Maier Max Planck Institute for Solid State Research, Stuttgart, Germany, Institute of Solid State Physics, University of Latvia, Riga, Latvia	K.P.1
	High temperature steam oxidation behavior of chromium alloy coatings by different deposition techniques Jung-Hwan Park, Yang-Il Jung, Dong-Jung Park, Hyun-Gil Kim, Byoung-kwon Choi, Young-Ho Lee Korea Atomic Energy Research Institute	K.P.3
	Matrix Coating on the Spherical Uranium Alloy Powder by PVD method Kyuhong Lee, Sunghwan Kim, Wonjae So, Ki Nam Kim, Yong Jin Jeong, Jong Man Park Korea Atomic Energy Research Institute	K.P.4
	X-ray imaging methods for microstructural analysis of plasma facing materials and components for future fusion devices Mihail Lungu[1], Cosmin Dobrea[1,2] And Ion Tiseanu[1] 1. National Institute for Laser, Plasma and Radiation Physics, Bucharest, Romania; 2. Technical University of Cluj-Napoca, Faculty of Science and Material Engineering, Cluj-Napoca, Romania,	K.P.5
	Ion irradiation of gallium nitride - interplay between nuclear and electronic energy loss K. Tomić[1], R. Heller[2], S. Akhmadaliev[2], H. Lebius[3], A. Benyagoub[3], C. Ghica[4], F. Scholz[5], O. Rettig[5], B. Šantić[1], S. Fazinić[1] and M. Karlušić*[1] 1. Ruđer Bošković Institute, Bijenička cesta 54, 10000 Zagreb, Croatia; 2. Helmholtz-Zentrum Dresden-Rossendorf, Bautzner Landstrase 400, 01328 Dresden, Germany; 3. CIMAP, CEA-CNRS-ENSICAEN-UCN, BP 5133, 14070 Caen Cedex 5, France; 4. National Institute of Materials Physics, Str. Atomistilor 105 bis, 077125 Magurele, Romania; 5. Institute of Functional Nanosystems, Universität Ulm, Albert-Einstein-Allee 45, 89081 Ulm, Germany	K.P.6
	Spent nuclear fuel from experiments and atomistic simulations Mengli Sun[1,2,3,4], Victor. L. Vinograd[2,3], Evgeny V. Alekseev[2,3], Philip Kegler[2,3], Gabriel Murphy[2,3], Tieshan Wang[4], Brendan Kenedy[5], Zhaoming Zhang[6], Kristina Kvashnina[7], Dirk Bosbach[2,3], Sandro Jahn[1], Piotr. M. Kowalski[2,3] 1. University of Cologne, Institute of Geology and Mineralogy, Zülpicher Strasse 49b, 50674 Köln, Germany; 2. Institute of Energy and Climate Research (IEK-6), Forschungszentrum Jülich, Wilhelm-Johnen-Straβe, 52425 Jülich, Germany, email: p.kowalski@fz-juelich.de; 3. JARA High-Performance Computing, Schinkelstraβe 2, 52062 Aachen, Germany; 4. School of Nuclear Science and Technology, Lanzhou University, Tianshui South Road 222, Lanzhou 730000, China, 5. School of Chemistry, The University of Sydney, Sydney, NSW 2006, Australia; 6. Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW 2234, Australia; 7. Rossendorf Beamline at ESRF – The European Synchrotron, CS40220 38043 Grenoble Cedex 9, France,	K.P.7

	Thermostimulated luminescence properties of neutron, electron and thermochemically-reduced Y3Al5O12 A.I. Popov[1], E. Elsts[1], V. Grāveris[1], V.Kuzovkov[1], E. Shablonin[2], E. Vasil'chenko[2], G. Prieditis[2], A.Ch. Lushchik[2] 1. Institute of Solid State Physics, University of Latvia, Latvia; 2. Institute of Physics, University of Tartu, W.Ostwald Str. 1, 50411 Tartu, Estonia	K.P.9
	Pd diffusion through nanocrystalline ZrC thin films J.J. Terblans[1], H.C. Swart[1], E Coetsee[1], M.M. Duvenhage[1], D. Craciun[2], G. Dorcioman[2], V. Craciun[2,3] 1. Department of Physics, University of the Free State, Bloemfontein, South Africa; 2. National Institute for Lasers, Plasma and Radiation Physics, Măgurele, Romania; 3. Extreme Light Infrastructure-Nuclear Physics, Magurele, Romania	K.P.10
	Effect of Ar and Au ion irradiation on nanocrystalline ZrC and ZrN thin films D. Craciun[1], G. Dorcioman[1], M.D. Dracea[2], D. Pantelica[2], B.S. Vasile[3], V. Craciun[1,4] 1. National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania; 2. Horia Hulubei National Institute for Physics and Nuclear Engineering, Magurele, Romania; 3. Faculty of Applied Chemistry and Material Science, Polytechnic University of Bucharest, Bucharest, Romania; 4. Extreme Light Infrastructure-Nuclear Physics, HH-IFIN Magurele, Romania	K.P.11
	Thermal conductivity measurements of pulsed laser deposited indium zinc oxide thin films Cristian Mihailescu, Gabriela Dorcioman, Doina Craciun and Petronela Garoi National Institute for Laser, Plasma, and Radiation Physics, Magurele, Romania	K.P.12
	DFT study of the dissolution energy of embedded oxides and the bulk modulus of oxide embedded bcc iron E. Akshaya Devi, Ravi Chinnappan Materials Science Group, Indira Gandhi Centre for Atomic Research, HBNI, Kalpakkam 603102, Tamilnadu, India	K.P.13
	Spark Plasma Sintering of Composite Ceramics based on Ceria and Silicon Carbide for Inert Matrix Fuels L.S. Alekseeva, E.A. Potanina Lobachevsky State University of Nizhny Novgorod	K.P.14
	TEM investigation on radiation damage in tungsten exposed to simultaneous and sequential W ion damaging and D plasma exposure at W. Chrominski[1], L. Ciupinski[1], P. Bazarnik[1], S. Markelj[2], T. Schwarz-Selinger[3] 1. Faculty of Materials Science and Engineering, Warsaw University of Technology, Poland; 2. Jožef Stefan Institute, Slovenia; 3. Max-Planck-Institut für Plasmaphysik, Germany	K.P.15

	Radiation-induced micro-structures as ground states of a Swift-Hohenberg Energy functional Laurence Luneville[1,2], David Simeone[1,2] 1. CEA/DEN/DM2S/SERMA/LLPR-LRC CARMEN, CEA, Universit'e Paris-Saclay, F-91191, Gif-sur-Yvette, France; 2. CNRS/ECP/ UMR 8085, Grande voie des vignes, Chatenay Malabry, France	K.P.16
	Understanding the Effects of Ion Irradiation on Structural Materials through Small-scale testing Dhriti Bhattacharyya, Alan Xu, Michael Saleh, Tao Wei, Mihail Ionescu Australian Nuclear Science and Technology Organisation	K.P.17
	Low density carbons foams grown by pulsed laser deposition Bianca Cristiana Hodoroaba[1,2], Raluca Ivan[1,2], Stefan Andrei Irimiciuc[1], Doina Craciun[1], Petronela Garoi[1], Eniko Gyorgy[1,3], Valentin Craciun[1,4] 1. National Institute for Laser, Plasma and Radiation Physics – NILPRP, 409 Atomistilor Street, Bucharest, Romania; 2. University of Bucharest, Faculty of Physics, Bucharest-Magurele, Romania; 3. Consejo Superior de Investigaciones Científicas, Instituto de Ciencia de Materiales de Barcelona (CSIC-ICMAB), Campus UAB, 08193 Bellaterra, Spain; 4. Extreme Light Infrastructure-Nuclear Physics, Magurele, Romania	K.P.18
	Gamma irradiation induced effects in amorphous indium zinc oxide films Doina Craciun, Gabriela Dorcioman and Valentin Craciun National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania	K.P.19
	First-principles-based analysis of the simultaneous coexistence of hydrogen and helium impurities in W/W interfaces María Ángeles Cerdeira[1], Roberto Iglesias[1], Raquel González-Arrabal[2,3], Antonio Rivera[2,3], José Manuel Perlado[2], César González[4] 1. Department of Physics, University of Oviedo, Federico García Lorca 18, Oviedo, E-33007, Spain; 2. Instituto de Fusión Nuclear-Guillermo Velarde, Universidad Politécnica de Madrid, José Gutiérrez Abascal 2, E-28006, Madrid, Spain; 3. Departamento de Ingeniería Energética, Universidad Politécnica de Madrid, José Gutiérrez Abascal 2, E-28006, Madrid, Spain; 4. Department of Theoretical Condensed Matter Physics & Condensed Matter Physics Center (IFIMAC), Universidad Autónoma de Madrid, E-28049, Madrid, Spain	K.P.20

Symposium K Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VIII:		
14:00	**Peculiarities of defect recombination kinetics in irradiated Al2O3 and Y3Al5O12 single crystals** E.A. Kotomin, V.N. Kuzovkov, A.I. Popov, M. Izerrouken, R. Villa Institute of Solid State Physics, University of Latvia, Riga, Latvia, Max Planck Institute for Solid State Research, Stuttgart, Germany, Nuclear Research Center of Draria, Algiers, CIEMAT, Madrid, Spain	K.8.1
14:30	**The influence of prior heat treatment on the microstructural evolution of Ti-stabilized austenitic steel under ion irradiation** N. Cautaerts[1,2], R. Delville[1], E. Stergar[1], M. Verwerft[1], D. Schryvers[2], J. Pakarinen[3], Y. Yang[4], P. Hosemann[5], S. Vachhani[5], C. Hoffer[6], R. Schnitzer[6], P. Felfer[7], S. Lamm[7] 1. SCK-CEN, Mol, Belgium; 2. University of Antwerp, Antwerp, Belgium; 3. Studsvik Nuclear AB, Nyköping, Sweden; 4. University of Florida, Gainesville, FL, USA; 5. University of California, Berkeley, CA, USA; 6. University of Leoben, Leoben, Austria; 7. FAU, Erlangen, Germany	K.8.2
14:45	**Annealing kinetics of the neutron-induced defects in MgAl2O4 spinel** A. Lushchik[1], E.A. Kotomin[2], V.N. Kuzovkov[2], A.I. Popov[2], V. Seeman[1], E. Shablonin[1], E. Vasilchenko[1] 1. Institute of Physics, University of Tartu, Estonia; 2. Institute of Solid State Physics, University of Latvia	K.8.3
15:00	**UO2 is non stoichiometric in nuclear operation** Lionel Desgranges CEA DEN-DEC, C.E. Cadarache 13108 Saint-Paul les Durance	K.8.4
15:15	Coffee Break	

Session IX:

15:45	**Aspect of Breakaway Oxidation on a Zirconium Alloy Cladding Tube during Oxidation at 800 °C** Cheol Min Lee[1], Gwan Yoon Jeong[2], Young-Soo Han[1], Dong-Seong Sohn[2] 1. Korea Atomic Energy Research Institute, 989-111 Daedeok-daero, Yuseong-gu, Daejeon 34057, Republic of Korea; 2. Ulsan National Institute of Science and Technology, 50 UNIST-gil, Eonyang-eup, Uljoo-gun, Ulsan 689-798 Republic of Korea	K.9.1
16:00	**Study of Molybdates and Tungstates with Scheelite Structure in Chloride Melts** E.A. Potanina, M.G. Tokarev Lobachevsky state university of Nizhny Novgorod	K.9.2
16:15	**Elaboration of nuclear ceramics and use of Spark Plasma Sintering to increase the safety in extreme conditions** Orlova A.I., Nokhrin A.V., Chuvildeev V.N., Boldin M.S. National Research Lobachevsky State University of Nizhny Novgorod	K.9.3
16:30	**Irradiation creep of SiCf/SiC minicomposite under uniaxial tensile loading at 700 and 900°C** Jiachao Chen[1], Sylvain Jacques[2], Jean-Paul Tarsbot[3], MF Barthe[3], Chonghong Zhang[4], M. Pouchon[1] 1. Department of Nuclear Energy and Safety, Paul Scherrer Institute, 5232 Villigen PSI, Switzerland; 2. Laboratoire des Composites Thermostructuraux, University of Bordeaux/CNRS, 33600 Pessac, France; 3. CEMHTI/CNRS, Université d'Orléans, 3A rue de la Férollerie, 45071 Orléans CEDEX 2, France CEA/DEN, SRMA, F-91191 Gif-sur-Yvette CEDEX, France; 4. Institute of Modern Physics, Chinese Academy of China, Lanzhou, China	K.9.4
16:45	**Oxide thickness dependence of wear resistance in grid-to-rod fretting** Young-Ho Lee, Hyung-Kyu Kim, Jung-Hwan Park, Hyun-Gil Kim Korea Atomic Energy Research Institute	K.9.5
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium L

Sessions: Room 309 | Main Building
Joint Sessions L&M: Room 315 | Main Building
Poster Session: Main Aula | Faculty of Physics Building

ENERGY AND ENVIRONMENT:

Beyond hydrogen storage – Metal hydrides as multifunctional materials for energy storage and conversion

Symposium Organizers: **Claudio PISTIDDA**, Helmholtz Zentrum Geesthacht, Germany
Arndt REMHOF, EMPA, Switzerland
Kasper MØLLER, Curtin University, Australia
Michael HEERE, Karlsruhe Institute of Technology, Germany

SYMPOSIUM L TIMETABLE

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Joint Session L&M</td><td></td></tr>
<tr><td>17:30 – 19:30</td><td></td><td>(18:00-19:30) Poster Session</td><td>Graduate Student Awards Ceremony & Reception 18:00-21:00</td><td></td></tr>
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Symposium L location

Sessions: 309 | Main Building
Joint Sessions L&M: 315 | Main Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium L Program

Monday, September 16 th, 2019

Session I: Fundamental aspects of solid state ion conductors I : Michel Latroche		
11:30	**Solid electrolytes – from a fundamental understanding to their applications in solid-state batteries** Wolfgang Zeier Institute of Physical Chemistry, Justus-Liebig-University Giessen, Heinrich-Buff-Ring 17, 35392 Giessen, Germany	L.1.1
12:15	**Complex dynamics in metal borohydrides from hydrogen storage to solid-state batteries** Brandon C. Wood, ShinYoung Kang, Patrick Shea, Kyoung Kweon, Joel Varley, Tae Wook Heo Lawrence Livermore National Laboratory, USA	L.1.2
12:40	**Light metal hydride nanocomposites as room temperature solid electrolytes** Petra de Jongh and Peter Ngene Inorganic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Utrecht University, The Netherlands, P.E.deJongh@uu.nl, P.Ngene@uu.nl	L.1.3
13:00	Lunch Break	
Session I: Fundamental aspects of solid state ion conductors II : Matteo Brighi		
14:00	**Chemical and structural charge-discharge transformations in hydride-based and all-solid state batteries** Dorthe B. Ravnsbæk Department of Physics, Chemistry and Pharmacy, University of Southern Denmark, Campusvej 55, 5230 Odense M, Denmark	L.1.4
14:30	**Energy storage in metal hydrides or new types of batteries** Torben R. Jensen iNANO and Department of Chemistry Langelandsgade 140 DK-8000 Aarhus C Aarhus University Denmark	L.1.5

14:50	**Electrochemical conversion of MgH2 with lithium: thin film study as a model system** Junxian Zhang[1], A. Lacoste[2], N. Berti[1], E. Hadjixenophontos[3], F. Cuevas[1], G. Schmitz[3], M. Latroche[1] 1. ICMPE (UMR7182), CNRS, UPEC, F-94320 Thiais, France; 2. LPSC, Université Grenoble-Alpes, CNRS/IN2P3, 53 rue des Martyrs, 38026 Grenoble Cedex, France; 3 Institut für Materialwissenschaft, Lehrstuhl Materialphysik (IMW), University of Stuttgart, Heisenbergastrasse 3, 70569 Stuttgart, Germany	L.1.6
15:10	**Synthesis, Characterization and Investigations on the Ionic Conductivity of Ammine Calcium Borohydride** M.B. Amdisen, T.R. Jensen Interdisciplinary Nanoscience Center and Department of Chemistry, Aarhus University	L.1.7
15:30	Coffee Break	
Session II: Hydride-based [battery] materials : Hai-Wen Li		
16:00	**Solution-processable closo-borate electrolyte for all-solid-state batteries** Léo Duchêne[1,2], Dong Hyeon Kim[3], Romain Moury[2], Ruben-Simon Kühnel[1], Arndt Remhof[1], Hans Hagemann[2], Yoon Seok Jung[3], Corsin Battaglia[1] 1. Empa, Swiss Federal Laboratories for Materials Science and Technology, 8600 Dübendorf, Switzerland; 2. Département de Chimie-Physique, Université de Genève, 1211 Geneva 4, Switzerland; 3. Department of Energy Engineering, Hanyang University, 04763 Seoul, Republic of Korea	L.2.1
16:30	**Mg(BH4)2-Mg(NH2)2 based Mg2+ ionic conductors as solid electrolyte for Mg batteries** Ronan Le Ruyet[1,4], Romain Berthelot[2,4], Elodie Salager[3,4], Pierre Florian[3], Benoît Fleutot[1,4], Raphaël Janot[1,4] 1. Laboratoire de Réactivité et Chimie des Solides (LRCS), Université de Picardie Jules Verne, UMR 7314 CNRS, Amiens 80039, France; 2. Institut Charles Gerhardt Montpellier (ICGM), Université de Montpellier, UMR 5253 CNRS, Montpellier 34095, France; 3; Conditions extrêmes et Matériaux : Haute Température et Irradiation (CEMHTI), UPR 3079 CNRS, Université d'Orléans, Orléans 45071, France; 4. Réseau sur le Stockage Electrochimique de l'Energie (RS2E), FR 3459 CNRS, Amiens 80039, France	L.2.2
16:50	**The influence of the cerium content on the structure and properties of La1-xCexNi5 alloys** Magda Peska*, Julita Dworecka-Wójcik, Marek Polański Department of Advanced Materials and Technologies, Military University of Technology, Kaliskiego 2 St., 00-908 Warsaw, Poland	L.2.3
17:10	**Behaviour of compacted Magnesium-based powders for energy storage applications** D. Mirabile Gattia[1]*, M. Jangir[1,2], IP Jain[2] 1. Department for Sustainability, ENEA, Via Anguillarese 301, 00123 Rome, Italy; 2. Centre for Non-Conventional Energy Resources, University of Rajasthan, Jaipur, India * corresponding author: daniele.mirabile@enea.it	L.2.4

17:30	**Structural and Electronic Properties of Sodium Titanogallate** R. Martínez-Casado[1], M. García-Carrión[1], J. García-Fernández[2], A. Torres-Pardo[2], J. Ramírez-Castellanos[2], E. Nogales[1], J.M. González-Calbet[2] and B. Méndez[1] 1. Department of Physics of Materials, Faculty of Physical Sciences, University Complutense Madrid, 28040, Madrid, Spain; 2. Department of Inorganic Chemistry, Faculty of Chemical Sciences, University Complutense Madrid, 28040, Madrid, Spain	L.2.5

Symposium L Program

Tuesday, September 17 th, 2019

Session III: Hydrides for Solar Thermal Energy Storage : Torben R. Jensen		
09:00	**Thermal energy storage systems based on metal hydrides for solar driven power plants** Claudio Corgnale[1], Shaun Sullivan[2], Ragaiy Zidan[3], Bruce Hardy[3], Theodore Motyka[1] 1. Greenway Energy; 2. Brayton Energy; 3. Savannah River National Laboratory	L.3.1
09:30	**Hydrogenation properties and microstructure of mechanochemically processed TiFeZr-type alloys** Sabrina Sartori University of Oslo, Department of Technology Systems, Norway	L.3.2
09:50	**On the design of metal hydride reactors for high thermal power applications** Inga Bürger, Mila Kölbig, Christoph Weckerle, Marc Linder German Aerospace Center	L.3.3
10:10	**Rubidium and cesium hydrazinidoboranes: New derivatives of hydrazine borane as potential hydrogen storage materials** Carlos A. Castilla-Martinez, Umit B. Demirci Institut Européen des Membranes, IEM – UMR 5635, ENSCM, CNRS, Univ Montpellier, Montpellier, France	L.3.4
10:30	Coffee Break	
Session IV: Computational methods for hydride materials : Brandon Wood		
11:00	**Hydrogen storage in nanoparticles** M.P. Ariza, X. Sun, K.G. Wang, M. Ortiz Escuela Técnica Superior de Ingeniería, Universidad de Sevilla, Sevilla 41092, Spain; Division of Engineering and Applied Science, California Institute of Technology, Pasadena, CA 91125, United States; Department of Aerospace and Ocean Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061, United States; Division of Engineering and Applied Science, California Institute of Technology, Pasadena, CA 91125, United States	L.4.1

11:30	**Substituted FeTi intermetallic compounds: towards large-scale hydrogen storage** Erika M. Dematteis[1], Nicola Berti[2], Nils Bornemann[3], Bettina Neumann[3], Marcello Baricco[2], Fermin Cuevas[1], Michel Latroche[1] 1. ICMPE (UMR7182), CNRS, UPEC, 2 Rue Henri Dunant, 94320 Thiais, France; 2. Department of Chemistry and Inter-departmental Center Nanostructured Interfaces and Surfaces (NIS), University of Turin, Via Pietro Giuria 7, 10125 Torino, Italy; 3. GKN Sinter Metals Engineering GmbH, Krebsöge 10, D-42477 Radevormwald, Germany	L.4.2
11:50	**Innovative carbon based materials for hydrogen and energy storage** C. Milanese, A. Girella, P. Cofrancesco, M. Gaboardi, D. Pontiroli, G. Magnani, M. Riccò, A. Marini Pavia Hydrogen Lab, Chemistry Department, University of Pavia (Italy), Carbon Nanostructures Lab, Department of Mathematical, Physical and Computer Sciences, University of Parma (Italy)	L.4.3
12:10	**Pushing the limits: reversible H2 exchange in Mg-Ti-H nanoparticles in the 100-150°C range** Nicola Patelli[1], Andrea Migliori[2], Vittorio Morandi[2], Luca Pasquini[1] 1. Department of Physics and Astronomy, University of Bologna, 40127 Bologna, Italy; 2. Unit of Bologna, Institute for Microelectronics and Microsystems, National Research Council, 40129 Bologna, Italy	L.4.4
12:30	Lunch Break	
Session V: Design and application of hydride based systems : Chiara Milanese		
14:00	**Design and application of metal hydride based systems** Gavin S. Walker, Alastair Stuart, Marcus Adams, David M. Grant Advanced Materials Research Group, University of Nottingham, Nottingham, UK	L.5.1
14:30	**Structural and hydrogen sorption properties of A2Ni7 (A = rare earth and Mg) compounds** Junxian Zhang, Nicolas Madern, Véronique Charbonnier, Judith Monnier and Michel Latroche ICMPE (UMR7182), CNRS, UPEC, F-94320 Thiais, France	L.5.2
14:50	**Compositional effects on the hydrogen cycling stability of multicomponent Ti-Mn based alloys** Shahrouz Nayebossadri, David Book University of Birmingham	L.5.3
15:10	**Ti-based advanced materials for energy storage** Etsuo Akiba, Rika Hayashi International Research Center for Hydrogen Energy, Kyushu University	L.5.4
15:30	Coffee Break	

Session V: Design and application of hydride based systems II : Olena Zavorotynska

16:00	**Design of molecular hydrides for hydrogen storage and functional porosity** Yaroslav Filinchuk Université Catholique de Louvain, 1348 Louvain-la-Neuve, Belgium	L.5.5
16:30	**Characterisation of complex hydrides with neutron scattering** Neslihan Aslan[1], Wiebke Lohstroh[3], Sebastian Busch[2], Klaus Pranzas[4], Claudio Pistidda[4], Martin Müller[4] 1. Helmholtz-Zentrum Geesthacht (HZG) German Engineering Materials Science Center (GEMS) at Heinz Maier-Leibnitz Zentrum (MLZ); 2. HZG GEMS at MLZ; 3. MLZ Technische Universität München (TUM); 4. HZG Institute of Materials Research	L.5.6
16:50	**Phase Stability and Fast Ion Conductivity in the Hexagonal LiBH4-LiBr-LiCl Solid Solution** Valerio Gulino[1]*, Matteo Brighi[2], Fabrizio Murgia[2], Carlo Nervi[3], Radovan ?erný[2] and Marcello Baricco[1] 1. Department of Chemistry and Inter-departmental Center Nanostructured Interfaces and Surfaces (NIS), University of Turin, Via Pietro Giuria 7, 10125 Torino, Italy; 2. Laboratoire de Cristallographie, DQMP, Universite? de Gene?ve, quai Ernest-Ansermet 24, CH-1211 Geneva 4, Switzerland; 3. Department of Chemistry and Inter-departmental Center Nanostructured Interfaces and Surfaces (NIS), University of Turin, Via Pietro Giuria 7, 10125 Torino, Italy; *Presenting author, valerio.gulino@unito.it	L.5.7
17:10	**Desorption and cycling properties of pore infiltrated LiBH4/NaBH4** Filippo Peru[1], SeyedHosein Payandeh GharibDoust[2-3], Georgia Charalambopoulou[1], Torben R. Jensen[3], Theodore Steriotis[1] 1. National Center for Scientific Research "Demokritos", Neapoleos 27, 15341 Ag. Paraskevi, Attikis, Athens, Greece; 2. aEmpa, Swiss Federal Laboratories for Materials Science and Technology, 8600 Dübendorf, Switzerland; 3. Center for Materials Crystallography, Interdisciplinary Nanoscience Center (iNANO) and Department of Chemistry, Aarhus University, Langelandsgade 140, DK-8000 Aarhus C, Denmark	L.5.8

17:30 Poster Session: Olena Zavorotynska

	Solid-state hydrogen storage material and its system Moon-Sun Chung Principal researcher of Hydrogen energy research team, KIER	L.P.1
	New developments in the fast neutron powder diffraction instrument ErwiN at MLZ. Michael Heere[1,2], D.R. Sørensen[2,3], M. Knapp[1], H. Ehrenberg[1] & A. Senyshyn[2] 1. Institute for Applied Materials-Energy Storage Systems (IAM-ESS), Karlsruhe Institute of Technology (KIT), 76344 Eggenstein, Germany; 2. Heinz Maier-Leibnitz Zentrum (MLZ), Technische Universität München, Lichtenbergstr. 1 85748 Garching b. München, Germany; 3. Department of Physics, Chemistry and Pharmacy, University of Southern Denmark, Campusvej 55, 5230 Odense M, Denmark	L.P.2

	Molten metal closo-borate solvates Kasper T. Møller, Mark Paskevicius, Jacob G. Andreasen, Junqiao Lee, Nigel Chen-Tan, Jacob Overgaard, SeyedHosein Payandeh, Debbie S. Silvester, Craig E. Buckley, Torben R. Jensen Interdisciplinary Nanoscience Center (iNANO) and Department of Chemistry, University of Aarhus, DK-8000 Aarhus, Denmark; Department of Imaging and Applied Physics, Fuels and Energy Technology Institute, Curtin University, GPO Box U1987, Perth 6845, WA, Australia; Curtin Institute for Functional Molecules and Interfaces, School of Molecular and Life Sciences, Curtin University, GPO Box U1987, Perth 6845, WA, Australia.	L.P.3
	Investigation of hydrogen storage characteristics of MgH2 based materials with addition of Ni and activated carbon Eli Grigorova[1], Diana Nihtianova[2], Boyko Tsyntsarski[3], Pavel Markov[1] and Ivanka Stoycheva[3] 1. Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences, Acad. G. Bonchev Str., bl. 11, 1113 Sofia, Bulgaria; 2. Institute of Mineralogy and Crystallography, Bulgarian Academy of Sciences, Acad. G. Bonchev Str., bl. 107, 1113 Sofia, Bulgaria; 3. Institute of Organic Chemistry, Bulgarian Academy of Sciences, bl. 9, Acad. G. Bonchev str., 1113 Sofia, Bulgaria	L.P.4
	A Pt-CsPbBr3 Perovskite Quantum Dot/TiO2 Composite for Photocatalytic CO2 Reduction Jeong-Hyun Park, Soonhyun Kim Smart Textile Convergence Research Group, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu 42988, Republic of Korea	L.P.5
	A Metal Hydride Compressor for a small scale Hydrogen Refuelling Station J. Barale[1], P. Rizzi[1], E. Casella[2], M.V. Abbas[2], C. Luetto[2], S. Staulo[3], M. Baricco[1] 1. Department of Chemistry and Inter-departmental Center Nanostructured Interfaces and Surfaces (NIS), University of Turin, Via Pietro Giuria 7, 10125 Torino, Italy. 2. Tecnodelta S.r.l., Via Francesco Parigi 5H, 10034 Chivasso (To), Italy; 3. Stones sas, Via Sacra di S. Michele 21/b, 10093, Collegno (To), Italy	L.P.6
	Development of metastable catalysts to improve the Hydrogen sorption characteristics of nanostructured Magnesium hydrides (MgH2) Gracia Shokano, Supervisors: Dr. Zahir Dehouche, Dr. George Fern Brunel University of London College of Engineering, Design, and Physical Sciences	L.P.7
	Sodium closo-hydroborates: Promising electrolytes for solid-state sodium batteries Arndt Remhof[1], Léo Duchêne[1,2], Ryo Asakura[1,2], Seyedhosein Payandeh[1], Ruben-Simon Kühnel[1], Hans Hagemann[2], Corsin Battaglia[1] 1. Empa, Swiss Federal Laboratories for Materials Science and Technology, 8600 Dübendorf, Swit-zerland; 2. Département de Chimie-Physique, Université de Genève, 1211 Geneva 4, Switzerland	L.P.8

	Investigation on the hydrogen desorption of titanate nanotube catalyzed Mg prepared by severe plastic deformation Marcell Gajdics[1], Ferenc Béke[1], Zoltán Novák[1], Ladislav Havela[2], Viktória Kovács Kis[3], Erhard Schafler[4], Ádám Révész[5] 1. Department of Materials Physics, Eötvös University, P.O.B. 32, H-1518 Budapest, Hungary; 2. Department of Condensed Matter Physics, Charles University, 116 36 Prague, Czech Republic; 3. Center of Energy Research, Hungarian Academy of Sciences, H-1121 Budapest, Hungary; 4. Physics of Nanostructured Materials, Faculty of Physics, University of Vienna, A-1090 Vienna, Austria; 5. Department of Materials Physics, Eötvös University, P.O.B. 32, H-1518 Budapest, Hungary	L.P.9
	Photocatalytic Water Oxidation with Layered Double Hydroxides Sina Sadigh Akbari, Ferdi Karadaş Department of Chemistry, Bilkent University, Çankaya, Ankara, 06800, Turkey	L.P.10
	High Pressure Solid State Hydrogen Storage Materials A-L. Chaudhary, H. Cao, R. Bowman, M. Heere, T. Klassen, M. Dornheim 1. Nanotechnology Department, Helmholtz-Zentrum Geesthacht, 21502 Geesthacht, Germany; 2. Institute for Applied Materials &#8211, Energy Storage Systems (IAM-ESS), Karlsruhe Institute of Technology Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany, michael.heere@kit.edu	L.P.11

Symposium L Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VII: **Joint Session Symposia L&M** Theory and experiment : Martin Eickhoff and Smagul Karazhanov		
14:00	**Band Structure Engineering and Doping Control of Transparent Conducting Oxides** Su-Huai Wei Beijing Computational Science Research Center, Beijing 100193, China	LM.1
14:30	**Steering dewetting of metal thin films on TiO2 surfaces: Designing nanoscaled platforms for photocatalysis** Marco Altomare Department of Materials Science and Engineering WW4-LKO, University of Erlangen-Nuremberg, Martensstrasse 7, 91058 Erlangen, Germany. E-mail: marco.altomare@fau.de	LM.2
15:00	**A first-principles investigation on the equilibrium defect and carrier concentrations of intrinsic TiO2 anatase** Marco Arrigoni, Georg K.H. Madsen Institute of Materials Chemistry, TU Wien, A-1060 Vienna, Austria	LM.3
15:15	**Synthesis and optical properties of Zn2GeO4 /SnO2 nano-heterostructures** J. Dolado[1], P. Hidalgo[1], A.M. Sánchez[2] and B. Méndez[1] 1. Department of Materials Physics. Faculty of Physics, Complutense University of Madrid, E-28040 Madrid, Spain; 2. Department of Physics, University of Warwick, Coventry, CV4 7AL, United Kingdom	LM.4
15:30	Coffee Break	

Session VIII: **Joint Session Symposia L&M** Advanced Characterisation Techniques for Energy Materials : Inga Bürger

16:00	**Advanced Characterization Techniques for Energy Materials using X-rays** Ulrike Boesenberg European XFEL GmbH, Holzkoppel 4, 22869 Schenefeld, Germany	LM.5
16:30	**Hydrogen sorption properties in refractory Multi-Principal-Element Alloys** Claudia Zlotea and Jorge Montero Institut de Chimie et des Matériaux de Paris Est, CNRS-UPEC	LM.6
16:50	**Design of Mg-based alloys for room temperature hydrogen storage** Hai-Wen Li[1], Kaveh Edalati[1], Ryoko Uehiro, Yuji Ikeda[2,3], Hoda Emami[1], Yaroslav Filinchuk[4], Makoto Arita[1], Xavier Sauvage[5], Isao Tanaka[2], Etsuo Akiba[1] and Zenji Horita[1] 1. Kyushu University, Fukuoka 819-0395, Japan; 2. Kyoto University, Sakyo, Kyoto 606-8501, Japan; 3. Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany; 4. Université Catholique de Louvain, 1348 Louvain-la-Neuve, Belgium; 5. Normandie Univ, UNIROUEN, INSA Rouen, CNRS, Groupe de Physique des Matériaux, 76000, Rouen, France	LM.7
17:10	**Computational search for new high-TC superconductors** A.G. Kvashnin, I.A. Kruglov, D.V. Semenok, A.R. Oganov Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 121205, 3 Nobel Street, Moscow, Russia, Moscow Institute of Physics and Technology, 141700, 9 Institutsky lane, Dolgoprudny, Russia, Dukhov Research Institute of Automatics (VNIIA), Moscow 127055, Russia, Moscow Institute of Physics and Technology, 141700, 9 Institutsky lane, Dolgoprudny, Russia, Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 121205, 3 Nobel Street, Moscow, Russia, Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 121205, 3 Nobel Street, Moscow, Russia, Dukhov Research Institute of Automatics (VNIIA), Moscow 127055, Russia, Moscow Institute of Physics and Technology, 141700, 9 Institutsky lane, Dolgoprudny, Russia, Northwestern Polytechnical University, Xi'an, 710072, China	LM.8
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium M

Sessions: Room 315| Main Building
Joint Sessions L&M: Room 315| Main Building
Poster Session: Main Aula| Faculty of Physics Building

ENERGY AND ENVIRONMENT:

Metal oxide- and oxyhydride-based nanomaterials for energy and environment-related applications

Symposium Organizers: **Ana CREMADES**, Universidad Complutense de Madrid, Spain
Cuong TON-THAT, University of Technology Sydney, Australia
Smagul KARAZHANOV, Institute for Energy Technology, Norway

SYMPOSIUM M TIMETABLE

Symposium M				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30	(08:45-09:00) Opening (09:00-10:30) Session I	Session VI	Plenary Session 09:00-12:30	Session XIII
10:30 – 11:00	Coffee Break			Coffee Break
11:00 – 12:30	Session II	Session VII		Session XIV
12:30 – 14:00	Lunch Break			
14:00 – 15:30	Session III	(14:00-15:15) Session VIII	Session XI Joint Session L&M	Session XV
15:30 – 16:00	Coffee Break			
16:00 – 17:30	(16:00-17:45) Session IV	(15:55-17:45) Session IX	Session XII Joint Session L&M	Session XVI 17:30 Closing remarks
17:30 – 19:30	(17:45-19:30) Poster Session I	(17:45-19:30) Poster Session II	Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium M location

Sessions: 315 | Main Building
Joint Sessions L&M: 315 | Main Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium M Program

Monday, September 16 th, 2019

08:45	Opening remarks	
08:50 Session I: Oxyhydride and oxide nanomaterials and applications. Chairs: Malle Krunks and Smagul Karazhanov		
09:00	**Titanium oxyhydride materials for catalysis** Hiroshi Kageyama Kyoto University	M.1.1
09:30	**Zinc oxide nanostructures for energy harvesting** Eric V. Sandana, David J. Rogers, Philippe Bove, Ferechteh H. Teherani Nanovation, 8 route de Chevreuse, 78118 Chateaufort, France	M.1.2
10:00	**Photocatalytic activity of oxyhydrides of yttrium and gadolinium** L. Andronic[1], D. Moldarev[2,3], E. M. Baba[2,4], E. Moons[5], D. Deribew[5], S. Zh. Karazhanov[2] 1. Department of Product Design, Mechatronics and Environment, Transilvania University of Brasov, Brasov, Romania; 2. Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway; 3. Department of Materials Science, National Research Nuclear University, 115409 Moscow, Russia; 4. Nanoscience & Nano Engineering Department, Istanbul Technical University, 34469 Istanbul, Turkey; 5. Department of Engineering and Physics, Karlstad University, SE-65188 Karlstad, Sweden	M.1.3
10:15	**Modification of the photocatalytic system FTO/TiO2/SrTiO3 to improve photocatalitic properties under visible light** T. Łęcki[1], K. Zarębska[1,2], M. Skompska[1,2] 1. Laboratory of Electrochemistry, Faculty of Chemistry, University of Warsaw, Warsaw, Poland; 2. Biological and Chemical Research Centre, Faculty of Chemistry, University of Warsaw, Warsaw, Poland	M.1.4
10:30	Coffee Break	

10:45 Session II: Photocatalysis and applications. Chairs: David Rogers and Luminita Andronic

11:00	**Oxide-Oxide Bilayers as High Efficiency Photoelectrocatalysts for Water-Splitting Reactions** Sanjay Mathur, Thomas Fischer Chair Inorganic and Materials Chemistry University of Cologne, Greinstrasse 6, D-50939 Cologne, Germany E-mail: sanjay.mathur@uni-koeln.de	M.2.1
11:30	**Morphological, Structural, and Optical- Properties Analysis of Shape-Controlled Metal Oxide Nanomaterials for Enhanced Photocata** Choon Yian Haw, Wee Siong Chiu, Poi Sim Khiew School of Energy and Chemical Engineering, Xiamen University Malaysia, Jalan Sunsuria, Bandar Sunsuria, 43900 Sepang, Selangor Darul Ehsan, Malaysia Email: cyhaw@xmu.edu.my; Department of Physics, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia. Email: w.s.chiu@um.edu.my; Faculty of Engineering, University of Nottingham Malaysia, Jalan Broga, 43500 Semenyih, Selangor Darul Ehsan, Malaysia. Email: PoiSim.Khiew@nottingham.edu.my	M.2.2
11:45	**Selective catalytic reduction of NOx over (Co, Fe, Ce)-Mn oxides supported over TiO2-sepiolite** Ana Serrano-Lotina, Karen Cruz, Pedro Ávila, Miguel A. Bañares Instituto de Catálisis y Petroleoquímica (CSIC), C/ Marie Curie 2 L10, Campus Cantoblanco, 28049 Madrid, Spain	M.2.3
12:00	**Photocatalytic reduction of methylene blue by the titanium dioxide sensitized with the symmetrical cationic polymethine dyes** Kobasa I.M.[1], Kropelnytska Yu.V.[2], Kondrachuk I.V.[1], Vorobets M.M.[1], Vorobets G.I.[3] 1. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, i.kondratieva@chnu.edu.ua, m.vorobets@chnu.edu.ua; 2. Department of Medicinal and Pharmaceutical Chemistry, Bukovinian State Medical University, 58002 Chernivtsi, Ukraine, julia.kropelnytska@gmail.com; 3. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	M.2.4
12:15	**New frontiers in the anodic synthesis of self-organized TiO2 nanotube arrays** Ryan Kisslinger, Sheng Zeng, Pawan Kumar, Karthik Shankar Department of Electrical & Computer Engineering, University of Alberta, Edmonton, AB T6G 1H9, Canada	M.2.5
12:30	Lunch Break	

13:55 Session III: Oxide nanomaterials. Chairs: Maximilian Wolff and Esra Ozkan Zayim

14:00	**Synthesis and characterization of CuOx/ZnO-based bi-catalysts for enhanced photodegradation of dye** J. Montero[1]*, J. Thyr[1], T. G. Welearegay[1], T. Edvinsson[1], Tatjana Dedova[2], Ilona Oja Acik[2] and L. Österlund[1] 1. Department of Engineering Sciences, The Ångström Laboratory, Uppsala University,P.O. Box 534, SE-751 21 Uppsala, Sweden; 2. Department of Materials and Environmental Technology, School of Engineering, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn, Estonia	M.3.1
14:15	**Electrical and photoelectrical properties of electrospun metal oxide nanofibers** Martyshov M.N., Il?in A.S., Platonov V.B., Forsh P.A., Kashkarov P.K. Lomonosov Moscow State University, Moscow, Russia, National Research Center ?Kurchatov Institute?, Moscow, Russia	M.3.2
14:30	**Hydrothermal Synthesis of NiO nanoparticles with different Sn content and analysis of their electrochemical properties for super** M. Taeño[1], D. Maestre[1], J. Ramírez-Castellanos[2], A. Cremades[1], Pooi See Lee[3] 1. Dpto. Física de Materiales. Fac. CC. Físicas, Universidad Complutense de Madrid, Spain; 2. Dpto. Química Inorgánica I, Fac. CC. Químicas, Universidad Complutense de Madrid, Spain; 3. School of Materials Science and Engineering, Nanyang Technological University, Singapore	M.3.3
14:45	**Electrochemically Prepared Copper(I) Oxide/Copper(II) Oxide Photoactive Multilayers from a Single Solution by Potential Control** Pei Loon Khoo, Takayuki Koyama, Masanobu Izaki Toyohashi University of Technology	M.3.4
15:00	**Laser-processing of nickel oxide thin-films for optoelectronic applications** Malte Martens, Joshua Fragoso, Alexander Colsmann Karlsruhe Institute of Technology, Light Technology Institute (LTI), Engesserstrasse 13, 76131 Karlsruhe, Germany, Karlsruhe Institute of Technology, Material Research Center for Energy Systems (MZE), Strasse am Forum 7, 76131 Karlsruhe, Germany, Karlsruhe Institute of Technology, Light Technology Institute (LTI), Engesserstrasse 13, 76131 Karlsruhe, Germany, Karlsruhe Institute of Technology, Material Research Center for Energy Systems (MZE), Strasse am Forum 7, 76131 Karlsruhe, Germany, Karlsruhe Institute of Technology, Light Technology Institute (LTI), Engesserstrasse 13, 76131 Karlsruhe, Germany, Karlsruhe Institute of Technology, Material Research Center for Energy Systems (MZE), Strasse am Forum 7, 76131 Karlsruhe, Germany	M.3.5
15:15	**Low-cost synthesis of NiO nanofoam for selective NO2 detection at room temperature** Mario Urso[1], Salvatore Gianluca Leonardi[2], Nicola Donato[2], Giovanni Neri[2], Salvatore Petralia[3], Sabrina Conoci[3], Francesco Priolo[1] and Salvo Mirabella[1] 1. MATIS CNR-IMM and Dipartimento di Fisica e Astronomia ?Ettore Majorana?, Università di Catania, via S. Sofia 64, 95123 Catania, Italy; 2. Dipartimento di Ingegneria, Università di Messina, Contrada Di Dio, 98166 Messina, Italy; 3. STMicroelectronics, Stradale Primosole 50, 95121 Catania, Italy	M.3.6
15:30	Coffee Break	

15:55 Session IV: Oxyhydride and oxide nanomaterials. Chairs: Hiroshi Kageyama and Sanjay Mathur

16:00	**Metal hydrides and oxy-hydrides for energy applications** M. Wolff Department of Physics and Astronomy, The Ångström Laboratory, Uppsala University, SE-75120 Uppsala, Sweden	M.4.1
16:30	**The Nature and Role of Hydrogen and Vacancies in Photochromic Yttrium Oxyhydride Thin Films examined by in-situ ?SR and PAS** Stephan Eijt[1], Diana Chaykina[2], Tom de Krom[1,2], Giorgio Colombi[2], Steffen Cornelius[2], Thomas Prokscha[3], Henk Schut[4], Werner Egger[5], Marcel Dickmann[5], Christoph Hugenschmidt[6], Bernard Dam[2] 1. Fundamental Aspects of Materials and Energy, Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, NL-2629JB Delft, The Netherlands; 2. Materials for Energy Conversion and Storage, Department of Chemical Engineering, Delft University of Technology, Van der Maasweg 9, NL-2629HZ Delft, The Netherlands; 3. Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institut, CH-5232 Villigen PSI, Switzerland; 4. Neutron and Positron Methods for Materials, Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Mekelweg 15, NL-2629JB Delft, The Netherlands; 5. Institut für Angewandte Physik und Messtechnik, Universität der Bundeswehr München, D-85579 Neubiberg, Germany; 6. Physics Department & Heinz Maier-Leibnitz Zentrum (MLZ), Technische Universität München, D-85748 Garching, Germany	M.4.2
16:45	**Band gap, optical and compositional engineering of thin film gadolinium oxyhydride** E.M. Baba[1,2], D. Moldarev[1,3], M. V. Moro[4], M. Wolff[4], D. Primetzhofer[4], M. Taeño[5], D. Maestre[5], A. Cremades[5], J. Montero[6], E.Ö. Zayim[2,7], S. Zh. Karazhanov[1] 1. Solar Energy Department, Institute for Energy Technology (IFE), Kjeller, Norway; 2. Nanoscience & Nano Engineering Department, Istanbul Technical University, 34469 Istanbul, Turkey; 3. Department of Materials Science, National Research Nuclear University, 115409 Moscow, Russia; 4. Department of Physics and Astronomy, The Ångström Laboratory, Uppsala University, SE-75120 Uppsala, Sweden; 5. Departamento de Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, 28040 Madrid, Spain; 6. Department of Engineering Sciences, The Ångström Laboratory, Uppsala University, SE-75121 Uppsala, Sweden; 7. Istanbul Technical University Faculty of Science and Letters, Physics Department, Istanbul 34469, Turkey	M.4.3
17:00	**Metal oxide thin films and nanostructures by spray pyrolysis technique for environmental and energy related applications** M. Krunks, T. Dedova, I. Oja Acik Laboratory of Thin Films Chemical Technologies, Department of Materials and Environmental Technology, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn, Estonia	M.4.4
17:15	**Band gap engineering as a key to control photochromic properties of yttrium oxyhydride** D. Moldarev[1,2], M. V. Moro[3], E. M. Baba[1,4], J. Montero[5], C.C. You[1], D. Primetzhofer[3], M. Wolff[3], S. Zh. Karazhanov[1] 1. Solar Energy Department, Institute for Energy Technology (IFE), 2027 Kjeller, Norway; 2. Department of Materials Science, National Research Nuclear University MEPhI, 115409 Moscow, Russia; 3. Department of Physics and Astronomy, The Ångström Laboratory, Uppsala University, SE-75120 Uppsala, Sweden; 4. Nanoscience & Nano Engineering Department, Istanbul Technical University, 34469 Istanbul, Turkey; 5. Department of Engineering Sciences, The Ångström Laboratory, Uppsala University, SE-75121 Uppsala, Sweden	M.4.5

17:30	**Structural and Electronic Properties of Sodium Titanogallate** R. Martínez-Casado[1], M. García-Carrión[1], J. García-Fernández[2], A. Torres-Pardo[2], J. Ramírez-Castellanos[2], E. Nogales[1], J.M. González-Calbet[2] and B. Méndez[1] 1. Department of Physics of Materials, Faculty of Physical Sciences, University Complutense Madrid, 28040, Madrid, Spain; 2. Department of Inorganic Chemistry, Faculty of Chemical Sciences, University Complutense Madrid, 28040, Madrid, Spain	M.4.6
17:45	Poster Session I:	
	Graphite felt incorporated with MoS2/rGO for electrochemical detoxification of high-arsenic fly ash Yang Luo[1,2], Shili Zheng[1], Paul K Chu[2] 1. CAS Key Laboratory of Green Process and Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China; 2. Department of Physics and Department of Materials Science and Engineering, City University of Hong Kong, Kowloon, Hong Kong, China	M.P1.1
	Novel route for preparation of silica aerogel powders Martin Timusk, Triin Kangur, Martin Järvekülg University of Tartu, Institute of Physics, W. Ostwaldi Str. 1, 50411 Tartu, Estonia	M.P1.2
	Cr-doped Nanosized Amorphous Titania as Novel, Efficient and Cost Effective Cool-Colored Nanopigments Shehab A. Mansour[1,2], Ibrahim Eldafatry[2], Ragab A. Elsad[2], El-Sayed M. Farag[2] 1. Advanced Materials/Solar Energy and Environmental Sustainability (AMSEES) Laboratory, Menoufia University, Faculty of Engineering, Shebin El-Kom, Egypt, 2. Basic Engineering Science Department, Faculty of Engineering, Menoufia University, Shebin El-Kom, Egypt	M.P1.3
	Polarized Ferroelectric Zinc Oxide Anode for Efficient Photoelectrochemical Performance Junghyo Nah[1], Min Hyung Lee[2] 1. Dept. of Electrical Engineering, Chungnam National University, Daejeon, South Korea; 2. Dept. of Applied Chemistry, Kyung Hee University, Yongin, South Korea	M.P1.4
	The roles of metal-organic frameworks in modulating water permeability of graphene oxide-based carbon membranes Xiao Sui, Yuan Chen The University of Sydney	M.P1.5
	Mesoporous titania films templated by cellulose nanocrystals: morphological and spectrophotometric properties Yonghee Yoon, Soyoung Kim, Cheolhwan Jeong, Sunyoung Lee, Jaegyoung Gwon, Wonhee Lee Sejong University, National Institute of Forest Science	M.P1.6

	Preparation of Al2O3/3Y-ZrO2 porous composites and their application for a water purification filter Rei Hatori[1], Yoshikazu Suzuki[2] 1. Graduate School of Pure and Applied Sciences, University of Tsukuba, Ibaraki 305-8573, Japan; 2. Faculty of Pure and Applied Sciences, University of Tsukuba, Ibaraki 305-8573, Japan	M.P1.7
	Photocatalytic properties of TiO2/Si composite nanoparticles L. Andronic[1], A. Banciu[1,2], S. Zh. Karazhanov[2] 1. Department of Product Design, Mechatronics and Environment, Transilvania University of Brasov, Brasov, Romania; 2. Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway	M.P1.8
	Electromigration processes in rapid synthesis of MoO3 ultra-thin layers obtained by resistive heating Beatriz Rodríguez, Pedro Hidalgo, Bianchi Méndez and Javier Piqueras Departamento de Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, 28040-Madrid, Spain	M.P1.9
	Electrochemical characteristics of boron-doped diamond electrodes for heavy metal ion sensors Yesul Jeong, Shin Kim, Min-Ouk Park, Pung-Keun Song and Jang-Hee Yoon* Busan center, Korea Basic Science Institute (KBSI), Republic of Korea, Busan 46742 Pusan National University(PNU), Republic of Korea, Busan 46241	M.P1.10
	Doping the IZO superstructure with Ga and Al: synthesis and properties Javier García-Fernández[1], Javier Bartolomé[2], Alamudena Torres-Pardo[1], Ruth Martínez[2], Julio Ramirez-Castellanos[1], Ana Cremades[2], Jose María González-Calbet[1] 1. Departmento de Química Inorgánica, Facultad de Químicas, Universidad Complutense de Madrid, 28040 Madrid, España; 2. Departmento de Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, 28040 Madrid, España	M.P1.11
	Magnetic coupling at room temperature in Cr2O3/FeGa thin films I. Hontecillas, R. Ranchal Dpt. Física de Materiales, Fac. CC. Físicas, Universidad Complutense de Madrid, Madrid 28040, Spain	M.P1.12
	Structural characterization of sulfuric acid anodic alumina during heat treatment in oxygen and argon atmosphere Renata Karpicz[1], Katsiaryna Chernyakova[2], Danielis Rutkauskas[1], Igor Vrublevsky[2] 1. Center for Physical Science and Technology, 231 Savanoriu Ave., LT-02300 Vilnius, Lithuania; 2. Belarusian State University of Informatics and Radioelectronics, 6 P. Brovka Str., 220013 Minsk, Belarus	M.P1.13

	Preparation of heterogenous copper titanium oxides for chemiresistor applications A. Torrisi[1], P. Horàk[1], A. Cannavò[1], G. Ceccio[1], J. Vacik[1], J. Fara[2], P. Fitl[2], J. Vl?ek[2], M. Vrnata[2] 1. Nuclear Physics Institute, AS CR, HlavnÃ¬ 130, 25 068 Husinec-?e?, Czech Republic; 2. University of Chemistry and Technology, 166 28 Prague, Czech Republic	M.P1.14
	Sn doped NiO microwires with waveguiding behaviour M. Taeño, D. Maestre and A. Cremades Departmento de Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, 28040, Madrid, Spain	M.P1.15
	Effects of doping with light ions on structural and luminescence properties of Zn2GeO4 J. Dolado, P. Hidalgo and B. Méndez Department of Materials Physics. Faculty of Physics, Complutense University of Madrid. E-28040 Madrid, Spain	M.P1.16
	Optical and structural transformations of Er2O3 films grown on Si substrates by atomic layer deposition L. Khomenkova[1,2], X. Portier[1], C. Labbé[1], J. Cardin[1], C. Frilay[1], P. Marie[1], F. Gourbilleau[1] 1. CIMAP Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 6 Boulevard Maréchal Juin, 14050 Caen Cedex 4, France; 2. V. Lashkaryov Institute of Semiconductor Physics at the NASU, 45 Pr.Nauky, 03028 Kyiv, Ukraine	M.P1.17
	The effect of illumination conditions on the photochromic performance of yttrium oxyhydride thin films Chang Chuan You[1], Dmitrii Moldarev[1,2], Smagul Zh. Karazhanov[1] 1. Department for Solar Energy, Institute for Energy Technology, NO-2027 Kjeller, Norway; 2. Department of Materials Science, National Research Nuclear University MEPhI, 115409 Moscow, Russia	M.P1.18
	Construction and energetic release of core-shell aluminized composites based on covalent modification from surface of nano-Al Chengcheng Zeng, Jianhu Zhang, Feiyan Gong Institute of Chemical Materials, CAEP, Mianyang, China	M.P1.19
	Synthesis of Zeolite and Layered Double Hydroxide Starting from Steelmaking Slag and Evaluation of Their Ion Adsorption Ability Hiromi Eba, Maho Ando, Yuto Yamaguchi, Kengo Kobayashi, Chinami Suzuki Tokyo City University	M.P1.20

The optical properties of metal oxide nanorods M.P1.21

Zdenek Remes[1], Yu Ying Chang[1,2], Neda Neykova[1], Maksym Buryi[1], Julia Micova[3] and Hua-Shu Hsu[4]

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Tuning of the photocatalytic efficiency in anatase-TiO2 using millisecond range flash lamp annealing M.P1.22

S. Prucnal[1], R. Gago[2], D. Esteban-Mendoza[2], I. Jiménez[2], O.C. Aktas[3], F. Faupel[3], S. Zhou[1]

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Characterization of nano-particles in 14%Cr oxide dispersion strengthened steel using classical and frontier microscopy methods M.P1.23

Yael Templeman[1], Sergey Rogozhkin[2,3], Artem Khomich[2], Aleksander Nikitin[2,3], Malki Pinkas[4], Louisa Meshi[1]

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Electronic properties of CeO2 with intrinsic and extrinsic point defects M.P1.24

D. Mamedov, E. M. Baba, E. S. Marstein, S. Zh. Karazhanov

Department of Materials Science, National Research Nuclear University, 115409 Moscow, Russia, Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway, Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway, Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway, Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway

Investigations on charge transport in transition metal oxide-based composites M.P1.25

Larysa Khomenkova[1,2], Rada Savkina[1], Aleksey Smirnov[1], Nikita Voloshin[3], Iraida Demchenko[4]

1. V. Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, 41 Naukyav.,Kyiv 03028, UKRAINE; 2. CIMAP CEA/ CNRS/ENSICAEN/UCBN, 6 Blvd. MaréchalJuin, 14050 Caen Cedex 4, France; 3. National Technical University of Ukraine ?Igor Sikorsky Kyiv Polytechnic Institute; 4. Faculty of Chemistry, University of Warsaw, Krakowskie Przedmieście 26/28, 00-927 Warszawa, Poland

Structural and electrical properties of NbO2 epitaxial thin films M.P1.27

Nazir Jaber, Jos E. Boschker, Julian Stöver, Klaus Irmscher, Toni Markurt, Martin Albrecht, Jutta Schwarzkopf

Leibniz Institute für Institut für Kristallzüchtung - Forschungsverbund Berlin e.V. - Max-Born-Strasse 2, 12489 Berlin

Nanocomposite functional layers for asymmetric hydrogen separation membranes M.P1.29

Yu.N. Bespalko[1,2]*, V.A. Sadykov[1,2], N.F. Eremeev[1], A.V. Krasnov[1,2], Yu.E. Fedorova[1], P.I. Skriabin[1]

1. Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia; 2. Novosibirsk State University, Novosibirsk, Russia

Effect of multi-wall carbon nanotubes on the Long-Term Stability of Dye-Sensitized Solar Cells M.P1.30

Mahyar Mohammadnezhad[1], Gurpreet Singh Selopala[2]*, Zhming M. Wang[2], Barry Stansfield[1], Haiguang Zhao[3]*, Federico Roseia[2]

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Morphology, crystal and electronic structure of CuxO prepared via electrochemical method M.P1.31

Joanna Banas, Anita Trenczek-Zajac, Marta Radecka

AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Al. A. Mickiewicza 30, 30-059 Krakow, Poland

Enhancement of photocatalytic properties of Co+2 : ZnO nanowires by applied magnetic field M.P1.32

Jutathip Thaomonpun[1], Jun Xiao Lin[1], Chien Hua Huang[1], Yaw Teng Tseng, Hua-Shu Hsu[1]*, Yen-Fa Liao[2] and Zdenek Remes[3]

1. Department of Applied Physics, National Pingtung University, 4-18, Minsheng Road, Pingtung, 90044, Taiwan; 2. National Synchrotron Radiation Research Center, 101 Hsin-Ann Road, Hsinchu, 30013, Taiwan; 3. Institute of Physics of the Czech Academy of Sciences, Cukrovarnicka 10, 16200 Praha 6, Czech Republic

Hierarchically structured MoOx thin films for gas sensor and OLED applications M.P1.33

A. Rydosz, K. Zakrzewska, E. Kusior, P. Krukowski, D. Kowalczyk, Z. Klusek

AGH University of Science and Technology, Faculty of Computer Science, Electronics and Telecommunications, al. Mickiewicza 30, 30-059 Krakow, Poland, University of Lodz, Faculty of Physics and Applied Informatics, Department of Solid State Physics, ul. Pomorska 149/153, 90-236 Lodz, Poland

Analysis of relation between the energy absorption capacity and the u=f(i) characteristic of ZnO varistors connected parallel M.P1.34

Bartłomiej Szafraniak[1], Łukasz Fu?nik[2], Paweł Zydro?[2]

1. AGH University of Science and Technology, Faculty of Computer Science, Electronics and Telecommunications, al. A.Mickiewicza 30, 30-059 Krakow, Poland; 2 AGH UST Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering, al. A. Mickiewicza 30, 30-059 Krakow, Poland

On the LiCl salt flux method for oxyhydride synthesis M.P1.35

Ø.S. Fjellvåg, K.H. Nygård, P. Vajeeston, A.O. Sjåstad

Centre for Materials Science and Nanotechnology - Department of Chemistry - University of Oslo

	A movable air filter with high removal efficiency and low pressure drop at a high flow rate Yo Seph Lee, Nara Han, Won San Choi Department of Chemical and Biological Engineering, Hanbat National University, 125 Dongseodaero, Yuseong-gu, Daejeon 305-719, Republic of Korea	M.P1.36
	Defect State Modulation of Wide Band Gap Semiconductor Nanoparticle for Potential Manifold Application Tuhin Kumar Maji, Debjani Karmakar, Samir Kumar Pal Senior Research Fellow, Department of CBMS, S. N. Bose National Centre for Basic Sciences, Kolkata 700106,India, Assistant Professor, Technical Physics Division, Bhabha Atomic Research Centre, Mumbai 400085, India, Senior Professor, Department of CBMS, S. N. Bose National Centre for Basic Sciences, Kolkata 700106,India.	M.P1.37
	Capacitance-Voltage And Current-Voltage - Characteristic Properties of Zno:Al/P-Si Heterojunction Osman Urper, Nilgun Baydogan Energy Institute, Istanbul Technical University, Maslak, Istanbul, 34469, Turkey	M.P1.38
	Effect of process parameters on vacuum carbothermal reduction of TiO2 with different particle size Agnese Stunda-Zujeva, Kristaps Rubenis, Janis Locs Institute of General Chemical Engineering, Faculty of Materials Science and Applied Chemistry, Riga Technical University Paula Valdena street 3/7, Riga, LV-1048, Latvia	M.P1.39
	Pd Nanoparticles Supported on ZrO2 as a Catalyst for Vanillin Conversion in Aqueous Media Dan-dan Li and Chun Cai Nanjing University of Science & Technology 200 Xiaolingwei Nanjing, 210094, China	M.P1.40
	Preparation of schiff base complex of Cu(&#8545,) supported on Fe3O4@SiO2 nanoparticles and its applications in synthesis of benzofurans Xiaofeng Yuan and Jun Luo School of Chemical Engineering, Nanjing University of Science and Technology, Nanjing 210094, China	M.P1.41
	The influence of grain size on electrical properties of BIYWO:LSM composite cathodes for SOFC Dudz M.[1]*, Wrobel W.[1], Malys M.[1], Borowska-Centkowska A.[1], Abrahams I.[2], Krok F.[1] 1. Faculty of Physics, Warsaw University of Technology, Koszykowa75, 00-662 Warszawa, Poland; 2.Centre for Materials Research, School of Biological and Chemical Sciences, Queen Mary University of London e-mail: dudz@if.pw.edu.pl	M.P1.42

Symposium M Program

Tuesday, September 17 th, 2019

08:55 Session VI: Nanomaterials, health and other applications. Chairs: Su Huai Wei and Smagul Karazhanov

09:00	**Oxidative Photocatalysis for Human Respiratory support** A. Subrahmanyam, Paul T Ramesh Department of Physics, Indian Institute of Technology Madras, Chennai 600036, India, Cardio Torasic Surgeon, Apollo Hospitals, Greams Road, Chennai 600006, India	M.6.1
09:30	**Si(O)(C)- and ZnO-based nanosystems functionalized for energy and nanomedicine applications** G. Salviati IMEM-CNR, Parco Area delle Scienze 37/A, 43124 Parma, Italy	M.6.2
10:00	**Investigation of photoinduced processes in one dimentional ZnO/polydopamine nanostructures** Viktoriia Fedorenko, Daina Damberga, Igor Iatsunskyi, Emerson Coy, Radosław Mrówczyński, Roman Viter Institute of Atomic Physics and Spectroscopy, University of Latvia, Jelgavas 3, Riga, Latvia, LV-1050, NanoBioMedical Centre, Adam Mickiewicz University, 85 Umultowska str., 61-614, Poznan, Poland	M.6.3
10:15	**Development of a fluorescent amine-modified silica-based platform for selective sensing of Hg2+ in aqueous solution** Cristiana Figus[1]*, Mariangela Oggiano[2], Claudia Caltagirone[2], Vito Lippolis[2], Maria Laura Mercuri[2], Francesco Quochi[1] 1. Dipartimento di Fisica? Universita? degli Studi di Cagliari, S.P. Monserrato-Sestu Km 0,700, I-09042 Monserrato, Cagliari, Italy; 2. Dipartimento di Scienze Chimiche e Geologiche, Universita? degli Studi di Cagliari, S.P. Monserrato-Sestu Km 0,700, I-09042 Monserrato, Cagliari, Italy	M.6.4
10:30	Coffee Break	

10:55 Session VII: Solar Cells. Chairs: Larysa Khomenkova and Eugen Stamate

11:00	**Metal oxide materials for charge transport layers in perovskite solar cells** Aleksandra B. Djurisic[1], Fangzhou Liu[1], Ho Won Tam[1], Tik Lun Leung[1], Jingyang Lin[1,2], Wei Chen[1,2], Alan Man Ching Ng[2], Zhubing He[2] 1. The University of Hong Kong; 2. Southern University of Science and Technology (SUSTech)	M.7.1
11:30	**Hydrolysis-synthesized anatase TiO2 nanoparticles for PEDOT:PSS based composites for solar cell applications** Antonio Vázquez-López[1], Smagul Karazhanov[2], Halvard Haug[2], David Maestre[1], Julio Ramírez-Castellanos[3], Erik Marstein[2], Ana Cremades[1] 1. Department of Materials Physics, Faculty of Physics, Complutense University of Madrid, 28040 Madrid, Spain; 2. Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Oslo, Norway; 3. Department of Inorganic Chemistry I, Faculty of Chemistry, Complutense University of Madrid, 28040 Madrid, Spain	M.7.2
11:45	**A Superficial new Solid-State Synthesis of SnO2 for High-Performance and Stable Planar Perovskite Solar Cells** Mriganka Singh[1], Hong-Cheu Lin[1], Chih-Wei Chu[2] and Gang Li[3] 1. Department of Materials Science and Engineering, National Chiao Tung University, Hsinchu, Taiwan, Republic of China; 2. Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan; 3. Department of Electronic and Information Engineering, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China	M.7.3
12:00	**Hybrid ZnO@nanocarbon quantumdots with fast charge transfer for application in solar energy conversion** Kyu Seung Lee[1,2], Jaeho Shim[1], Guh-Hwan Lim[1], Young Jae Park[1], Byoungkwon Lim[2], Dong Ick Son[1] 1. Institute of Advanced Composite Materials, Korea Institute of Science and Technology, Eunhari san 101, Bongdong-eup, Wanju-gun, Jeonbuk 565-905, Korea; 2. School of Advanced Materials Science and Engineering, Sungkyunkwan University (SKKU), Suwon 16419, South Korea	M.7.4
12:15	**Comparison of backside structure characteristics of carbon substrate solar cell according to metal oxide layer** Hyelim Cho, Jae-yeoun Kim, Seran Park, Dae-Hong Ko Department of Materials Science and Engineering, Yonsei University, Seoul 03722, Korea	M.7.5
12:30	Lunch Break	

13:55 Session VIII: Synthesis and characterization. Chairs: Andrej Kuznetsov and Jose Montero

14:00	**Novel Electro-Mechano-Chemical Method for Rapid Synthesis of Complex Metal Oxides** A. Calka and D. Wexler University of Wollongong, Faculty of Engineering and Information Sciences,School of Mechanical, Materials , Mechatronics and Bioengineering, Australia	M.8.1

14:15	**Liquid Phase Deposition of Electrochromic Plate-Like WO3.2H2O Thin Films for Smart Windows Applications** Maryam Mohammad-Hosseinpour, Amin Yourdkhani, Reza Poursalehi Materials Engineering Department, Faculty of Engineering, Tarbiat Modares University, Tehran, Iran, 14115	M.8.2
14:30	**A study of organic-inorganic electrochromic thin films by electrochemical impedance spectroscopy** Ece Kurt, Duygu Kalkan, Esra Zayim Faculty of Science and Letters, Physics Engineering Department, Istanbul Technical University, 34469 Maslak, Istanbul, Turkey	M.8.3
14:45	**Photocatalytic Deposition Method: A Novel Strategy for Preparing Au Micro-Nanostructures on Metal Oxide Thin Films** Salih Veziroglu, Majid Hussain, Marie Ullrich, Lynn Schwaeke, Jaeho Hwang, Thomas Strunskus, Franz Faupel, Oral Cenk Aktas Chair for Multicomponent Materials, Institute for Materials Science, Christian Albrechts University of Kiel, 24143 Kiel, Germany	M.8.4
15:00	**Use of electrodeposition and thermal oxidation for the synthesis of Ga-Fe-O thin films** S. Abad[1], A. Prados[1], A. Muñoz-Noval[1], G.C. Vásquez[2], L. Vines[2], R. Ranchal[1] 1. Dpt. Física de Materiales, Fac. CC. Físicas, Universidad Complutense de Madrid, Madrid 28040, Spain; 2.Centre for Materials Science and Nanotechnology, University of Oslo, N-0318 Oslo, Norway	M.8.5
15:30	Coffee Break	
15:55	Session IX: Oxide nanomaterials. Chairs: Martynas Lelis and Alexandra Djurisic	
16:00	**Electrically active defects in gallium oxide** Andrej Kuznetsov Department of Physics and Centre for Material science and Nanotechnology, University of Oslo, Pb 1048 Blindern, 0316 Oslo, Norway	M.9.1
16:30	**Growth and characteristics of metastable wide band gap semiconducting oxides** Martin Eickhoff Institute of Solid State Physics, University of Bremen, Bremen, Germany	M.9.2
17:00	**Gallium oxide nanowires as a platform for novel optoelectronic devices** M. Alonso-Orts[1], E. Nogales[1], A. M. Sánchez[2] and B. Méndez[1] 1. Departamento de Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, 28040-Madrid, Spain; 2. Department of Physics, University of Warwick, Coventry, CV4 7AL, United Kingdom	M.9.3

17:15	**Structural alternative for the epitaxial growth of a VO2 film on Al2O3(0001)** A. Bailly, S. Grenier, M. M. Villamayor, M. Gaudin, A. Y. Ramos, P. Bouvier, L. Magaud, L. Laversenne Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 38000 Grenoble, France	M.9.4

17:45 Poster Session II:

	Synthesis of multifunctional SnO2 nanoparticles-GO composites for Li-ion batteries and luminescence related applications F. del Prado[1], H. F. Andersen[2], M. Taeño[1], J. Ramirez-Castellanos[3], D. Maestre[1], JP. Maehlen[2], S. Karazahanov[4], A. Cremades[1] 1. Facultad de C. Físicas, Universidad Complutense de Madrid, Madrid, Spain; 2. Department for Battery Technologies, Institute for Energy Technology, 2027 Kjeller, Norway; 3. Facultad de C. Químicas, Universidad Complutense de Madrid, Madrid, Spain; 4. Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway	M.P2.1
	Thin multilayer nanostructured film with a gradient size distribution of nanoparticles as new photovoltaic material Borisyuk P. V., Lebedinskii Yu. Yu., Vasilyev O.S. National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow Institute of Physics and Technology (State University), National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)	M.P2.2
	Liquid single-electrode triboelectric nanogenerator based on graphene oxide dispersion for wearable electronics Yinghong Wu[1,2], Jingkui Qu[1], Walid A. Daoud[2], Tao Qi[1] 1. Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China; 2. School of Energy and Environment, City University of Hong Kong, Kowloon, Hong Kong	M.P2.4
	Investigation of the Oxygen Flow impact during the Magnetron Sputtering deposition on ITO thin film and analysis of the layers a Brahim Aïssa[1]*, Amir A. Abdallah[1], Maulid M. Kivambe[1], Yahya Zakaria[1], Ayman Samara[1], Jean Cattin[2], Jan Haschke[2], Mathieu Boccard[2] and Christophe Ballif[2] 1. Qatar Environment and Energy Research Institute, Hamad bin Khalifa University, Qatar Foundation, P.O. Box 34110, Doha, Qatar; 2. Photovoltaics and Thin-Film Electronics Laboratory (PV-lab), Institute of Microengineering, Ecole Polytechnique Fédérale de Lausanne, Rue de la Maladière 71B, CH-2002 Neuchâtel, Switzerland	M.P2.5
	Polarized Ferroelectric Zinc Oxide Anode for Efficient Photoelectrochemical Performance Junghyo Nah[1], Min Hyung Lee[2] 1. Dept. of Electrical Engineering, Chungnam National University, Daejeon, South Korea 2. Dept. of Applied Chemistry, Kyung Hee University, Yongin, South Korea	M.P2.6

	Improving the Photocatalytic Activity of Titanium Dioxide Photocatalyst with Iron Doping within the Polyaniline Matrix Ozcan Koysuren, Hafize Nagehan Koysuren Department of Energy Engineering, Ankara University, Ankara, 06830, TURKEY, Department of Environmental Engineering, Ahi Evran University, Kirsehir, 40100, TURKEY	M.P2.7
	Heterostructures of titanium dioxide with polymethine dye as photocatalyst of oxidation reaction of iodide ions Kobasa I.M.[1], Sema O.V.[1], Vorobets M.M.[1], Vorobets G.I.[2] 1. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, oksi-sema@ukr.net, m.vorobets@chnu.edu.ua; 2. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	M.P2.8
	Characterization of Sn doped NiO nanoparticles prepared by a soft chemical route M. Taeño[1], D. Maestre[1], J. Ramírez-Castellanos[2], J.M. González Calbet[2], A. Cremades[1] 1. Dpto. Física de Materiales. Fac. CC. Físicas, Universidad Complutense de Madrid, Spain 2. Dpto. Química Inorgánica I, Fac. CC. Químicas, Universidad Complutense de Madrid, Spain	M.P2.9
	Oxide semiconductor-based flexible solar cells prepared on plastic substrates by aqueous-solution processes T. Shinagawa, M. Chigane, M. Izaki Osaka Research Institute of Industrial Science and Technology, Toyohashi University of Technology	M.P2.10
	Integration of rare earth ions doped Si based down converter layers in an industrial Si solar cell J. Cardin[1], L. Dumont[1], C. Labbé[1], P.-M. Anglade[1], C. Frilay[1], S.C. Wu[2], I.-S. Yu[2], X. Portier[1], P. Marie[1], F. Gourbilleau[1] 1. CIMAP, Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 14000 Caen, France; 2. Department of Materials Science and Engineering, National Dong Hwa University, Hualien, Taiwan	M.P2.11
	PEDOT:PSS for hybrid solar cells with β- and γ- Ga2O3 nanoparticles Marina García[1], Julio Ramírez-Castellanos[2], Emilio Nogales[1], Bianchi Méndez[1], Chang Chuan You[3], Smagul Karazhanov[3], E.S. Marstein[3] 1. Department of Physics of Materials, Faculty of Physical Sciences, University Complutense Madrid, Spain; 2. Department of Inorganic Chemistry, Faculty of Chemical Sciences, University Complutense Madrid, Spain; 3. Department for Solar Energy, Institute for Energy Technology (IFE), PO BOX 40, 202, Kjeller, Norway	M.P2.12

	Enhanced Photocatalytic Degradation Of Cationic Dyes Over Restacked Unilamellar Perovskite Nanosheets Mohammadreza Khodabakhsh[1,2], Ugur Unal[1,3], Nader Parvin[2] 1. Department of Materials Science and Engineering, Graduate School of Science and Engineering, Koç University, Istanbul,Turkey; 2. Faculty of Mining and Materials Engineering, Amirkabir University of Technology, Hafez Ave, Tehran, Iran; 3. Koç University Surface Science and Technology Center (KUYTAM), Istanbul, Turkey	M.P2.13
	Energy harvesting characteristics of lead-free piezoelectric yarns with a core-shell structure for wearable devices Sang Hyun Ji, Ji Sun Yun Energy& Environmental Division, Korea Institute of Ceramic Engineering and Technology	M.P2.14
	Improved photocatalytic activity by deposition metal oxide nanocluster on TiO2 nano particles for hydrogen generation Hamid Reza Zafarani, J. Ruud van Ommen Delft University of Technology	M.P2.15
	Thermoelectric properties of model materials made from the d-metals nanoclusters Kurelchuk Uliana N., Borisyuk Petr V., Vasiliev Oleg S. National Research Nuclear University MEPhI (Moscow Engineering Physics Institute) 115409, Russian Federation, Moscow, Kashirskoe shosse, 31	M.P2.16
	SnO2 nanoparticles doped with Lithium or Nickel for anodes in ion Li batteries Antonio Vázquez-López[1], David Maestre[1], Julio Ramírez-Castellanos[2], Neslihan Yuca[3], Ana Cremades[1] 1. Department of Materials Physics, Faculty of Physics, Complutense University of Madrid, 28040 Madrid, Spain; 2. Department of Inorganic Chemistry I, Faculty of Chemistry, Complutense University of Madrid, 28040 Madrid, Spain; 3. Enwair Enerji Teknolojileri A.? (Enwair), ITU Bee Technopolis, 34467, Sar?yer/?stanbul, Turkey	M.P2.17
	Study of hybrid composites formed by PEDOT:PSS and SnO nanoparticles with applicability in photovoltaic devices A. Yaseen[1], A. Vázquez-López[2], D. Maestre[2], J. Ramírez-Castellanos[3], E.S. Marstein[1], S.Z. Karazhanov[1], A. Cremades[2] 1. Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Oslo, Norway; 2. Departamento de Física de Materiales, Facultad de CC. Físicas, Universidad Complutense de Madrid, 28040, Madrid, Spain; 3. Departamento de Química Inorgánica, Facultad de CC. Químicas, Universidad Complutense de Madrid, 28040, Madrid, Spain	M.P2.18
	Solution Processable TiO2 Nanoparticles Chelated with Catechol Derivatives for Electron Transporting Layers in Organic Photovolt Solbi Shin?, Jae-Yeon Lee?, Won-Suk Kim* and Kyungkon Kim* Department of Chemistry and Nanoscience, Ewha Womans University, Seoul 03760, Korea	M.P2.19

	PEDOT:PSS-based hybrid material functionalized by NiO nanoparticles D. Moldarev[1,2], M. Taeño[3], D. Maestre[3], A. Cremades[3], S.Zh. Karazhanov[1], E. Marstein[1] 1. Department for Solar Energy, Institute for Energy Technology (IFE), 2027 Kjeller, Norway; 2. Department of Materials Science, National Research Nuclear University MEPhI, 115409 Moscow, Russia; 3. Departamento de Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, 28040 Madrid, Spain	M.P2.20
	Fabrication and photocatalytical properties of anodic TiO2 nanotubes decorated with magnetite nanoparticles D. Beketova[1], M. Motola[1], H. Sopha[1,2], V. ?i?mancova[1], F. Dvo?ak[1], L. Hromadko[1,2], M. Stoica[3], J.M. Macak[1,2] 1. Center of Materials and Nanotechnologies, Faculty of Chemical Technology, University of Pardubice, Nam. Cs. Legii 565, 530 02, Pardubice, Czech Republic; 2. Central European Institute of Technology, Brno University of Technology, Purkynova 123, 612 00 Brno, Czech Republic; 3. Laboratory of Metal Physics and Technology, Department of Materials, ETH Zurich, Vladimir-Prelog-Weg 1-5/10, 8093, Zurich, Switzerland	M.P2.21
	Compositional and Structural Analysis of Gadolinia-doped Ceria Thin Films Deposited by Reactive Magnetron Sputtering Lukas Bastakys, Fariza Kalyk, Liutauras Marcinauskas, Jurgita ?yvien?, Brigita Abakevi?ien? Department of Physics, Kaunas University of Technology, Studentu str. 50, LT-51368 Kaunas, Lithuania	M.P2.22
	A study of organic-inorganic electrochromic films by electrochemical impedance spectroscopy Ece Kurt, Duygu Kalkan, Esra Zayim Istanbul Technical University, Department of Physics Engineering, Maslak, Istanbul	M.P2.23
	All-solid-state electrochromic devices fabricated with various inorganic and organic electrolytes for smart glass application Dilek Evecan, Esra Zayim Faculty of Science and Letters, Physics Engineering Department, Istanbul Technical University, 34469 Maslak, Istanbul, Turkey	M.P2.24
	Spatially resolved parameters of aluminum doped zinc oxide thin films deposited by magnetron sputtering Eugen Stamate, Kion Norrman, Poul Norby Technical University of Denmark	M.P2.25
	Study on photocatalytic activity of sprayed NiO thin films Zengjun Chen, Tatjana Dedova, Ilona Oja Acik, Malle Krunks Zengjun Chen, Tatjana Dedova, Ilona Oja Acik, Malle Krunks Laboratory of Thin Film Chemical Technologies Department of Materials and Environmental Technology Tallinn University of Technology Ehitajate tee 5, EE-19086 Tallinn, Estonia E-mail: Malle.Krunks@taltech.ee	M.P2.26

Influence of Si-nanoparticles on PEDOT:PSS properties for hybrid solar cells M.P2.27

D. Mamedov[1], C.C. You[2], S.Zh[2]. Karazhanov[2], E.S. Marstein[2]

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Oxygen Vacancy Associated Photocatalytic NO Oxidation on BiOCl M.P2.28

Hao Li[1], Jing Wang[1], Lizhi Zhang[2]

1. Laboratory of Advanced Analytical Technologies, Empa, Dübendorf, Switzerland; 2. Key Laboratory of Pesticide & Chemical Biology of Ministry of Education, Institute of Applied & Environmental Chemistry, College of Chemistry, Central China Normal University, China

ITO free silicon solar cells using reactive sputtered ZnO:Al M.P2.29

T. Tom[1], J.M. Asensi[1], J. Andreu[1], J. Bertomeu[1], E. Ros[2], C. Voz[2], P. Ortega[2]

1. Departament de Física Aplicada, Universitat de Barcelona; email: jbertomeu@ub.edu; 2. Departament d'Enginyeria Electrònica, Universitat Politècnica de Catalunya; email: cristobal.voz@upc.edu

Titania nanotube array electrode for a perovskite solar cells M.P2.30

K. Juraic[1], I. Pan?i?[1], M. Boha?ek[1], V. Koji?[1], A. Gajovi?[1], M. Plodinec[2], T. Rath[3], G. Trimmel[3]

1. Ru?er Bo?kovi? Institute, Bijeni?ka cesta 54, 10000 Zagreb, Croatia; 2. Fritz-Haber-Institut der Max-Planck-Gesellschaft, Faradayweg 4-6, 14195 Berlin, Germany; 3. Institute for Chemistry and Technology of Materials (ICTM), NAWI Graz, Graz University of Technology, Stremayrgasse 9, 8010 Graz, Austria

Investigation of co-sputtered Ta2O5-SiO2 films and nanostructured SiO2 layers for anti-reflection coatings M.P2.31

F. Annoni[1], M.Cornelli[2], E. Achilli[3], N. Armani[2], F. Trespidi[2], F. Farina[2], E. Malvisi[2], N. Castagnetti[4], M. Patrini[3], L. Andreani[3], G. Timò[2]

1. IMEM CNR Parco Area delle Scienze 37/A, 43124 Parma (Italy); 2. RSE SpA Strada della Torre della Razza 29122 Piacenza (Italy); 3. Dipartimento di Fisica UNIPV via Bassi 6, 27100 Pavia (Italy); 4. Istituto per lo Studio delle Macromolecole Via Alfonso Corti 12,20133 Milano (Italy)

Development of transperent p-type conductive metal oxide films for application in CIGS/ perovskites tandem cells M.P2.32

Nivin Alktash[1], Ruslan Muydinov[1], Stefan Körner[1], Natalia Maticuic[2], Danny Kojda[3], Tobias Bertram[2], Ivona Kafedjiska[2], Monoj Baskarane[1], Klaus Habicht[3], Iver Lauermann[2], Bernd Szyszka[1]

1. Technische Universität Berlin, Technologie für Dünnschicht-Bauelemente, Einsteinufer 25, 10587 Berlin, Germany; 2. PVcomB, Helmholtz-Zentrum Berlin für Materialien und Energie, Schwarzschildstraße 3, 12489 Berlin, Germany; 3. Transport Phenomena in Energy Materials, Helmholtz-Zentrum Berlin für Materialien und Energie, Hahn-Meitner-Platz 1, 14109 Berlin, Germany

	Conductive Co3O4/graphene (core/shell) metal oxide/carbon nanomaterials as electrode materials for electrochemical energy storag Kyu Seung Lee[1,2], Jaeho Shim[1], Dong Ick Son[1] 1. Institute of Advanced Composite Materials, Korea Institute of Science and Technology, Eunhari san 101, Bongdong-eup, Wanju-gun, Jeonbuk 565-905, Korea; 2. School of Advanced Materials Science and Engineering, Sungkyunkwan University (SKKU), Suwon 16419, South Korea	M.P2.33
	Improved photocatalytic activity of Bi2SiO5 nanoparticles assisted by halide incorporation Debashrita Sarkar, Venkataramanan Mahalingam Department of Chemical Sciences and Centre of Advanced Functional Materials (CAFM), Indian Institute of Science Education and Research, Kolkata, India	M.P2.34
	Facile synthesis of CdSe/CdSeTe NPLs/TiO2 for efficient Photocatalytic NOx oxidation and storage under UV-Vis irradiation Elnaz Ebrahimi, Muhammad Irfan, Yusuf kocak, Farzan Shabani, Hilmi Volkan Demir, Emrah Ozensoy Department of Chemistry ,Bilkent university, Ankara, 06800, Turkey, UNAM- National Nanotechnology Research Center, Institute of Materials Science and Nanotechnology, Bilkent university, Ankara, 06800, Turkey	M.P2.35
	Tungsten oxide based nanostructures obtained by PLD for environmental applications M. Filipescu[1], F. Andrei[1], V. Ion[1], I. Boerasu[1], A. Calugar[1,2], E. Sirjita[1,2], N. Scarisoreanu[1], M. Dinescu[1] 1. The National Institute for Lasers, Plasma & Radiation Physics, 409 Atomistilor Street, Magurele, Romania; 2. University of Bucharest, Faculty of Physics, 405 Atomistilor, P.O. BOX MG-11, 077125, Magurele, Romania	M.P2.36
	Micro-structured composite of PDMS and ZnSnO3 nanowires for energy harvesting Ana Rovisco*, Andreia dos Santos, Rui Igreja, Rita Branquinho, Elvira Fortunato, Rodrigo Martins and Pedro Barquinha* i3N/CENIMAT, Department of Materials Science, Faculty of Science and Technology, Universidade NOVA de Lisboa and CEMOP/UNINOVA Campus de Caparica, 2829-516 Caparica, Portugal *E-mail: a.rovisco@campus.fct.unl.pt, pmcb@fct.unl.pt	M.P2.37
	Facile synthesis and characterization of graphene oxide /WO3 nanocomposites with different template agents Rui Xu College of Chemical Engineering Nanjing University of Science & Technology 200 Xiaolingwei Nanjing, 210094, China	M.P2.38

Symposium M Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
13:55 Session XI: **Joint Session Symposia L&M.** Theory and experiment. Chairs: Martin Eickhoff and Smagul Karazhanov		
14:00	**Band Structure Engineering and Doping Control of Transparent Conducting Oxides** Su-Huai Wei Beijing Computational Science Research Center, Beijing 100193, China	LM.1
14:30	**Steering dewetting of metal thin films on TiO2 surfaces: Designing nanoscaled platforms for photocatalysis** Marco Altomare Department of Materials Science and Engineering WW4-LKO, University of Erlangen-Nuremberg, Martensstrasse 7, 91058 Erlangen, Germany. E-mail: marco.altomare@fau.de	LM.2
15:00	**A first-principles investigation on the equilibrium defect and carrier concentrations of intrinsic TiO2 anatase** Marco Arrigoni, Georg K.H. Madsen Institute of Materials Chemistry, TU Wien, A-1060 Vienna, Austria	LM.3
15:15	**Synthesis and optical properties of Zn2GeO4 /SnO2 nano-heterostructures** J. Dolado[1], P. Hidalgo[1], A. M. Sánchez[2] and B. Méndez[1] 1. Department of Materials Physics. Faculty of Physics, Complutense University of Madrid, E-28040 Madrid, Spain; 2. Department of Physics, University of Warwick, Coventry, CV4 7AL, United Kingdom	LM.4
15:30	Coffee Break	

15:55 Session XII: **Joint Session Symposia L&M.** Advanced characterization and materials properties.
Chairs: Michael Heere

16:00	**Advanced Characterization Techniques for Energy Materials using X-rays** Ulrike Boesenberg European XFEL GmbH, Holzkoppel 4, 22869 Schenefeld, Germany	LM.5
16:30	**Hydrogen sorption properties in refractory Multi-Principal-Element Alloys** Claudia Zlotea and Jorge Montero Institut de Chimie et des Matériaux de Paris Est, CNRS-UPEC	LM.6
16:50	**Design of Mg-based alloys for room temperature hydrogen storage** Hai-Wen Li[1], Kaveh Edalati[1], Ryoko Uehiro, Yuji Ikeda[2,3], Hoda Emami[1], Yaroslav Filinchuk[4], Makoto Arita[1], Xavier Sauvage[5], Isao Tanaka[2], Etsuo Akiba[1] and Zenji Horita[1] 1. Kyushu University, Fukuoka 819-0395, Japan; 2. Kyoto University, Sakyo, Kyoto 606-8501, Japan; 3. Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany; 4. Université Catholique de Louvain, 1348 Louvain-la-Neuve, Belgium; 5. Normandie Univ, UNIROUEN, INSA Rouen, CNRS, Groupe de Physique des Matériaux, 76000, Rouen, France	LM.7
17:10	**Computational search for new high-TC superconductors** A.G. Kvashnin, I.A. Kruglov, D.V. Semenok, A.R. Oganov Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 121205, 3 Nobel Street, Moscow, Russia, Moscow Institute of Physics and Technology, 141700, 9 Institutsky lane, Dolgoprudny, Russia, Dukhov Research Institute of Automatics (VNIIA), Moscow 127055, Russia, Moscow Institute of Physics and Technology, 141700, 9 Institutsky lane, Dolgoprudny, Russia, Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 121205, 3 Nobel Street, Moscow, Russia, Skolkovo Institute of Science and Technology, Skolkovo Innovation Center 121205, 3 Nobel Street, Moscow, Russia, Dukhov Research Institute of Automatics (VNIIA), Moscow 127055, Russia, Moscow Institute of Physics and Technology, 141700, 9 Institutsky lane, Dolgoprudny, Russia, Northwestern Polytechnical University, Xi'an, 710072, China	LM.8
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium M Program

Thursday, September 19 th, 2019

08:55	Session XIII: Energy storage and sensing. Chairs: MArco Altomare and Esra Ozkan Zayim	
09:00	**Effect of Mn, Ni, Co transtion metal ratios in lithium rich metal oxide cathodes on lithium ion battery performance** Neslihan Yuca, Bü?ra Çetin 1. Enwair Energy Technologies Corporation, Istanbul, Turkey; 2. Maltepe University, Istanbul, Turkey	M.13.1
09:30	**Designing of Nanostructured Zinc Antimonate and its Nanocomposites as Advanced Electrode Materials for Supercapacitors** S. Balakumar *and K. Balasubramanian National Centre for Nanoscience and Nanotechnology University of Madras,Chennai, India 600 025	M.13.2
10:00	**Improvement of energy storage properties in antiferroelectric NaNbO3-SrZrO3 thin film on (001) SrTiO3 substrate** Kosuke Beppu, Takayuki Shimasaki, Ichiro Fujii, Takahiro Wada Department of Materials Chemistry, Ryukoku University Graduate Faculty of Interdisciplinary Research, University of Yamanashi	M.13.3
10:15	**Thin film gas sensors with giant response to NO2** P. Nowak, W. Maziarz, A. Rydosz, K. Zakrzewska, K. Kowalski, M. Zi?bka AGH University of Science and Technology, Faculty of Computer Science, Electronics and Telecommunications, al. Mickiewicza 30, 30-059 Krakow, Poland, AGH University of Science and Technology, Faculty of Metals Engineering and Industrial Computer Science, al. Mickiewicza 30, 30-059 Krakow, Poland, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, al. Mickiewicza 30, 30-059 Krakow, Poland	M.13.4
10:30	Coffee Break	

Session XIV: Oxides and oxyhydrides. Chairs: Neslihan Yuca and Vishnukanthan Venkatachalapathy

11:00	**Effect of doping and plasma conditions on optical and structural properties of HfO2-based films produced by magnetron sputtering** L. Khomenkova[1,2,3], D. Lehninger[4], E. Agocs[5], X. Portier[2], P. Petrik[5], T. Torchynska[6], O. Meknichuk[7], F. Gourbilleau[2], J. Heitmann[4] 1. V. Lashkaryov Institute of Semiconductor Physics, 45 Pr. Nauky, Kyiv 03028, Ukraine; 2. CIMAP Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 6 Boulevard Maréchal Juin, 14050 Caen Cedex 4, France; 3. National University -Kyiv-Mohyla Academy?, 2 Skovorody str., Kyiv, 04170, Ukraine; 4. Institute for Technical Physics and Materials Science (MFA), Center for Energy Research (EK), Hungarian Academy of Sciences (MTA), Konkoly Thege Rd. 29-33, 1121 Budapest, Hungary; 5. Institute of Applied Physics, TU Bergakademie Freiberg, D-09596 Freiberg, Germany; 6. Instituto Politécnico Nacional - ESFM, México City, 07738, Mexico; 7. Mykola Gogol State University of Nizhyn, 2 Hrafska Str., Nizhyn 16600, Ukraine	M.14.1
11:15	**Development of Advanced TiO2-CeO2-Bi2O3 NanoComposites In Situ for Online Water Treatment by Solar-Driven Photocatalysis** Maguy Abi Jaoude[1], Swati Sood[1], Ahmad Safieh[2], Aaesha Alnuaimi[2], Marco Stefancich[2] 1. Department of Chemistry, Khalifa University of Science and Technology, Center for Membranes & Advanced Water Technology, Abu Dhabi, UAE; 2. Research and Development Centre, Dubai Electricity and Water Authority (DEWA), Dubai, UAE	M.14.2
11:30	**Synthesis of Ti and Nb-doped Ce-Zr single-phase oxides as supports for catalysts of methane and ethanol dry reforming** Mikhail Simonov[1,2], Yulia Bespalko[1,2], Ekaterina Smal[1], Valeria Fedorova[1], Konstantin Valeev[1], Alexey Krasnov[1] 1. Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia; 2. Novosibirsk State University, Novosibirsk, Russia	M.14.3
11:45	**Structural properties, electronic structure and optical properties of cerium oxyhydride** D. Mamedov, E. M. Baba, S. Zh. Karazhanov Department of Materials Science, National Research Nuclear University, 115409 Moscow, Russia, Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway, Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway, Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway	M.14.4
12:00	**Cerium and iron oxides for energy applications: reducibility, doping, and catalytic activity** R. Magri, G. Righi Dipartimento di Fisica, Informatica e Matematica (FIM) dell? Università degli Studi di Modena e Reggio Emilia, and Istituto di Nanoscienze CNR-S3 , via Campi 213/A, 41100 Modena, Italy	M.14.5
12:15	**Enhanced electrostriction performances in epitaxial Gd-doped ceria thin films** S. Santucci, H. Zhang, S. Sanna, N. Pryds, V. Esposito Department of Energy Conversion and Storage, Technical University of Denmark (DTU), Frederiksborgvej 399, 4000, Roskilde, Denmark	M.14.6
12:30	Lunch Break	

13:55 Session XV: ZnO and TiO2. Chairs: Su Huai Wei and S. Balakumar

14:00	**Laser-processed ZnO-based nanostructures: optical characterisation as a tool to assess potential applications** J. Rodrigues*, F. M. Costa, T. Monteiro Departamento de Física & I3N, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal	M.15.1
14:30	**Understanding the Growth of ZnO Nanorods from Solutions** Grym J., ?ernohorský O., Faitová H., Ku?erová ?, Ba?inová N., Yatskiv R, Tiagulskyi S. and Vani? J. Institute of Photonics and Electronics of the CAS	M.15.2
14:45	**Synthesis and analysis of ZnO oxide films doped by the metallic Zn phase for the photocatalytic water treatment technologies** Martynas Lelis[1], Simona Tuckute[1], Sarunas Varnagiris[1], Marius Urbonavicius[1], Kristina Bockute[2], Giedrius Laukaitis[2] 1. Centre for Hydrogen Energy Technologies, Lithuanian Energy institute, Breslaujos st. 3, Kaunas 44403, Lithuania; 2. Centre for Hydrogen Energy Technologies, Lithuanian Energy institute, Breslaujos st. 3, Kaunas 44403, Lithuania. and Department of Physics, Kaunas University of Technology, Studentu Str. 50, LT-51368 Kaunas, Lithuania	M.15.3
15:00	**Gallium Doping of ZnO Nanowires in Aqueous Solution** P. Gaffuri[1,2], E. Appert[1], O. Chaix-Pluchery[1], L. Rapenne[1], E. Sarigiannidou[1], M.Salaün[2] and V. Consonni[1] 1. Univ. Grenoble Alpes, CNRS, Grenoble INP, LMGP, F-38000 Grenoble, France; 2. Univ. Grenoble Alpes, CNRS, Institut Néel, F-38000 Grenoble, France	M.15.4
15:15	**Effect of Titanium Isopropoxide:Acetylacetone Molar Ratio on the Photocatalytic Properties of TiO2 Thin Films** J. Spiridonova[1], I. Oja Acik[1], A. Katerski[1], M. Krit?evskaja[2], M. Danilson[3], M. Krunks[1] 1. Laboratory of Thin Films Chemical Technologies, Department of Materials and Environmental Technology, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn; 2. Laboratory of Environmental Technology, Department of Materials and Environmental Technology, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn; 3. Laboratory of Optoelectronic Materials Physics, Department of Materials and Environmental Technology, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn	M.15.5
15:30	Coffee Break	

15:55 Session XVI: Oxide-based bulk and nanomaterials. Chairs: Jan Grym and Martynas Lelis

16:00	**Oleophilic Magnetite Nanoparticles as efficient Sorbent for Water Contaminants** Marco Sarcletti[1], Dustin Vivod[2], Tobias Luchs[3], Luis Portilla[1], Baolin Zhao[1], Andreas Hirsch[3], Dirk Zahn[2] and Marcus Halik[1] 1. Organic Materials & Devices, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Interdisciplinary Center for Nanostructured films (IZNF), Cauerstr. 3, 91058 Erlangen, Germany; 2. Computer Chemistry Center & Chair of Theoretical Chemistry, FAU, Nägelsbachstr. 25, 91052 Erlangen, Germany; 3. Institute of Organic Chemistry II, FAU, Nikolaus-Fiebiger-Str. 10, 91054 Erlangen, Germany	M.16.1
16:15	**Optical and magnetic properties of rhombohedral, orthorhombic and tetragonal phases of barium titanate (BaTiO3)** M. Selvaraj, P. Vajeeston, J. Mayandi and V. Venkatachalapathy Department of Physics, R.D. Govt. Arts College, Tamilnadu, Sivaganga - 630561, India Department of Materials Science, Madurai Kamaraj University, Tamilnadu, Madurai- 625 021, India, Department of Chemistry/Centre for Materials Science and Nanotechnology, University of Oslo, P.O Box 1126 Blindern, NO-0318 Oslo, Norway, Department of Materials Science, Madurai Kamaraj University, Tamilnadu, Madurai- 625 021, India. Department of Physics/Centre for Materials Science and Nanotechnology, University of Oslo, P.O Box 1048 Blindern, NO-0316 Oslo, Norway, Department of Physics/Centre for Materials Science and Nanotechnology, University of Oslo, P.O Box 1048 Blindern, NO-0316 Oslo, Norway Department of Materials Science, National Research Nuclear University ?MEPhI?, 31 Kashirskoe sh, Moscow, Russian Federation	M.16.2
16:30	**Influence of rare earth addition in cobalt ferrite thin films** G. Bulai[1], V. Trandafir[2], S.A. Irimiciuc[3], C. Focsa[4], S. Gurlui[2] 1. Integrated Centre for Environmental Science Studies in the North-East Development Region - CERNESIM, 'Al. I. Cuza' University of Iasi, 700506 Iasi, Romania, Phone Number +40745893044 and e-mail georgiana.bulai@uaic.ro; 2. Faculty of Physics, Alexandru Ioan Cuza University, Iasi, 700506 Iasi, Romania; 3. National Institute for Laser, Plasma and Radiation Physics - NILPRP, RO-077125 Magurele-Bucharest, Romania; 4. Université de Lille, CNRS, UMR 8523 - PhLAM - Physique des Lasers, Atomes et Molécules, CERLA - Centre d?Etudes et de Recherches Lasers et Applications, Lille F-59000, France	M.16.3
16:45	**Defect-mediated ON-OFF ferromagnetism in electrical field controlled metal oxide films** M. O. Liedke[1], M. Butterling1, A. Quintana[2], E. Menéndez[2], E. Hirschmann[1], A.G. Attallah[1], V. Sireus[2], J. Nogués[3,4], J. Sort[2,4], A. Wagner[1] 1. Institute of Radiation Physics, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Departament de Física, Universitat Autònoma de Barcelona, Cerdanyola del Valle?s, Spain; 3. Catalan Institute of Nanoscience and Nanotechnology (ICN2), Barcelona, Spain; 4. Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain	M.16.4
17:00	**Elucidating the dynamics of charge carriers in vanadium-doped titania with femtosecond resolution and elemental sensitivity** Giacomo Rossi[1], Daniele Catone[2], Alberto Piccioni[1], Nicola Patelli[1], Alessandra Paladini[3], Alessandra Molinari[4], Stefano Caramori[4], Lucia Amidani[5], Patrick O? Keeffe[3], Federico Boscherini[1], Luca Pasquini[1] 1. Department of Physics and Astronomy, Alma Mater Studiorum Università di Bologna, V. C. Berti-Pichat 6/2, 40127 Bologna, Italy; 2. CNR-ISM, Division of Ultrafast Processes in Materials (FLASHit), Area della Ricerca di Roma Tor Vergata, Via del Fosso del Cavaliere 100, Rome, Italy; 3. CNR-ISM, Division of Ultrafast Processes in Materials (FLASHit), Area della Ricerca di Roma 1, Monterotondo Scalo, Italy; 4. Department of Chemical and Pharmaceutical Sciences, University of Ferrara, Via Luigi Borsari 46, 44121 Ferrara, Italy; 5. ESRF ? The European Synchrotron, CS40220, 38043 Grenoble, France	M.16.5

17:15	**Investigation by Atom Probe tomography of Er3+ doped Al2O3 films on Si wafers** N. Alhelou[1], L. Khomenkova[2], C. Frilay[2], C. Labbé[2], J. Cardin[2], F. Gourbilleau[2], E. Talbot[1] 1. GPM, Normandie Univ, UNIROUEN, INSA Rouen, CNRS, Avenue de l?Université BP 12, 76801 Saint Etienne du Rouvray, France; 2. CIMAP, Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 6 Boulevard Maréchal Juin 14050 Caen Cedex 4, France	M.16.6
17:30	Closing remarks: Smagul Karazhanov	

Symposium N Publications: Proceedings will be published in Catalysts as a special issue "Selected Papers from European Materials Research Society (E-MRS) Fall Meeting, 2019"

Symposium N

Sessions: Room 306 | Main Building
Poster Session: Main Aula | Faculty of Physics Building

ENERGY AND ENVIRONMENT:

Advanced catalytic materials for (photo)electrochemical energy conversion

Symposium Organizers: **Lifeng LIU**, International Iberian Nanotechnology Laboratory (INL), Portugal
Richard E. PALMER, Swansea University, U.K.
Vladimir SMIRNOV, Forschungszentrum Jülich GmbH, Germany
Li SONG, National Synchrotron Radiation Lab., China

SYMPOSIUM N TIMETABLE

Symposium N				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30	(08:30-08:45) Opening (08:45-10:35) Session I	(08:20-08:30) Opening (08:30-10:35) Session VI	Plenary Session 09:00-12:30	(08:30-10:35) Session XIII
10:30 – 11:00	Coffee Break			Coffee Break
11:00 – 12:30	(11:00-12:35) Session II	Session VII		Session XIV
12:30 – 14:00	Lunch Break			
14:00 – 15:30	(14:00-15:35) Session III	(14:00-15:25) Session VIII	(14:00-15:50) Session XI	(14:00-15:30) Session XV 15:30 Closing Remarks (Poster Award Ceremony)
15:30 – 16:00	Coffee Break			
16:00 – 17:30	(16:00-17:35) Session IV	(16:00-17:25) Session IX	(16:00-17:40) Session XII	
17:30 – 19:30	(17:35-19:30) Poster Session I	(17:30-19:30) Poster Session II	Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium N location

Sessions: 306 | Main Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium N Program

Monday, September 16 th, 2019

08:30	Opening remarks	
Session I: Electrocatalysis I : Lifeng Liu, Yujie Xiong		
08:45	**Electrochemical Catalysis for Conversion of Sustainable Energy** Ib Chorkendorff Department of Physics, Technical University of Denmark (DTU) Fysikvej, Building 312, DK-2800 Kongens Lyngby, Denmark	N.1.1
09:15	**Benchmarking the Electrochemistry of Amorphous Molybdenum Sulfide** Daniel Escalera-López, Zhiheng Lou, Neil V. Rees School of Chemical Engineering, University of Birmingham, Birmingham, UK	N.1.2
09:45	**Performance Enhancement of Cobalt Phosphide Oxygen Evolution Catalysts by Aluminium Doping** Timothy E. Rosser[1], Jo. J. L. Humphrey[1], Junyuan Xu[2], Xian-Kui Wei[3], Marc Heggen[3], Yury V. Kolen'ko[2] and Andrew J. Wain[1] 1. National Physical Laboratory, Hampton Road, Teddington, Middlesex TW11 0LW, UK; 2. International Iberian Nanotechnology Laboratory, Braga 4715-330, Portugal; 3. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Jülich GmbH, 52425 Jülich, Germany	N.1.3
10:05	**Two-dimensional metal carbide (MXene) electrocatalysts with active basal planes for hydrogen evolution** Zhi Wei Seh Institute of Materials Research and Engineering, Agency for Science, Technology and Research (A*STAR), 2 Fusionopolis Way, Innovis, Singapore 138634, Singapore	N.1.4
10:20	**Electrode forming methods and cell designs to handle the complexity of various material forms in electrochemical experiment** Paweł Jerzy Wojcik redoxme AB (redox.me), Research & Development Department, Box 5002, Kungsgatan 41, 600 05 Norrköping, Sweden Laboratory of Organic Electronics, Dept. of Science and Technology, Linköping University 601 74 Norrköping, Sweden	N.1.5
10:35	Coffee Break	

Session II: Photoelectrocatalysis I : Vladimir Smirnov, Yung-Jung Hsu

11:00	**Photoelectrochemical and photovoltaic systems for solar fuel production** Jingshan Luo Institute of Photoelectronic Thin Film Devices and Technology, College of Electronic Information and Optical Engineering, Nankai University, Tianjin 300350, China	N.2.1
11:30	**Unassisted PEC cell exceeding 8% efficiency with surface bandgap-graded Cu(In,Ga)(S,Se)2 photocathode and perovskite solar cell** Bonhyeong Koo, Byungha Shin Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology	N.2.2
11:50	**Interfacial energy-level and morphology engineering of bottom electrode for boosting photoelectrochemical water splitting** Mi Gyoung Lee, Ho Won Jang Department of Materials Science and Engineering, Research Institute of Advanced Materials, Seoul National University	N.2.3
12:05	**Photoelectrochemical Properties of Hematite Thin Films by Liquid Phase Deposition** Marjan Saeidi[1], Amin Yourdkhani[1], Seyyed Ali Seyyed Ebrahimi[2], Reza Poursalehi[1] 1. Materials Engineering Department, Faculty of Engineering, Tarbiat Modares University, Tehran, Iran; 2. Materials and Metallurgical Engineering, Faculty of Engineering, University of Tehran, Tehran, Iran	N.2.4
12:20	**CdSe/conducting polymer hybrid photoelectrodes** Bartosz Maranowski[1#], Stephane Dulovic[2], Sophia Casto[2], Marcin Strawski [1*], Justyna Widera-Kalinowska[2], Marek Szklarczyk[1] 1. Laboratory of Electrochemistry, Faculty of Chemistry, University of Warsaw, ul. Pasteura 1, 02-093 Warsaw, Poland; 2. Adelphi University, Department of Chemistry, 1 South Avenue, Garden City, New York 11530, United States (#) Starfax Medical, ul. Mickiewicza 25 Warszawa 01-551 Poland	N.2.5
12:35	Lunch Break	

Session III: Photoelectrocatalysis II : Richard E Palmer, Byungha Shin

14:00	**Efficient photoelectrochemical water splitting: A surface science study on electronic bulk and surface conditions** Wolfram Jaegermann Surface Science Divsion, Materialwissenschaft, TU Darmstadt	N.3.1
14:30	**Semiconductor Nanoheterostructures for Photoconversion Applications** Yi-Hsuan Chiu, Ming-Yu Kuo, Ting-Hsuan Lai, Ping-Yen Hsieh, Yung-Jung Hsu* Department of Materials Science and Engineering, National Chiao Tung University, Hsinchu 30010, Taiwan	N.3.2

14:50	**Influence of photoanode architecture and location and nature of the oxygen evolution catalyst on photoelectrocatalytic activity** O.A. Krysiak[1,2], J.R.C. Junqueira[1], F. Conzuelo[1], T. Bobrowski[1], A. Wysmolek[3], W. Schuhmann[1] 1. Analytical Chemistry - Center for Electrochemical Sciences (CES), Faculty of Chemistry and Biochemistry, Ruhr University Bochum, Universitätsstr. 150, D-44780 Bochum, Germany; 2. College of Inter-Faculty Individual Studies in Mathematics and Natural Sciences, University of Warsaw, Banacha 2c, 02-097 Warsaw, Poland; 3. Institute of Experimental Physics, Faculty of Physics, University of Warsaw, Pasteura 5, 02-093, Warsaw, Poland	N.3.3
15:05	**Full-Spectrum-Driven Photoelectrodes for Solar Water Splitting** Yu-Ting Wang, Yung-Jung Hsu* Department of Material Science and Engineering, National Chiao Tung University, Hsinchu 30010, Taiwan	N.3.4
15:20	**Practical Solar Hydrogen Production Using Au@Cu7S4 Yolk@Shell Nanocrystals** Chun-Wen Tsao and Yung-Jung Hsu* Department of Materials Science and Engineering, National Chiao Tung University, Hsinchu 30010, Tawian	N.3.5
15:35	Coffee Break	
Session IV: Electrocatalysis II: Li Song, Enrico Andreoli		
16:00	**Catalyst nanomaterials for electrochemical based solar refineries** J.R. Morante Institut de Recerca en Energia de Catalunya (IREC), E-08930 Sant Adrià del Besòs, Spain, Universitat de Barcelona, Barcelona, Spain Email: jrmorante@irec.cat	N.4.1
16:30	**Carbon dioxide electrocatalysis at copper foam electrodes** Enrico Andreoli Swansea University, College of Engineering, Energy Safety Research Institute	N.4.2
16:50	**Electrocatalytic Reduction of Gaseous CO2 to CO on Sn/Cu-Nanofiber-Based Gas Diffusion Electrodes** Wenbo Ju[1], Fuze Jiang[1,2], Huan Ma[1], Zhengyuan Pan[1,3], Yibo Zhao[1,2], Francesco Pagani[1], Daniel Rentsch[1], Jing Wang[1,2], Corsin Battaglia[1] 1. Empa, Swiss Federal Laboratories for Materials Science and Technology, Überlandstrasse 129, 8600 Dübendorf, Switzerland; 2. Institute of Environmental Engineering, ETH Zurich, Schafmattstrasse 6, 8093 Zurich, Switzerland; 3. School of Light Industry and Engineering, South China University of Technology, 510640 Guangzhou, China	N.4.3
17:05	**CO2 Electrochemical Reduction on Co- and Sn-Modified Au Single Crystal Surface** Hiroki Tei, Taku Miyakawa, Hiroto Tsurumaki, Naoto Todoroki, Toshimasa Wadayama Graduate School of Environmental Studies, Tohoku University	N.4.4

17:20	**Exploring CO2 electroreduction activity of bimetallic composites combining post- and early transition metals** Laura C. Pardo-Perez, Alvaro Diaz-Duque, Matthew T. Mayer Nachwuchsgruppe Elektrochemische Umwandlung von CO2, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH	N.4.5
17:35	Poster Session I: Lifeng Liu, Li Song	
	Optical characterization of cobalt doped zinc oxide prepared by anodization Judith Chebwogen, Sylvester Hatwaambo, Onesmus Munyati, Mghendi Mwamburi, Christopher Maghanga Kabarak University, University of Zambia, University of Zambia, University of Eldoret, Kabarak University	N.P1.1
	Preparation of catalyst layer with nanofiber micro-structure for direct methanol fuel cells Guicheng Liu[1], Meng Wang[2], Feng Ye[3], Joong Kee Lee[4], Woochul Yang[1] 1. Department of Physics, Dongguk University; 2. School of Metallurgical and Ecological Engineering, Univesity of Science and Technology Beijing; 3. School of energy power and mechanical engineering, North China electric power university; 4. Center for energy storage research, Korea Institute of Science and Technology	N.P1.2
	Amorphous TiO2 Coated Hierarchical WO3 Nanosheet/CdS Nanorod Arrays for Improved Photoelectrochemical Performance Zhiwei Wang, Guang Yang, Chiew Kei Tan, Tam Duy Nguyen, Loo Pin Yeo, Hao Qun Neo, Andrew Clive Grimsdale, Alfred Iing Yoong Tok* School of Materials Science and Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798, Singapore	N.P1.3
	ZnO nanostructures fabricated by microwave assisted hydrothermal synthesis and their photoelectrochemical property Kaoruho Sakata, Katerina Minhová Macounová, Roman Nebel, Petr Krtil J. Heyrovsky Institute of Physical Chemistry, Czech Academy of Sciences	N.P1.4
	Energy and hydrogen recovery through the treatment of wine waste in bioelectrochemical systems Alessandra D'Epifanio, Barbara Mecheri, Cadia D'Ottavi, Silvia Licoccia Department of Chemical Science and Technologies, University of Rome Tor Vergata, Via della Ricerca Scientifica, 00133 Rome Italy	N.P1.5
	Hollow Porous Cobalt Phosphide Octahedron with Exceptionally High Water and Methanol Oxidation Performance Junyuan Xu, Nan Zhang, Lifeng Liu International Iberian Nanotechnology Laboratory (INL), 4715-330 Braga, Portugal	N.P1.6

Operando X-ray study on layered MXene matreials with atomic cation intercalation N.P1.7

Changda Wang, Shuangming Chen, Li Song

National Synchrotron Radiation Laboratory, CAS Center for Excellence in Nanoscience, University of Science and Technology of China

Temperature and doping induced evolution of the local structure of thermochromic copper molybdate N.P1.8

Inga Jonane[1], Andris Anspoks[1], Arturs Cintins[1], Giuliana Aquilanti[2], Aleksandr Kalinko[3], Roman Chernikov[4], Alexei Kuzmin[1]

1. Institute of Solid State Physics, University of Latvia, Latvia; 2. Synchrotron Elettra, Italy; 3. Universitat Paderborn, Naturwissenschaftliche Fakultat, Department Chemie, Germany; 4. DESY Photon Science, Germany

Compositional Engineering of Transition Metal Phosphides for Improved Electrocatalytic Water Splitting Performance N.P1.9

Junyuan Xu, Lifeng Liu

International Iberian Nanotechnology Laboratory (INL)

Tailoring the d-band center and electronic structure of Co-N4 electrocatalyst for hydrogen evolution reaction N.P1.10

Palani Sabhapathy[1], Indrajit Shown[2], Wei-Fu Chen[3], Kuei-Hsien Chen[2], Li-Chyong Chen[4]

1. Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei-10617, Taiwan. Center for Condensed Matter Sciences, National Taiwan University, Taipei-10617, Taiwan. Department of Chemistry, National Tsing Hua University, Hsinchu-30013, Taiwan. Molecular Science and Technology, Taiwan International Graduate Program, Academia Sinica, Taipei-11529, Taiwan; 2. Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei-10617, Taiwan; 3. Center for Condensed Matter Sciences, National Taiwan University, Taipei-10617, Taiwan; 4. Center for Condensed Matter Sciences, National Taiwan University, Taipei-10617, Taiwan. Center of Atomic Initiative for New Materials, National Taiwan University, Taipei-10617, Taiwan

Solar water splitting with combined photovoltaic-electrochemical systems N.P1.11

K. Welter[1], N. Hamzelui[1,2], V. Smirnov[1], J.-P. Becker[1,3], W. Jaegermann[4], F. Finger[1]

1. Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research – 5 Photovoltaics, 52425 Jülich (Germany);
2. now at: Institute for Power Electronics and Electrical Drives (ISEA), RWTH Aachen University, 52066 Aachen (Germany);
3. now at: Zentrum für Sonnenenergie und Wasserstoff-Forschung Baden-Württemberg, D-70563, Stuttgart, Germany;
4. Institute of Material Science, TU Darmstadt, 64287 Darmstadt (Germany)

Photocatalytic properties of g-C3N4-MOF composite N.P1.12

Krzysztof Sielicki, Małgorzata Aleksandrzak, Ewa Mijowska

West Pomeranian University of Technology, Szczecin, Faculty of Chemical Technology and Engineering, Piastow Ave. 42, 71-065 Szczecin, Poland

PEC removal of lethal VOC gases for manned spacecraft N.P1.13

Hyun Kim, Bee Lyong Yang

School of Materials Science and Engineering, Kumoh National Institute of Technology

Structural and optoelectrical studies of thin CdIn2S4 films

N.P1.14

Cezariusz Jastrzebski[1], Pawel Zabierowski[1], Marek Pawlowski[1], Daniel J. Jastrzebski[2], Nicolas Barreau[3]

1. Faculty of Physics, Warsaw University of Technology, Koszykowa 75, 00-662 Warsaw, Poland; 2. Faculty of Chemistry, Warsaw University of Technology, Noakowskiego 3, 00-664 Warsaw, Poland; 3. Institut des Matériaux Jean Rouxel (IMN)-UMR6502, Université de Nantes, CNRS, 2 rue de la Houssinière, BP 32229, 44322 Nantes Cedex 3, France

Symposium N Program

Tuesday, September 17 th, 2019

08:20	Opening remarks	
Session VI: Catalyst Characterization and Modelling : Grzegorz D. Sulka, Andy Wain		
08:30	**Shining light on catalysts at work using combined operando spectroscopies** Christian Hess Eduard-Zintl Institute of Inorganic and Physical Chemistry, TU Darmstadt, Germany	N.6.1
09:00	**Microstructural study of octahedral Pt-alloy nanoparticle fuel cell catalysts** Marc Heggen, Peter Strasser, Rafal E. Dunin-Borkowski Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Jülich GmbH, 52425 Jülich, Germany, The Electrochemical Energy, Catalysis and Materials Science Laboratory, Department of Chemistry, TU Berlin, 10623 Berlin, Germany	N.6.2
09:20	**Molecular level modelling of electrochemical reactions** Kari Laasonen*, Nico Holmberg, Rasmus Kronberg, Garold Murdachaew, Mikko Hakala, Lauri Partanen Aalto University, Department of Chemistry and Materials Science	N.6.3
09:50	**Optical characterization of copper doped thin films of anodized titanium** Julia Rotich, Sylvester Hatwaambo, Onesmus Munyati, Christopher Maghanga, Mghendi Mwamburi University of Eldoret, University of Zambia, University of Zambia, Kabarak University, University of Eldoret	N.6.4
10:05	**Combining Modelling and Experiment for TiO2 Modification in Catalysis** Michael Nolan Tyndall National Institute, UCC, Lee Maltings, Dyke Parade T12 R5CP, Cork, Ireland	N.6.5

10:20	**Photocatalytic CO2 Reduction on Two Dimensional SnS2 Thin Films: In-situ Analysis On Adsorbate-Catalyst Surface Interactions** Tadesse Billo[1], Indrajit Shown[2], Aswin Kumar Anbalagan[3], Tirta Amerta Effendi, Wei-Yen Woon[5], Ruei-San Chen, Chih-Hao Lee[3], Kuei-Hsien Chen[2], Li-Chyong Chen[6] 1. Nano Science and Technology Program, Taiwan International Graduate Program, Academia Sinica, Taiwan; 2. Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan; 3.Department of Engineering and System Science, National Tsing Hua University, Hsinchu, Taiwan; 4.Graduate Institute of Applied Science and Tech. National Taiwan University of Science and Technology (NTUST) Taiwan; 5. Department of Physics, National Central University, Taiwan; 6.Center for Condensed Matter Sciences, National Taiwan University, Taiwan	N.6.6
10:35	Coffee Break	
Session VII: Photocatalysis I : Hangxun Xu, Stefano Mezzavilla		
11:00	**Coupling Solar Energy into Catalytic CO2 Conversion (Chem. Soc. Rev. Pioneering Investigator Lectureship)** Yujie Xiong Department of Applied Chemistry, University of Science and Technology of China, Hefei, CHINA	N.7.1
11:30	**Anti-Photocorrosion 2-D Layer Over CdS for Hydrogen Generation** Gongxuan Lu Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences	N.7.2
12:00	**Facet-Dependent Photocatalytic Hydrogen Evolution on Au@CdS Yolk@Shell Nanocrystals** Yi-An Chen, Yung-Jung Hsu Department of Materials Science and Engineering, National Chiao Tung University, Hsinchu, 30010, Taiwan	N.7.3
12:15	**Comparative Studies of Hydrogen Production over Au@Cu2O Core@Shell Nanocrystals with Different Shell Thicknesses** Mei-Jing Fang, Yung-Jung Hsu Department of Materials Science and Engineering, National Chiao Tung University, Hsinchu 30010, Tawian	N.7.4
12:30	Lunch Break	
Session VIII: 2D materials for (photo)electrocatalysis : Lifeng Liu, Vladimir Smirnov		
14:00	**Engineered 2-Dimensional Nanomaterials for Electrocatalytic Applications** Manikoth M. Shaijumon School of Physics, Indian Institute of Science Education and Research Thiruvananthapuram, CET Campus, Sreekaryam, Thiruvananthapuram, Kerala, INDIA 695016	N.8.1

14:30	**2D Crystals with Tunable Band Structures for Photocatalytic Water Splitting** Xiaojun Wu National Laboratory for Physical Sciences at the Microscale, and School of Chemistry and Material Sciences, University of Science and Technology of China, Hefei, Anhui 230026, China	N.8.2
14:50	**Two-Dimensional Conjugated Polymers for Photocatalytic Overall Water Splitting** Hangxun Xu National Laboratory for Physical Sciences at the Microscale, CAS Key Laboratory of Soft Matter Chemistry, Department of Polymer Science and Engineering, University of Science and Technology of China	N.8.3
15:10	**Development of metal chalcogenide heterostructure as a promising visible-light photocatalyst for CO2 reduction** Indrajit Shown[1], Li-Chyong Chen[2], Kuei-Hsien Chen[1,2] 1. Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan. *indrajit25@gmail.com; 2. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan	N.8.4
15:25	Coffee Break	

Session IX: Photoelectrocatalysis II : Jianwu Sun, Marc Heggan

16:00	**Plasma aided electrocatalysis for nitrogen fixation** M.N. Tsampas, R. Sharma, H. Patel, V. Kyriakou, A. Pandiyan, S. Welzel, M.C.M. van de Sanden Dutch Institute For Fundamental Energy Research (DIFFER)	N.9.1
16:20	**Cubic Silicon Carbide for Enhanced Photoelectrochemical Water Splitting** Jingxin Jian, Hao Li, Jianwu Sun* Department of Physics, Chemistry and Biology (IFM), Linköping University, SE-58183, Linköping, Sweden; * Corresponding author, Jianwu Sun, E-mail: jianwu.sun@liu.se	N.9.2
16:40	**Energy-band engineering of graphitic carbon nitride through supramolecular self-assembly for high-efficienct photocatalysis** Wenjun Jiang, Yongfa Zhu China Academy of Space Technology, Qian Xuesen Laboratory of Space Technology, Tsinghua University, Department of Chemistry	N.9.3
16:55	**Efficient photocatalytic hydrogen generation by diffusing reactants into the bulk of low polymeric carbon nitride** Yuexiang Li[1]*, Ping Han[1], Rongchang He[1], Binpeng Hou[2], Shaoqin Penga, Chuying Ouyang[2]* 1. Department of Chemistry, Key Laboratory of Jiangxi Province for Environment and Energy Catalysis, Nanchang University, Nanchang 330031, P. R. China; 2. Department of Physics, Laboratory for Computational Materials Physics, Jiangxi Normal University, Nanchang, 330022, P. R. China	N.9.4

17:10	**Ag nanoparticles decorated TiO2 nanorods on Si photoelectrodes for efficient CO2 photoelectrochemical reduction to syngas** Changyeon Kim, Ho Won Jang Department of Materials Science and Engineering, Seoul National University, Seoul 151-744, Korea	N.9.5
17:30 Poster Session II: Richard E Palmer, Vladimir Smirnov		
	Efficient Photoelectrochemical and Electrochemical Fuel Production using Low-dimensional Catalysts Tae-Yong An, Jude John, Subramani Surendran, Yelyn Sim, Dong-Kyu Lee, Sung Jun Wee, Chan Min Jo, Hyun Kyu Kim, Yujin Chae, Janani Gnanaprakasam and Uk Sim Department of Materials Science and Engineering, Chonnam National University, Gwangju 61186, Republic of Korea	N.P2.1
	Photocatalytic H2 evolution: Dealloying as efficient tool for the fabrication of Rh decorated TiO2 nanotubes Mohsen Sheikhzadeh[1,2], Seyedsina Hejazi[2], Shiva Mohajernia[2], Ondrej Tomanec[3], Radek Zboril[3], Sohrab Sanjabi[1], Patrik Schmuki[2,3]* 1. Nanomaterials Group, Department of Materials Science and Engineering, Tarbiat Modares University, P.O. Box: 14115-143, Tehran, Iran; 2. Department of Materials Science, Institute for Surface Science and Corrosion WW4-LKO, University of Erlangen-Nuremberg, Martensstraße 7, D-91058 Erlangen, Germany; 3 Regional Centre of Advanced Technologies and Materials, Palacky University Olomouc, 17. Listopadu 50A, 772 07 Olomouc, Czech Republic	N.P2.2
	Template-Free Synthesis of Hollow Iron Phosphide–Phosphate Composite Nanotubes for Use as Active and Stable Oxygen Evolution Electrocatalysis Junyuan Xu, Ana Aráujo, Lifeng Liu* International Iberian Nanotechnology Laboratory (INL), 4715-330 Braga, Portugal	N.P2.3
	Structural self-reconstruction study of catalysts in electrocatalysis Hongliang Jiang, Qun He, Youkui Zhang, Li Song National Synchrotron Radiation Laboratory, CAS Centre for Excellence in Nanoscience, University of Science and Technology of China	N.P2.4
	Conformal Deposition of Cobalt Phosphide on p-Silicon for Efficient and Stable Solar Hydrogen Evolution S. Mouli Thalluri, Lifeng Liu International Iberian Nanotechnology Laboratory (INL), 4715-330 Braga, Portugal	N.P2.5
	Photoelectrocatalytic Evaluation of BiVO4/GO nanofibers for application in the photovoltaic cells Diego N. David-Parra, Deuber L.S. Agostini, Marcos F.S. Teixeira Sao Paulo State University, Faculty of Science and Technology	N.P2.6

	Titania-Coated Nanoporous Gold Towards Broadband Photocatalytic Water Splitting Sanjay Jatav[1], Ming-Chao Kao[2], Matthias Graf[2], Eric H. Hill[1] 1. Institute of Advanced Ceramics, Hamburg University of Technology, 21073 Hamburg Germany; 2. Institute of Optical and Electronic Materials, Hamburg University of Technology, 21073 Hamburg Germany	N.P2.7
	Assessment of long-term hydrogen generation in integrated silicon based photoelectrochemial water splitting devices Vladimir Smirnov[1], Katharina Welter[1], Jan-Philipp Becker[1], Wolfram Jaegermann[2] and Friedhelm Finger[1] 1. IEK-5 Photovoltaik, Forschungszentrum Jülich GmbH, D-52425, Jülich, Germany; 2. Institute of Materials Science, TU Darmstadt, D-64287 Darmstadt, Germany	N.P2.8
	New strategies to strongly coupled Ni-molybdenum carbide grafted N-doped carbon architecture for efficient electrocatalysis Debanjan Das, Karuna Kar Nanda Materials Research Centre, Indian Institute of Science, Bangalore-560012, INDIA	N.P2.9
	Z-scheme electron transfer of ZnS/ZnIn2S4 heterostructure as a high efficiency photocatalyst for CO2 reduction Amr Sabbah, Indrajit Shown, Fang-Yu Fu, Li-Chyong Chen, Kuei-Hsien Chen Molecular Science and Technology Program, Taiwan International Graduate Program, Academia Sinica and National Tsing Hua University, Taiwan. Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan. Department of Chemistry, National Tsing Hua University, Hsinchu, Taiwan. Center for Condensed Matter Sciences, National Taiwan University, Taiwan, Indrajit Shown Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan, Fang-Yu Fu Center for Condensed Matter Sciences, National Taiwan University, Taiwan, Li-Chyong Chen Center for Condensed Matter Sciences, National Taiwan University, Taiwan, Kuei-Hsien Chen Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan. Center for Condensed Matter Sciences, National Taiwan University, Taiwan	N.P2.10
	The energy balance in a system combining a solar cell with an electrolyzer for water splitting and a battery as back-up storage T. Merdzhanova, S.N. Agbo, K. Welter, O. Astakhov, V. Smirnov, F. Finger, U. Rau Institute of Energy and Climate Research (IEK-5)-Photovoltaics Forschungszentrum Jülich GmbH, 52428 Jülich	N.P2.11
	Photocatalytic effect of UVC with TiO2 Silvana Eigenmann, Lukas Füglister, Loris Laib and Benno Bucher HSR Hochschule für Technik Rapperswil, Oberseestrasse 10, 8640 Rapperswil	N.P2.12
	PEC CO2 conversion methanol synthesis by TiO2 NTs under visible light irradiation Hyun Kim, Bee Lyong Yang School of Materials Science and Engineering, Kumoh National Institute of Technology	N.P2.13

	Bismuth ferrite thin films as photocatalyst for solar water splitting F. Andrei, N.D. Scarisoreanu, N. Enea, V. Ion, A. Moldovan, I. Boerasu, R. Birjgea, M. Dinescu, D. Manica National Institute for Laser, Plasma and Radiation Physics	N.P2.14
	Earth Abundant 1D & 2D nanomaterial sensitized TiO2 nanotube arrays for visible light driven water-splitting Pawan Kumar, Ryan Kisslinger, Ujwal K. Thakur, Kazi M. Alam, Ebru Uzer, Tom Nilges, Karthik Shankar Department of Electrical & Computer Engineering, University of Alberta, Edmonton, AB T6G 1H9, Canada, Department of Chemistry, Technical University of Munich, Lichtenbergstrasse4, 85748 Garching, Germany	N.P2.15

Symposium N Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session XI: Electrocatalysis III : Mihalis Tsampas, Yury V. Kolen'ko		
14:00	**Mechanistic Investigation of Water Oxidation Catalyzed by Manganese Oxide Nanoparticle** Ki Tae Nam Department of Materials Science and Engineering, Seoul National University	N.11.1
14:30	**Activity of Under-coordinated Sites for the Electrochemical Reduction of CO2 with Gold Catalysts – a Structure-Sensitivity Study** Stefano Mezzavilla[1,2], Sebastian Horch[1], Ifan E.L. Stephens[2], Brian Seger[1], Ib Chorkendorff[1] 1. Department of Physics, Technical University of Denmark, DK-2800 Kgs. Lyngby, Denmark; 2. Department of Materials, Imperial College London, Royal School of Mines London SW72AZ, England	N.11.2
14:50	**Unfolding the effect of the O2 and N2 plasma on Hydrogen Evolution reaction of MoS2** Lalita Sharma*, Aditi Halder *School of Basic Sciences, Indian Institute of Technology, Mandi, Himachal Pradesh, India 175005 School of Basic Sciences, Indian Institute of Technology, Mandi, Himachal Pradesh, India 175005	N.11.3
15:05	**Conformal coating of ultrathin Cu on electrospun nano-fibers for three-dimensional electro-conductive networks** Fuze Jiang[1,2], Wenbo Ju[2], Jing Wang[1,2]* 1. Institute of Environmental Engineering, ETH Zurich, Stefano-Franscini-Platz 3, 8093 Zurich, Switzerland; 2. Empa, Swiss Federal Laboratories for Materials Science and Technology, Überlandstrasse 129, 8600 Dübendorf, Switzerland	N.11.4

15:20	**Vertical heterophase Transition-metal dichalcogenides enabling novel catalyst and large-scale monolayer exfoliation** Yonas Assefa Eshete[1], Ling Ning[1], Sera Kim[1], Dohyun Kim[1], Geunwoo Hwang[1], Suyeon Cho[2], Heejun Yang[1]* 1. Department of Energy Science, Sungkyunkwan University, Suwon 16419, Korea; 2. Division of Chemical Engineering and Materials Science, Ewha Womans University, Seoul 03760, Korea	N.11.5
15:35	**Selective electroreduction of CO2 to C2H4 on thin Cu layers** Ming Ma, Kasper Tipsmark Therkildsen, Sebastian Dalsgaard, Ib Chorkendorff and Brian Seger***** Surface Physics and Catalysis, Department of Physics, Technical University of Denmark, 2800 Kgs Lyngby, Denmark Siemens A/S, RC-DK SI, Diplomvej 378, 2800 Kgs. Lyngby, Denmark	N.11.6
15:50	Coffee Break	
Session XII: Photoelectrocatalysis IV : Salvador Eslava, Jianwu Sun		
16:00	**Engineering photoanodes of TiO2, Fe2O3, and halide perovskite CsPbBr3 for photoelectrochemical solar water splitting** Salvador Eslava, Miriam Regue, Dominic Walsh, Jifang Zhang, Isabella Poli, Ulrich Hintermair, Petra J. Cameron Department of Chemical Engineering, University of Bath, UK Department of Chemistry, University of Bath, UK. Centre for Sustainable Chemical Technologies, University of Bath, UK	N.12.1
16:20	**Anodic metal oxides for photoelectrochemical water splitting** Grzegorz D. Sulka, Karolina Syrek, Joanna Kapusta-Kołodziej, Leszek Zaraska, Marta Zych, Karolina Gawlak, Krystyna Mika, Monika Sołtys Jagiellonian University, Faculty of Chemistry, Department of Physical Chemistry and Electrochemistry, Gronostajowa 2, 30387 Krakow, Poland	N.12.2
16:40	**Enhanced photocatalytyc water spliting on a single crystalline Ta3N5 nanorods** Yuriy Pihosh, Tsutomu Minegishi, Masao Katayama, Taro Yamada, Tomohiro Higashi, Yutaka Sasaki and Kazunari Domen Department of Chemical System Engineering, Graduate School of Engineering, The University of Tokyo, 7-1-1 Hongo, Bunkyu-ku, 113-8656, Tokyo, Japan	N.12.3
16:55	**Inverted Configuration of Copper-Indium-Gallium-Sulfide and Indium Sulfide Heterojunctions on ZnO Nanocrystals for Photoelectrochemical Solar Cells** Cigdem Tuc Altaf, Nazire Simay Sahsuvar, Ozlem Coskun*, Emine Karagöz, Mehmet Sankir, Nurdan Demirci Sankir TOBB University of Economics and Technology, Materials Science and Nanotechnology Engneering	N.12.4

17:10	**Production of solar hydrogen from water via photoelectrochemical route using heterostructures of bismuth and lanthanum ferrites** F. Andrei, N.D. Scarisoreanu, N. Enea, V. Ion, A. Moldovan, I. Boerasu, R. Birjgea, M. Dinescu, D. Manica National Institute for Laser, Plasma and Radiation Physics	N.12.5
17:25	**Band structure regulated semiconductor heterostructural construction and investigation of photocatalytic performance** Deqiang Feng Qiao Xusen Laboratory, China Academy of Space Technology, Beijing, China	N.12.6
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium N Program

Thursday, September 19 th, 2019

08:55	Opening remarks	
Session XIII: MEAs and Electrolyzers : Lifeng Liu, Stefano Mezzavilla		
08:30	**Emerging materials for acidic and alkaline zero-gap water electrolysis** F.M. Sapountzi, J.W. Niemantsverdriet SynCat@DIFFER, Syngaschem BV, P.O. Box 6336, 5600 HH, Eindhoven, The Netherlands, www.syngaschem.com	N.13.1
09:00	**Interface Engineering in Nanostructured Transition Metal Phosphide/Boride Electrocatalysts for Electrochemical Water Splitting** Yury V. Kolen'ko International Iberian Nanotechnology Laboratory, Av. Mestre José Veiga, 4715-330 Braga, Portugal, e-mail: yury.kolenko@inl.int	N.13.2
09:20	**Hydrogen generation with polymer electrolyte membranes water photoelectrolyzers: from materials selection to device construction** Roberto Gómez Universitat d'Alacant, Departament de Química Física i Institut Universitari d'Electroquímica, Spain	N.13.3
09:35	**From catalysts and active materials to MEAs for fuel cell and water electrolysis and their electrochemical characterization** Bernd Oberschachtsiek, Volker Peinecke, Ivan Radev, Sebastian Stypka Zentrum für BrennstoffzellenTechnik GmbH - The Hydrogen and Fuel Cell Center	N.13.4
09:50	**New Avenues to MOF-Derived Cobalt Chalgogenides for Efficient Electrocatalysis** Debanjan Das, Karuna Kar Nanda Materials Research Centre, Indian Institute of Science, Bangalore-560012, INDIA	N.13.5

10:05	**Mechanism of high surface area graphenic foam production and its application for electrochemical energy conversion** B. Šmíd[1,2], A. Mufundirwa[2], B.V. Cunning[2,3], M. Watanabe[2], K. Sasaki[2], S.M. Lyth[2,4] 1. Faculty of Mathematics and Physics, Charles University, V Holešovičkách 2, Prague, 18000, Czech Republic; 2. International Institute for Carbon-Neutral Energy Research, Kyushu University, 744 Motooka, Nishi-ku, Fukuoka 819- 0395, Japan; 3. Center for Multidimensional Carbon Materials, Ulsan National Institute of Science and Technology, Ulsan, 89-798, Republic of Korea; 4. Energy2050, Department of Mechanical Engineering, University of Sheffield, The Arts Tower, Sheffield, S10 2TN, UK	N.13.6
10:20	**Synthesis of Cu2ZnSnSxSe4−x (CZTSSe) Nanosheets as an Efficient Pt-Free Counter Electrode for Dye-Sensitized Solar Cells** Mahyar Mohammadnezhad[1], Mimi Liu[2], Gurpreet Singh Selopal[1,3] *, Zhming M. Wang[3], Barry Stansfield[1], Haiguang Zhao[4], Cheng-Yu Lai[2], Daniela R. Radu[2,5], Federico Rosei[1,2] 1. Institut National de la Recherche Scientifique, Centre Énergie, Matériaux et Télécommunications 1650 Boul. Lionel Boulet, Varennes, Québec, J3X 1S2, Canada; 2. Department of Mechanical and Materials Engineering, Florida International University Miami, FL 33174, USA; 3. Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China Chengdu 610054, P. R. China; 4. College of Physics & State Key Laboratory of Bio-Fibers and Eco-Textiles, Qingdao University, Qingdao 266071, P. R. China; 5. Department of Materials Science and Engineering, University of Delaware, Newark, DE 19716, USA	N.13.7
10:35	Coffee Break	
Session XIV: Fuel Cell Catalysts : Grzegorz D. Sulka, Mihalis Tsampas		
11:00	**Nanoporous gold-palladium with high activity and durability for electro-oxidation of ethanol** Keon-U Lee[1,2], Ji Young Byun[2], Hyung-Joon Shin[1]*, Sang Hoon Kim[2]* 1. Ulsan National Institute of Science and Technology, 2. Korea Institute of Science and Technology	N.14.1
11:15	**Development of PGM-Free Catalysts For Microbial Fuel Cells Fed with Agro-Food Industrial Wastewaters** Barbara Mecheri, Alessandra D'Epifanio, Silvia Licoccia Department of Chemical Science and Technologies, University of Rome Tor Vergata, Via della Ricerca Scientifica, 00133 Rome, Italy	N.14.2
11:30	**Tuning product selectivity for electrochemical propene oxidation by alloying Pd with Au** Anna Winiwarter, Soren B Scott, Luca Silvioli, Jan Rossmeisl, Ib Chorkendorff, Brian Seger SurfCat, Department of Physics, Technical University of Denmark, DK, SurfCat, Department of Physics, Technical University of Denmark, DK, Nano-Science Center, Department of Chemistry, University of Copenhagen, DK, Nano-Science Center, Department of Chemistry, University of Copenhagen, DK, SurfCat, Department of Physics, Technical University of Denmark, DK, SurfCat, Department of Physics, Technical University of Denmark, DK	N.14.3

11:45	**Atomic cluster decoration promises oxygen reduction performance of oxide@metal nanocatalyst** Jyh-Pin Chou[1], Kuan-Wen Wang[2], Alice Hu[1] and Tsan-Yao Chen[3,4]* 1. Department of mechanical and biomedical engineering, City University of Hong Kong; 2. Institute of Materials Science and Engineering, National Central University, Taiwan; 3. Department of Engineering and System Science, National Tsing Hua University, Hsinchu 30013, Taiwan; 4. Institute of Nuclear Engineering and Science, National Tsing Hua University, Hsinchu 30013, Taiwan	N.14.4
12:00	**The advanced CeO2 nanoparticle as a radical scavenger to improve fuel cell catalyst and membrane durability** Seongmin Yuk, Dong Wook Lee, Kah-Young Song, Jun Young Kim, Hee-Tak Kim Department of Chemical & Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST), Department of Chemical & Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST), R&D Division, KOLON industries, Inc., R&D Division, KOLON industries, Inc., Department of Chemical & Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST)	N.14.5
12:15	**Rational Design of Carbon Nitride Materials by Supramolecular Preorganization** Jesus Barrio, Menny Shalom Department of Chemistry and Ilse Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, Beer-Sheva 8410501, Israel	N.14.6
12:30	Lunch Break	

Session XV: Photoelectrocatalysis V : Li Song, Vladimir Smirnov

14:00	**Novel Hierarchical Nanostructured Photoanode for Efficient and Stable Solar Water Splitting** Truong-Giang Vo, Yian Tai, Chia-Ying Chiang Department of Chemical Engineering, National Taiwan University of Science and Technology, Taiwan	N.15.1
14:15	**Role of electrodeposited Ni-Mo on the charge transfer mechanism on BiVO4 Photoanodes for Water Oxidation** S. Murcia-López[1], K.R. Tolod[2], M. Biset[1], T. Andreu[1], N. Russo[2], S. Hernández[2,3], J.R. Morante[1,4] 1. Catalonia Institute for Energy Research (IREC), C/ Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs, Spain; 2. Politecnico di Torino, Corso Duca degli Abruzzi, 10129, Turin, Italy; 3. Center for Sustainable Future Technologies (CSF@POLITO), Istituto Italiano di Tecnologia, 10129, Turin, Italy; 4. University of Barcelona, C/ Marti i Franquès 1, 08028 Barcelona, Spain	N.15.2
14:30	**Lead Halide Perovskite-3D ZnO based Photoelectrodes Design for Photoelectrochemical Water Splitting Process** Nurdan Demirci Sankir, Cigdem Tuc Altaf*, Mehrdad Faraji, Mehmet Sankir TOBB University of Economics and Technology, Materials Science and Nanotechnology Engineering	N.15.3

14:45	**Colloidal Quantum Dots Sensitized Carbon Nanotubes-TiO2 Hybrid Nanocomposite for High Efficiency Hydrogen Generation** Gurpreet Singh Selopal[1,2], Mahyar Mohammadnezhad[2], Fabiola Navarro-Pardo[1,2], François Vidal2, Haiguang Zhao[3], Zhiming M. Wang[2], Federico Rosei[1,2] 1. Institute of Fundamental and Frontier Sciences, University of Electronic Science and Technology of China, Chengdu 610054, PR. China; 2. Institute National de la Recherché Scientifique, Centre Énergie, Matériaux et Télécommunications, 1650 Boul. Lionel Boulet, J3X 1S2 Varennes, Québec, Canada; 3. The Cultivation Base for State Key Laboratory, Qingdao University, No. 308 Ningxia Road, Qingdao 266071, PR China	N.15.4
15:00	**Combined photo- and thermocatalytical approach for efficient CO2 hydrogenation** V. Holovanova, J. Morante, T. Andreu Catalonia Institute for Energy Research (IREC)	N.15.5
15:15	**Plasmon-driven photochemical reactions based on two-dimensional molybdenum oxide** Jian Zhen Ou, Yichao Wang, Azmira Jannat, Haijiao Zhang, Xiaoming Wen 1. School of Engineering, RMIT University, Melbourne Australia; 2. Institute of Nanochemistry and Nanobiology, Shanghai University, Shanghai, China; 3. Centre for Micro-photonics, Swinburne University of Technology, Hawthorn, Australia	N.15.6
15:30	Closing Remarks (Poster Award Ceremony)	

Symposium O

Sessions: Room 308a | Main Building

MANUFACTURING:

Towards a green strategy for materials recycling. Two focusing domains: high added materials & CO2 for innovative applications

Symposium Organizers: **Hans FECHT**, Ulm University, Germany

Jacques AMOUROUX, Université Pierre et Marie Curie, France

Veena SAHAJWALLA, Centre for Sustainable Materials Research and Technology (SMaRT), Australia

SYMPOSIUM O TIMETABLE

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(08:50-10:00) Session I</td><td rowspan="3">Plenary Session
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(17:00-17:25) Perspectives
(17:25-18:05) Education strategy for material recycling</td><td>(17:00-17:20) Poster Session
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Symposium O location

Sessions: 308a | Main Building

Symposium O Program

Tuesday, September 17 th, 2019

Session 0: General introduction of the meeting and workshop program : J. Amouroux (E-MRS) & A. Igartua (EUMAT)		
08:30	**General introduction** Jacques Amouroux E-MRS/UPMC	
Session I: Scientific conferences on material recycling : Jacques Amouroux		
08:50	**Toward a change from a wasteful society to a society characterized by a circular economy: Ethical considerations** Jean Pierre Massué	O.1.1
09:10	**Global Carbon Dioxide Recycling for Global Sustainable Development by Renewable Energy** Koji Hashimoto Institute for Materials Research, Tohoku University, Sendai, Japan	O.1.2
09:40	**Materials recycling in the nuclear industry: the challenge and the control** Claude Degueldre Engineering Department, Lancaster University, UK	O.1.3
10:00	Coffee Break	
10:20	**The importance of recycling in critical metal sourcing in Europe** Christian Thomas Terra Nova Development, France	O.1.4
10:40	**Recovery of rare earths elements from used permanent magnets: potential and limitations** Blet V.[1], Miguirditchian M.[1], Penet F.[2], Bouyer E.[2] 1. CEA, DEN, DMRC, F30207 Bagnols sur Cèze cedex, France; 2. CEA, DRT, SBEM, F 38054 Grenoble Cedex 9, France	O.1.5

11:00	**Selective plasma-assisted extraction and refining: application to recycling of tin, indium or tantalum** Frederic Rousseau[1], Jonathan Cramer[1], Frederic Prima[1], Daniel Morvan[1], Alice Bizouard[2] 1. Chimie ParisTech, Institut de Recherche de Chimie Paris, Paris Sciences et Lettres University, Paris, 75006, France. Email: frederic.rousseau@chimie-paristech.fr; 2. Eco-systèmes, Direction Technique, Courbevoie, 92400, France.	O.1.6
11:20	**Effect of ball milling on particles shape and magnetic properties of recycled neodymium-iron-boron magnets** Bartosz Michalski, Mateusz Szymański, Katarzyna Wiercińska, Marcin Leonowicz Warsaw University of Technology, Faculty of Materials Science and Engineering, 141 Woloska St., 02-507 Warsaw, Poland	O.1.7
11:40	**Recycling refractory metals by Layered Double Hydroxide-assisted lixiviation** T. Degabriel, G. Lefevre Institut de Recherche de Chimie Paris, CNRS−Chimie ParisTech, 11 rue Pierre et Marie Curie, 75005 Paris, France	O.1.8
12:00	**Relation between the pre-treatments and the chemical mechanisms for an hydrometallurgical treatment of spent Li-ion battery** Emmanuel Billy, Julie Andrez, Adrien Boulineau Université Grenoble Alpes, F-38000 Grenoble, France and CEA,LITEN, F-38054 Grenoble, France	O.1.9
12:20	**Recovery of Tantalium from printed circuit boards** Florian Sauer, Bum-Ki Choi, Gesa Beck Mairec Eedelmetallgesellschaft mbH; Fraunhofer Applied Research Center for Resource Efficiency, Germany	O.1.10
12:40	ROUND TABLE: materials recycling and circular economy: challenges	
12:45	Lunch Break	
Session II: Workshop EUMAT strategy in the materials area in Europe : Amaya Igartua		
14:00	General introduction: Jacques Amouroux - Amaya Igartua	
14:20	**News in Advanced Materials and Nanotechnologies Program in the EU Commission** Jaroław Piekarski Krajowy Punkt Kontaktowy Programów Badawczych Unii Europejskiej ul. Wawelska 14 02-061 Warszawa	O.2.1
14:40	**Materials in Circular Economy: an overview of German funding initiatives** Jean-François Renault Forschungszentrum Jülich	O.2.2

15:00	**EIT Raw Materials Perspective** Roland Gauss EIT Raw Materials	O.2.3
15:20	**The EuMaT Research Challenges in Circular Economy** Jan Meneve EUMAT responsible of working group on materials for the circular economy	O.2.4
15:40	**The Increase of Materials durability and future of secondary raw materials** Amaya Igartua Fundación TEKNIKER, PARKE TEKNOLOGIKOA, C/ Iñaki Goenaga, 5 - 20600 Eibar, Gipuzkoa (Spain)	O.2.5
16:00	**Materials in circular Economy** Anne Chloe Devic REPSOL SA, Spain	O.2.6
16:20	Coffee Break	
16:40	**The plastic recycling, a problem or an opportunity** Gilles Dennler CT-IPC, France	O.2.7
17:00	Perspectives for green strategic collaborations and innovative recycling proposals in Europe (Possibility to present Pitch for project ideas)	
17:25	Education strategy for materials recycling - Ecole des Mines - Paris Tech - PSL	

Symposium O Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session III: Scientific conferences on material recycling II : Jacques Amouroux		
14:00	**Carbon dioxide challenge and recycling of materials** Jacques Amouroux, Koji Hashimoto UPMC &#8211,EMRS, Tohoku University Japan	O.3.1
14:20	**Investigation of Kinetics and Thermodynamics of recycling Extraction Processes Using a Liquid-Liquid Microfluidic Approach** Jean-Christophe P. Gabriel[1,2], Ange Maurice[2], Johannes Theisen[1], Christophe Penisson[1], Asmae El Maangar[1], Thomas Zemb[1] 1. CEA, France; 2. NTU, Singapore	O.3.2
14:40	**Lead Recycling using Deep Eutectic Solvents** A.K. Ola Hekselman, David J. Payne Department of Materials, Imperial College London, South Kensington Campus, London, UK	O.3.3
15:00	**Highly efficient recycling of epoxy resin using green solvent systems** Yang Peng Institute of electronic engineering, China Academe of Engineering Physics	O.3.4
15:20	**Biowaste-derived carbon black with polyaniline: Recycling to sustainable multifunctional applications** Suman Nandy, Sumita Goswami, Arghya Narayan Banerjee#, Rodrigo Martins, Elvira Fortunato i3N/CENIMAT, Department of Materials Science, Faculty of Science and Technology, Universidade NOVA de Lisboa and CEMOP/UNINOVA, Campus deCaparica, 2829-516, Caparica, Portugal # School of Mechanical Engineering, Yeungnam University, Gyeongsan, 712-749, South Korea	O.3.5

15:40	**Valorization of biogas into liquid hydrocarbons in plasma-catalyze reactor** K. Rahmani, M. Nikravech Laboratoire LSPM-CNRS, Université Paris 13, Université Sorbonne Paris Cité 99 Ave Jean Baptiste Clément 93430 Villetaneuse France Corresponding author: nikravech@lspm.cnrs.fr	O.3.6
16:00	**Insights into two-dimensional MoS2 sheets for enhanced CO2 photoreduction to C1 and C2 hydrocarbon products** R.A. Geioushy *, S.M. El-Sheikh, I.M. Hegazy, Ahmed Shawky, S. El-Sherbiny, Abdel-Hakim T. Kandil Nanomaterials and Nanotechnology Department, Advanced Materials Division, Central Metallurgical R & D Institute (CMRDI), P.O. Box, 87 Helwan, 11421 Cairo, Egypt	O.3.7
16:20	**Wastes from egg and potato industries as raw materials for the development of plastic lightweight fillers** Jéssica D. C. Santos[1], Idalina Gonçalves[1,] Cláudia Nunes[1], Paula Ferreira[2], Manuel A. Coimbra[3] 1. CICECO-Aveiro Institute of Materials, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal ; 2. CICECO-Aveiro Institute of Materials, Department of Materials and Ceramic Engineering, University of Aveiro, 3810-193 Aveiro, Portugal; 3. QOPNA & LAQV-REQUIMTE, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal	O.3.8
16:40	Coffee Break	
17:00	Poster session with the session: 5 min for each poster : Jacques Amouroux	
	The enhanced catalyst conditions for glycolysis process of poly 1,4-cyclohexanedimethyl terephthalate (PCT) - PET derivative Linh Nguyet Thi Ho, Dieu Minh Ngo, Hyun Min Jung* Dept.of Applied Chemistry, Kumoh National Institute of Technology, Yangho-dong 1, Gumi, Korea, Dept.of Applied Chemistry, Kumoh National Institute of Technology, Yangho-dong 1, Gumi, Korea, Dept.of Applied Chemistry, Kumoh National Institute of Technology, Yangho-dong 1, Gumi, Korea	O.P.1
	Thin films of Nickel-Phosphorus deposited by spray pyrolysis using aqueous solution Atsushi Nakano[1], Masato Imai[1], Koki Kamimizutaru[2], Kentaro Sakai[1] and Kenji Yoshino[2] 1. Center for Collaborative Research and Community Cooperation, University of Miyazaki, 1-1 Gakuen Kibanadai-nishi, Miyazaki 889-2192, Japan; 2. Department of Applied Physics and Electronics Engineering, Faculty of Engineering, University of Miyazaki, 1-1 Gakuen Kibanadai-nishi, Miyazaki 889-2192, Japan	O.P.2
	Corrosion monitoring of carbon steel in a typhoon environment Atsushi Nakano[1], Wataru Oshikawa[2], Teppei Koba[3] and Shinya Inoue[3] 1. Center for Collaborative Research and Community Cooperation, University of Miyazaki, 1-1 Gakuen Kibanadai-nishi, Miyazaki 889-2192, Japan; 2. Energy and Environmental Program, School of Engineering, Faculty of Engineering, University of the Ryukyus, 1 Nakagamigun Nishiharachou Senbaru, Okinawa 903-0213, Japan; 3. Department of Mechanical System Engineering, Faculty of Engineering, University of the Ryukyus, 1 Nakagamigun Nishiharachou Senbaru, Okinawa 903-0213, Japan	O.P.3

	Corrosion monitoring for typhoon environment using Atmospheric Corrosion Monitor (ACM) sensor Atsushi Nakano[1], Wataru Oshikawa[2], Teppei Koba[3] and Shinya Inoue[3] 1. Center for Collaborative Research and Community Cooperation, University of Miyazaki, 1-1 Gakuen Kibanadai-nishi, Miyazaki 889-2192, Japan; 2. Energy and Environmental Program, School of Engineering, Faculty of Engineering, University of the Ryukyus, 1 Nakagamigun Nishiharachou Senbaru, Okinawa 903-0213, Japan; 3. Department of Mechanical System Engineering, Faculty of Engineering, University of the Ryukyus, 1 Nakagamigun Nishiharachou Senbaru, Okinawa 903-0213, Japan	O.P.4
Session IV: General conclusion and world innovation processes : J. Amouroux		
17:20	**Industrial developments for recycling processes: Carbon dioxide recycling and waste treatment of gases** J. Amouroux, S.Dresvin, K. Hashimoto E-MRS / UPMC	O.4.1
17:40	ROUND TABLE: recycling and circular economy, green processes and collaborative strategy: a dream or a challenge for the scientists and the education in chemical engineering and a more innovative Europe between Scientists and Industry	

Symposium P

Sessions: Room 206 | Main Building
Poster Session: Main Aula | Faculty of Physics Building

MANUFACTURING:

3D printing and additive manufacturing for the industry of the future

Symposium Organizers: **Ambroise VANDEWYNCKELE**, AIMEN, Spain
Claude BARLIER, CIRTES, France
Jean-Paul GAUFILLET, IREPA LASER – Institut Carnot MICA, France
Thierry DORMAL, SIRRI, Belgium

SYMPOSIUM P TIMETABLE

Symposium P				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30	(08:30-10:40) Session I	Session VI	Plenary Session 09:00-12:30	
10:30 – 11:00	Coffee Break			
11:00 – 12:30	(11:10-12:20) Session II	(11:00-12:50) Session VII		
12:30 – 14:00	Lunch Break			
14:00 – 15:30	(14:00-15:50) Session III	(14:00-16:00) Session VIII		
15:30 – 16:00	Coffee Break			
16:00 – 17:30	(16:00-17:40) Session IV			
17:30 – 19:30	(18:00-19:30) Poster Session		Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium P location

Sessions: 206 | Main Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium P Program

Monday, September 16 th, 2019

Session I: 3D Micro and Nanoprinting : Cyril Pelaingre

08:30	**3D & 4D MicroPrinting by Two Photon Stereolithography** Arnaud Spangenberg Université de Haute-Alsace, CNRS, Institut de Science des Matériaux de Mulhouse (IS2M-UMR 7361), Mulhouse, France	P.1.1
09:00	**3D-printed polymer-based microsensor for the resistive measurement of volatile organic compounds** Jean Schmitt, Jing Wang ETH Zürich - Institute of Environmental Engineering , EMPA - Advanced Analytical Technologies	P.1.2
09:20	**3D Nano-Thermistor for AFM Based Thermal Nanoprobing** J. Sattelkow[1], J. Fröch[2], R. Winkler[1], C. Schwalb[3], S. Hummel[3], H. Plank[1,2,4] 1. Christian Doppler Laboratory - DEFINE, Graz University of Technology, 8010 Graz, Austria; 2. Institute of Electron Microscopy and Nanoanalysis, Graz University of Technology, 8010 Graz, Austria; 3. GETec Microscopy Inc. & SCL Sensor. Tech. Fabrication Inc., 1220 Vienna, Austria; 4. Graz Centre of Electron Microscopy, 8010 Graz, Austria	P.1.3
09:40	**Expanding the Flexibility of 3D Nano-Printing via Focused Electron Beams: From Meshes Towards Closed 3D Nano-Architectures** Anna Weitzer[1], Harald Plank[1,2,3] 1. Institute of Electron Microscopy and Nanoanalysis, Graz University of Technology, 8010 Graz, Austria; 2. Christian Doppler Laboratory - DEFINE, Institute of Electron Microscopy, Graz University of Technology, 8010 Graz, Austria; 3. Graz Centre for Electron Microscopy, 8010 Graz, Austria	P.1.4
10:00	**3D Nanoprinting with electron beams – Growth Characteristics, Simulations and Applications** R. Winkler[1], J. Sattelkow[1], J. D. Fowlkes[2,3,4], P. D. Rack[2,3,4] and H. Plank[1,5,6] 1. Christian Doppler Laboratory - DEFINE, Graz University of Technology, 8010 Graz, Austria; 2. Bredesen Center for Interdisciplinary Research, The University of Tennessee, Tennessee 37996, United States, (3) Nanofabrication Research Laboratory, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Tennessee 37831, United States; 4. Materials Science and Engineering Department, The University of Tennessee, Tennessee 37996, United States; 5. Graz Centre for Electron Microscopy, 8010 Graz, Austria; 6. Institute of Electron Microscopy and Nanoanalysis, Graz University of Technology, 8010 Graz, Austria	P.1.5

10:20	**Enhanced sensitivity of colorimetric detection in an integrated microfluidic chip fabricated using two-photon lithography** Jiukai Tang[1,2], Guangyu Qiu[1,2], Schmitt Jean[1,2], Jing Wang[1,2]* 1. Institute of Environmental Engineering, ETH Zürich, Zürich 8093, Switzerland; 2. Laboratory for Advanced Analytical Technologies, Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf 8600, Switzerland	P.1.6
10:40	Coffee Break	
Session II: 3d Micro and Nanoprinting : Arnaud Spangenberg		
11:10	**Environmental Challenges for 4D Printing in Space** A. Mitchell, M. Holynska, U. Lafont, C.O.A. Semprimoschnig ESA	P.2.1
11:40	**The influence of substrate temperature during focused electron beam induced deposition (FEBID)** J.W. Hinum-Wagner[1], R. Winkler[1], G. Birnstingl[2,3], H. Plank[1,2,3] 1. Christian Doppler Laboratory - DEFINE, Graz University of Technology, 8010 Graz, Austria; 2. Institute of Electron Microscopy and Nanoanalysis, Graz University of Technology, 8010 Graz, Austria; 3. Graz Centre of Electron Microscopy, 8010 Graz, Austria	P.2.2
12:00	**Parallelization of Two Photon induced Photopolymerization for high speed micropattern fabrication** Francisco Gontad, Sara Vidal, Nerea Otero, Pablo Romero AIMEN Technology Centre, O Porriño, ES36418, Pontevedra, Spain	P.2.3
12:20	Lunch Break	
Session III: Direct Energy Deposition Manufacturing : Didier Boisselier		
14:00	**New advanced wire and arc additive manufacturing process** Filomeno Martino Welding Engineering and Laser Processing Centre Cranfield University, Bedfordshire, MK43 0AL	P.3.1
14:30	**Microstructure-property correlations of LENS processed NiTi shape memory alloy** Lakhindra Marandi[1], Sujith Kumar S[1], Vamsi K. Balla[2,4], Sandip Bysakh[2], David Piorunek[3], Gunther Eggeler[3], Mitun Das, Indrani Sen[1] 1. Department of Metallurgical and Materials Engineering, Indian Institute of Technology Kharagpur, India; 2. Bioceramics and Coating Division, CSIR – Central Glass and Ceramic Research Institute, Kolkata, India; 3.Institute for Materials, Ruhr-University Bochum, Bochum, Germany; 4.Materials Innovation Guild, Department of Mechanical Engineering, University of Louisville, Louisville, KY 40208, USA	P.3.2

14:50	**Direct Laser Additive Manufacturing of TiAl Intermetallic Compound by Powder Directed Energy Deposition (DED)** Damien Choron[1], Serge Naveos[2], Marc Thomas[2], Didier Boisselier[1], Johan Petit[2] 1. IREPA LASER, Parc d'Innovation, 67400 Illkirch, France; 2. ONERA, DMAS, The French Aerospace Lab, Université Paris-Saclay, 92322 Châtillon, France	P.3.3
15:10	**Numerical Simulation for Directed Energy Deposition (DED-CLAD®) Additive Manufacturing Process** Vaibhav Nain, Muriel Carin, Thierry Engel, Didier Boisselier, Christophe Cordier IREPA LASER, Parc d'Innovation, 67400 Illkirch, France, Univ. Bretagne Sud, UMR CNRS 6027, IRDL, F-56100 Lorient, France, Institut National des Sciences Appliquées, 67000 Strasbourg, France, IREPA LASER, Parc d'Innovation, 67400 Illkirch, France, Institut National des Sciences Appliquées, 67000 Strasbourg, France	P.3.4
15:30	**Effect of path planning and process parameters on mechanical properties and microstructure of laser metal deposited 316L** Marcos Diez, Sara Carracelas, Camilo Prieto, Carlos Gonzalez, Pilar Rey Advanced Manufacturing Processes Area (AIMEN Technology Centre), Robotics and Control Area (AIMEN Technology Centre)	P.3.4
15:50	Coffee Break	
Session IV: Advanced Power Bed Fusion : Ambroise Vandewynckèle		
16:00	**High-Speed Online Process Monitoring during Laser Powder Bed Fusion of AlSi10Mg** Artur Leis[1,2], Rudolf Weber[1], Thomas Graf[1] 1. Institut für Strahlwerkzeuge (IFSW); 2. Graduate School of Excellence Advanced Manufacturing Engineering	P.4.1
16:30	**Component and system devlopment for Selective Laser Melting** Sebastian Bremen ILT Fraunhofer	P.4.2
17:00	**Chemical polishing of metal parts manufactured by Selective Laser Melting (SLM)** Agnieszka Chmielewska[1,2], Bartłomiej Wysocki[1,2], Wojciech Święszkowski[1] 1. Warsaw University of Technology, Faculty of Materials Science and Engineering, Wołoska 141 Str., Warsaw, Poland; 2. MaterialsCare, LLC, Zwierzyniecka 10/1, 15-333 Bialystok, POLAND	P.4.3
17:20	**A lightweight electromagnetic actuator for HVDC power grids** Francisco García Ferré, Axel Johansson, Jakub Korbel, Lorenz Herrmann, Tobias Erford, Uwe Riechert ABB Corporate Research, Segelhofstrasse 1K, 5405 Baden-Daettwil, Switzerland	P.4.4

18:00 Poster Session: Eric Fogarassy

	The status of the centrifugal atomization technology for the spherical fine powder at KAERI Kyuhong Lee, Jonghwan Kim, Jae Jun Hwang, Eung Soo Kim, Ki Nam Kim, Sunghwan Kim, Yong Jin Jeong, Jong Man Park Korea Atomic Energy Research Institute	P.P.1
	3D Nano-Thermistors for AFM-Based Thermal Probing J. Sattelkow[1], J. Fröch[2], R. Winkler[1], C. Schwalb[3], S. Hummel[3], H. Plank[1,2,4] 1. Christian Doppler Laboratory - DEFINE, Graz University of Technology, 8010 Graz, Austria; 2. Institute of Electron Microscopy and Nanoanalysis, Graz University of Technology, 8010 Graz, Austria; 3. GETec Microscopy Inc. & SCL Sensor. Tech. Fabrication Inc., 1220 Vienna, Austria, 4) Graz Centre of Electron Microscopy, 8010 Graz, Austria	P.P.2
	3D printing and its characterization using organic-inorganic hybrid materials above 350ºC Kyung-Hyun Kim*, Kyu-Sung Lee, Ji-Young Oh, Yong-Seok Yang and Hyun-Cheol Bae Electronics and Telecommunications Research Institute (ETRI) 218 Gajeongno, Yuseong-gu, Daejeon, 34129, South Korea	P.P.3
	X-ray tomography analysis for recycleability of metallic powder in additive Manufacturing process Nima E. Gorji, Rob O'Connor, Dermot Brabazon I-Form advance Manufacturing Research Centre, Dublin City University, Dublin 9, Ireland	P.P.4
	The influence of architecture and thermal treatment on crystallinity of the 3D printed polyetheretherketone (PEEK) A. Czajka[1,2], B. Wysocki[1,2], M. Gloc[1], W. Święszkowski[1] 1. Warsaw University of Technology, Faculty of Materials Science and Engineering, Wołoska 141 Str., Warsaw, Poland; 2. MaterialsCare, LLC, Zwierzyniecka 10/1, 15-333 Bialystok, POLAND,	P.P.5
	Laser technology to repair defects in sanitary ceramic ware B.F.R. Silva[1,] N.M. Ferreira[1], J. Carneiro[2], C.M.S. Freitas[1], R. Santos[3], M.P. Seabra[2], A.J.S. Fernandes[1], F.M. Costa[1]* 1. I3N & Physics Department, University of Aveiro, Aveiro, Portugal; 2. CICECO & Materials and Ceramic Eng. Department, University of Aveiro, Aveiro, Portugal; 3. Technological Center Ceramic and Glass, Antanhol, Coimbra, Portugal	P.P.6
	An experimental investigation of the damage formation of 3D printed gears Musa Yilmaz*, Necip Fazıl Yilmaz, Ali Kiliç Gaziantep University, Faculty of Engineering, Department of Mechanical Engineering, Turkey *msyilmaz@gantep.edu.tr	P.P.7

	Inkjet-printed rectifying diodes on conductive nanopaper substrates Silvia Conti[1], Carme Martinez-Domingo[1], Fabiola Vilaseca[2], Lluís Terés[1], Eloi Ramon[1] 1. Institut de Microelectrònica de Barcelona, IMB-CNM (CSIC), Carrer dels Til·lers, 08193, Cerdanyola del Vallès, Barcelona, Spain; 2. Department of Chemical Engineering, Agricultural and Food Technology, Universitat de Girona, Maria Aurèlia Capmany 61, 17003, Girona, Spain	P.P.8

Symposium P Program

Tuesday, September 17 th, 2019

Session VI: Opportunities offering by 3D printing : Filomeno Martina		
09:00	**Unconventional processes for the manufacture / production of ceramic technical parts** Alain Bierneaux Optec	P.6.1
09:30	**Novel paste formulating strategy for high densification of 3D-direct-nozzle-printed ceramic structures** Taekyu An, Jihoon Kim Division of Advanced Materials Engineering, Kongju National University	P.6.2
09:50	**Soft by Design: Thermoplastic Elastomers for 3D Printing** Vahid Asadi, Thomas E. Kodger, Jasper van der Gucht Physical Chemistry and Soft Matter, Wageningen University and Research, Stippeneng 4, 6708WE Wageningen, The Netherlands	P.6.3
10:10	**Ecological and sustainable 3D printing through agrofood and rubber tire wastes recycling** Idalina Gonçalves[#1], Marta Rocha[#1], Tiago L. Águeda[#1], Bernardo Amorim[#2], Pedro Duarte[#2], André Santos[#2], Manuel A. Coimbra[#3], Paula M. Vilarinho[#2], Paula Ferreira[#3] 1. CICECO - Aveiro Institute of Materials, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal; 2. CICECO - Aveiro Institute of Materials, Department of Materials and Ceramic Engineering, University of Aveiro, 3810-193 Aveiro, Portugal; 3. QOPNA & LAQV/REQUIMTE, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal	P.6.4
10:30	Coffee Break	
Session VII: Material approach for 3D printing : Arthur Leis		
11:00	**Numerical Simulation applied to additive fabrication** Michel Bellet Mines Paristech	P.7.1

11:30	**Manufacture of functionally graded porous polymers using three-dimensional printing** Joon Hyeok Jang, Woong-Ryeol Yu Department of Material Science and Engineering and Research Institute of Advanced Materials (RIAM), Seoul National University	P.7.2
11:50	**New materials for additive manufacturing of optical components– From DLP to inkjet** M. Klein, S. Suresh Nair, S. Steenhusen, A. Heinrich, G. Domann, P. Löbmann Fraunhofer ISC Würzburg, Hochschule Aalen	P.7.3
12:10	**Effect of layer thickness and raster angle on mechanical properties of 3D-printed polycarbonate and polyetherimide polymers** Musa Yilmaz*, Necip Fazıl Yilmaz, Ömer Eyercioğlu Gaziantep University, Faculty of Engineering, Department of Mechanical Engineering, Turkey *msyilmaz@gantep.edu.tr	P.7.4
12:30	**Hybrid organic-inorganic photopolymers for multiphoton 3D nanolithography** Linas Jonusauskas[1,2], Darius Gailevi&#269,ius[1,2], Greta Merkininkaite[1,3], Dovile Andrijec[1,2], Tomas Baravykas[1] and Simas Sakirzanovas[1,3] 1. Femtika, Sauletekio Ave. 15, Vilnius LT-10224, Lithuania; 2. Laser Research Center, Physics Faculty, Vilnius University, Sauletekio Ave. 10, Vilnius LT-10223, Lithuania; 3. Faculty of Chemistry and Geoscience, Vilnius University, Naugarduko str. 24, Vilnius LT-03225, Lithuania	P.7.5
12:50	Lunch Break	

Session VIII: New opportunities for better additive manufacturing : Michel Bellet

14:00	**Mechanical Modelling and additive fabrication** Philippe Bauer Thales Global Services	P.8.1
14:30	**A new design concept in Design For Additive Manufacturing: a continuous and integrated software platform for stratoconception process** Cyril Pelaingre, Claude Barlier, Benoit Delebecque CIRTES	P.8.2
15:00	**On the chemical ageing of super-hydrophobic laser textured metallic surfaces** Thierry Engel[1,2], Ronny Elleb[1,3], Adeline Prévot[1], Frédéric Mermet[1] 1. INSA Strasbourg, 24 blvd de la Victoire, 67084, Strasbourg cedex, France; 2. IREPA-LASER, Parc d'Activités, 67400 Illkirch, France; 3. IMMM, CNRS UMR 6120, Le Mans Université, Le Mans, France	P.8.3

15:20	**Direct Ink Writing of Wireless Power Transfer module with single and multi-layered devices on highly curved surfaces** Kaveti Rajaram, Jihoon Kim Kongju National University, Kongju National University	P.8.4
15:40	**Low cost 3D printing of advanced ceramics** Dr. Gurdial Blugan, Dr. Alexandre Guiller, Samuel Clark Ligon Empa, Laboratory for High Performance Ceramics	P.8.5
16:00	End of symposium	

Symposium Q

Sessions: Room 329 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

FUNDAMENTALS:

Nanoparticles: advances in synthesis, characterization, theoretical modelling and applications

Symposium Organizers: **Luca PASQUINI**, University of Bologna, Italy
Patricia ABELLAN, Institute of Materials Jean Rouxel, CNRS - UMR 6502, France
Petra DE JONGH, Utrecht University, The Netherlands
Petra SZILAGYI, Queen Mary University of London, U.K.

SYMPOSIUM Q TIMETABLE

Symposium Q				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30	Session I	(09:00-10:20) Session V	Plenary Session 09:00-12:30	Session XI
10:30 – 11:00	Coffee Break			Coffee Break
11:00 – 12:30	(11:00-12:45) Session II	(11:00-12:15) Session VI		(11:00-12:15) Session XII
12:30 – 14:00	Lunch Break			
14:00 – 15:30	Session II	Session VII	Session IX	
15:30 – 16:00	Coffee Break			
16:00 – 17:30	Session IV	Session VIII	(16:00-17:15) Session X	
17:30 – 19:30	Poster Session I	Poster Session II	Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium Q location

Sessions: 329 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium Q Program

Monday, September 16 th, 2019

Session I: Synthesis I - Physical Methods : Luca Pasquini

09:00	**Magnetic properties of nanocomposite thin films prepared with size-selective cluster-ion beam deposition** T. Reisinger, C. Benel, G. Iankevich, N. Gack, R. Witte, D. Wang, L. Estrada, R. Kruk, H. Hahn Karlsruhe Institute of Technology, Karlsruhe Institute of Technology, Karlsruhe Institute of Technology, Karlsruhe Institute of Technology, Karlsruhe Institute of Technology, Karlsruhe Institute of Technology, Karlsruhe Institute of Technology, Karlsruhe Institute of Technology, Karlsruhe Institute of Technology	Q.1.1
09:30	**Synthesis and Applications of Triangular Ag Nanoplates Obtained by Pulsed Laser Ablation followed by Light Irradiation** V. Scardaci, M. Condorelli, M. Pulvirenti, G. Compagnini Università degli Studi di Catania, Dipartimento di Scienze Chimiche, V.le A. Doria 6, 95125 Catania (Italy)	Q.1.2
09:45	**Gas Phase Electrodeposition Enabling the Localized Growth of Metallic Microfilms and Nanostructures from Nanoparticles** Leslie Schlag, Nishchay A. Isaac, Helene Nahrstedt, Johannes Reiprich, Jörg Pezoldt, Heiko O. Jacobs Fachgebiet Nanotechnologie Institut für Mikro- und Nanotechnologien Gustav-Kirchhoff-Str. 7 98693 Ilmenau Germany	Q.1.3
10:00	**Magnetic Nanoparticle produced by Laser Ablation** A. Morone[1,2], L. Allocca[2], U. Gambardella[3], G. Gentile[4], E. Sieni[5] and M. Forzan 1. Consiglio Nazionale delle Ricerche ? Istituto di Struttura della Materia U.O. di Tito Scalo, Zona Industriale di Tito Scalo, I85050, Italia; 2. Istituto Motori, Viale Marconi 8, Napoli, I80125 Italia; 3. Istituto Nazionale di Fisica Nucleare, Sez. di Napoli, Via Cinthia, Napoli I80125 Italia; 4. Consiglio Nazionale delle Ricerche-Istituto per i Polimeri Compositi e Biomateriali, Via Campi Flegrei 34, I80078 Pozzuoli (Na) Italia; 5. Università dell?INSUBRIA, Dip. Scienze Teoriche e Applicate, via J.H. Dunant 3 ? Varese I21100 ItaliaUniversità degli Studi di Padova ? Dipartimento Ingegneria Industriale, Via G. Gradenigo 6A, Padova, I35131 Italia	Q.1.4
10:15	**Enhanced SERS Activity from Scattering-mediated Absorption in Heterogeneous Nanoparticle Assemblies in Diblock Copolymer Micelle** Maulida Zakia, Seong Il Yoo Department of Polymer Engineering, Pukyong National University, Busan, South Korea	Q.1.5

10:30	Coffee Break	
Session II: Synthesis II - Chemical Methods : Laura Prati		
11:00	**Bimetallic particles prepared via colloidal routes: synthesis and application** Laura Prati Università degli Studi di Milano - Chemistry Department	Q.2.1
11:30	**Mechanistic insights on fast microwave-assisted polyol synthesis of silver nanoparticles with controlled size** Miquel Torras, Anna Roig Institut de Ciència de Materials de Barcelona, CSIC, Carrer dels Til·lers s/n, 08193 Bellaterra, Spain , Institut de Ciència de Materials de Barcelona, CSIC, Carrer dels Til·lers s/n, 08193 Bellaterra, Spain	Q.2.2
11:45	**Liquid Crystalline Titanium Dioxide Nanorods: From Highly Monodisperse Nanocrystals to Self-assembled Architectures in Bulk** Seyed Naveed Hosseini, Arnout Imhof, Patrick Baesjou, Alfons van Blaaderen Soft Condensed Matter, Debye Institute for Nanomaterials Science, Utrecht University, The Netherlands	Q.2.3
12:00	**In search of Germanium Quantum Dots with predictable properties: synthesis, surface chemistry and composition** Jonathan G. C. Veinot, Md Asjad Hossain Department of Chemistry, University of Alberta, Edmonton, Alberta, Canada, T6G2G2	Q.2.4
12:15	**High-Throughput Synthesis of Polymeric Nanoparticles Using a Coaxial Turbulent Jet Mixer** Jong-Min Lim Department of Chemical Engineering, Soonchunhyang University	Q.2.5
12:30	**A simple high throughput synthesis of silver nanowires with almost no by-products** Matteo Parente, Andrea Baldi DIFFER - Dutch Institute for Fundamental Energy Research	Q.2.6
12:45	Lunch Break	
Session III: Carbon and Hybrid Nanomaterials : Claudia Zlotea		
14:00	**Sustainable carbon materials** Magdalena Titirici Imperial College London	Q.3.1

14:30	**Design of ovalbumin-loaded mesoporous silica nanoparticles as PoC for the development of personalized anti-cancer nanovaccines** Stephanie Seré*, Stefaan Van Gool, Jin Won Seo, Sandra Jacobs, Ilse Lenaerts, Jean-Pierre Locquet Functional Nanosystems, Department of Physics and Astronomy, KU Leuven, Leuven Belgium, Immunologisch Onkologisches Zentrum, Köln, Germany, Surface and Interface Engineered Materials, Department of Materials Engineering, KU Leuven, Leuven, Belgium, Department of Oncology, Pediatric oncology, UZ Leuven, Leuven, Belgium, Functional Nanosystems, Department of Physics and Astronomy, KU Leuven, Leuven Belgium, Functional Nanosystems, Department of Physics and Astronomy, KU Leuven, Leuven Belgium	Q.3.2
14:45	**Immobilized lignin-capped silver nanoparticles in a multifunctional polyurethane foam dressing for chronic wound treatment** A. Gala Morena, Ivaylo Stefanov, Kristina Ivanova, Sílvia Pérez-Rafael, Tzanko Tzanov Grup de Biotecnologia Molecular i Industrial (GBMI), Department of Chemical Engineering, Universitat Politècnica de Catalunya, Rambla Sant Nebridi, 22, Terrassa, Barcelona, Spain.	Q.3.3
15:00	**Reinterpretation of single-wall carbon nanotubes: helical structure and electronic properties** Jae-Kap Lee Opto-Electronic Materials and Devices Research Center, Korea Institute of Science and Technology (KIST), Seoul 02792, Republic of Korea	Q.3.4
15:15	**Nano Spray Dried Block Copolymer Nanoparticles and Their Transformation into Hybrid and Inorganic Nanoparticles** Inbal Weisbord[1], Neta Shomrat[1], Hen Moshe[2], Alejandro Sosnik[2], Tamar Segal-Peretz[1] 1. Department of Chemical Engineering, Technion ? Israel Institute of Technology; 2. Department of Materials Science and Engineering, Technion ? Israel Institute of Technology,	Q.3.5
15:30	Coffee Break	
Session IV: Structure-Size-Property Relationships : Tanja Kallio		
16:00	**Structure of nanoconfined particles using atomic pair distribution function analysis** Hyunjeong Kim National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki 305-8569, JAPAN	Q.4.1
16:30	**Estimation of size of TiO2 nanopowder particles by means of combination of Debye equation and Scherrer formula** Aleksandra Bokuniaeva, Andrey Vorokh Institute of Solid State Chemistry of the Ural Branch of the Russian Academy of Sciences, Ekaterinburg, 620990, Russia, Institute of Natural Sciences and Mathematics, Ural Federal University, Ekaterinburg, 620002, Russia	Q.4.2

16:45	**Surface effects in crystalline silicon nanoparticles: lattice strain, (non-)radiative recombination, and origin of luminescence** Bruno P. Falcão[1]*, Joaquim P. Leitão[1], Maria R. Soares[2], Joana Rodrigues[1], Lídia Ricardo[3], Rodrigo Martins[3], Hugo Águas[3], Rui N. Pereira[1,4] 1. Departamento de Física & I3N, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal; 2. Laboratório Central de Análises, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal; 3. CENIMAT/I3N, Departamento de Ciência dos Materiais, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, CEMOP-UNINOVA, 2829-516 Caparica, Portuga; 4. Walter Schottky Institut and Physik-Department, Technische Universität München, Am Coulombwall 4, 85748 Garching, Germany * Corresponding author: bfalcao@ua.pt	Q.4.3
17:00	**Trackin the Properties of Oxides from Nanoparticle to Bulk** Stefan T. Bromley 1. Institut de Química Teòrica i Computacional de la Universitat de Barcelona (IQTC-UB) & Departament de Ciència de Materials i Química Física de la Universitat de Barcelon, 08028 Barcelona, Spain; 2. Institució Catalana de Recerca i Estudis Avançats (ICREA), 08010 Barcelona, Spain	Q.4.4
17:15	**Catalytic action and antimicrobial properties of mechanochemically prepared cellulose-based nanocomposites** Joanna Kwiczak-Yigitbasi[1], Recep Erdem Ahan[2], Bilge Baytekin[1,2] 1. Chemistry Department, Bilkent University, 06800, Ankara, TURKEY; 2. UNAM, Bilkent University, 06800, Ankara, TURKEY	Q.4.5
17:30	Poster Session I: Synthesis and Theory : Luca Pasquini and Petra Szilagyi	
	Fabrication of single crystalline nano-porous Gold nanowhiskers Swayam Prakash Sahoo, Gunther Richter Thin films laboratory, Central Scientific facility, Max Plank Institute for Intelligent systems, Stuttgart	Q.P1.1
	Hydrothermally synthesized Li-doped zinc oxide nanowires for multifunctional flexible sensor Sung-Ho Shin[1], Junghyo Nah[1], Min Hyung Lee[2] 1. Chungnam National University, Daejeon 34134, Korea; 2. Kyung Hee University, Yongin 17104, Korea	Q.P1.2
	Study of the segregation of oxygen in the small vacancies clusters in solid nickel Kahina Lounis, El Hocine Megchiche, Hand Zenia Laboratoire de Physique et Chimie Quantique (LPCQ), Université Mouloud Mammeri, BP 17, 15000 Tizi-Ouzou, Algérie	Q.P1.3
	The molecular dynamics simulation on the mechanical properties of Ni glass with external pressure Liwu Jiang, Chuanhui Zhang, Peng Shi National Center for Materials Service Safety, University of Science and Technology Beijing, Beijing 10083, China	Q.P1.4

	Synthesis of MCM-41-type organosilica materials in the presence of indicator azo dyes N.V. Roik, L.A. Belyakova, M.O. Dziazko Chuiko Institute of Surface Chemistry of NAS of Ukraine	Q.P1.5
	Facile synthesis of anisotropic gold-silver alloy nanoboxes towards multiplexed cancer biomarker detection Junrong Li[1], Guannan Zhang[2], Jing Wang[1], Yadveer S. Grewal[1], Jiming Hu[2], Aiguo Shen[2]*, Yuling Wang[3]*, Matt Trau[1]* 1. Centre for Personalized Nanomedicine, Australian Institute for Bioengineering and Nanotechnology (AIBN), The University of Queensland, Brisbane, Queensland 4072, Australia; 2. Key Laboratory of Analytical Chemistry for Biology and Medicine (Ministry of Education), College of Chemistry and Molecular Sciences, Wuhan University, Wuhan 430072, P. R. China; 3. Department of Molecular Sciences, Australian Research Council Centre of Excellence for Nanoscale BioPhotonics, Faculty of Science and Engineering, Macquarie University, Sydney, New South Wales 2109, Australia	Q.P1.6
	Vacancy Charged Defects in Two-Dimensional GaN Roberto González[1], William López-Pérez[1], Álvaro González-García[1], María G. Moreno-Armenta[2], Rafael González-Hernández[1] 1. Grupo de Investigación en Física Aplicada. Departament of Physics, Universidad del Norte, Barranquilla, Colombia; 2. Centro de Nanociencias y Nanotecnología, Universidad Nacional Autonoma de Mexico, Ensenada B.C. Mexico	Q.P1.8
	Lead-Free Perovskite Nanocrystals for Blue and Green Light-Emitting Diodes Parth Vashishtha, Gautam, Yanan Fang, Xin Yu Chin, Alasdair Angus Macintyre Brown, Annalisa Bruno, Nripan Mathews, Subodh G. Mhaisalkar, Timothy J. White 1. School of Materials Science and Engineering, Nanyang Technological University (NTU), 50 Nanyang Avenue, Singapore 639798, Republic of Singapore; 2. Energy Research Institute @ NTU (ERI@N), Research Techno Plaza, X-Frontier Block, Level 5, 50 Nanyang Drive, Singapore, 637553, Republic of Singapore	Q.P1.9
	Ab initio calculations of ReO3 (001) as well as ABO3 perovskite (001), (011) and (111) nano-surfaces, interfaces and defects R.I. Eglitis, J. Purans and J. Gabrusenoks Institute of Solid State Physics, University of Latvia, 8 Kengaraga str., Riga LV1063, Latvia	Q.P1.10
	Derivation of a Structural Zone Model for Nickel and Ruthenium Layers Deposit by Nanoparticles formed in a Spark Discharge Helene Nahrstedt, Leslie Schlag, Nishchay A. Isaac, Jörg Pezoldt, Heiko O. Jacobs Fachgebiet Nanotechnologie Institut für Mikro- und Nanotechnologien Gustav- Kirchhoff-Str. 1 98693 Ilmenau	Q.P1.11
	Preparation of nano-sized metallic tantalum powder by magnesiothermic reduction Seon-Min Hwang[1,2], Jei-Pil Wang[2], Dong-Won Lee[1]* 1. Titanium Department, Korea Institute of Materials Science (KIMS), Changwon, Gyeongnam 641-010, Korea; 2. Department of Metallurgical Engineering, Pukyoung National University, Busan 48513, Korea * Correspondence : ldw1623@kims.re.kr	Q.P1.12

	Carburization behavior of nano-sized tantalum powder by evaporation of activated carbon Dong-Won Lee Titanium Department, Korea Institute of Materials Science (KIMS), Changwon, Gyeongnam 641-010, Korea	Q.P1.13
	High-tempererature approaches to liquid phase preparation of oxide nanoparticles for magnetic sorbents of dyes and biomolecules D. Kotsikau, V. Pankov Belarusian State University, Minsk, Belarus	Q.P1.14
	Sonochemical synthesis of nano- and micropowders of copper sulfide and their characterization Grzegorz Matyszczak, Sławomir Podsiadło, Aleksandra Fidler Warsaw University of Technology, Faculty of Chemistry, Poland	Q.P1.15
	Sputtering of binary alloy nanoparticles onto liquid substrate: A new way for the synthesis of nanoporous nanoparticles Adrien Chauvin[1], Abdel-Aziz El Mel[2], Stephanos Konstantinidis[3], Cinthia Antunes Corrêa[1], Anna Fucikova[1], Elen Duverger-Nédellec[1], Lukas Horak[1], Pierre-Yves Tessier[2] and Milan Dopita[1] 1. Charles University, Ke Karlovu 3, 121 16 Praha 2, Czech Republic; 2. Institut des Matériaux Jean Rouxel, Université de Nantes, CNRS, 2 rue de la Houssinière B.P. 32229, 44322 Nantes cedex 3, France; 3. Chimie des Interactions Plasma-Surface (ChIPS), CIRMAP, Research Institute for Materials Science and Engineering, University of Mons, 23 Place du Parc, B-7000 Mons, Belgium	Q.P1.16
	Nanostructures of Cu, Ag, Au and In on the surfaces of Si single crystal at their thermal deposition Lyubov I. Karbivska, Volodymyr L. Karbivskii, Anastas A. Romansky G.V. Kurdyumov Institute for Metal Physics of the N.A.S. of Ukraine	Q.P1.18
	Germanium Nanosheets: Synthesis, Functionalization, and Characterization Haoyang Yu[1], Tobias Helbich[1], Lavinia M. Scherf[3], Jian Chen[4], Kai Cui[4], Thomas F. Fässler[3], Bernhard Rieger[2] and Jonathan G.C. Veinot[1,2] 1. Department of Chemistry, University of Alberta, 11227 Saskatchewan Drive, Edmonton, Alberta Canada T6G 2G2; 2. Catalysis Research Center Wacker-Lehrstuhl für Makromolekulare Chemie, Department of Chemistry, Technische Uni-versität Muünchen, Lichtenbergstraße 4, 85748 Garching, Germany; 3. Lehrstuhl für Anorganische Chemie mit Schwerpunkt Neue Materialien, Department of Chemistry, Technische Univer-sität Muünchen, Lichtenbergstraße. 4, 85748 Garching, Germany; 4. National Institute for Nanotechnology, National Research Council Canada, 11421 Saskatchewan Drive, Edmonton, AB T6G 2M9, Canada	Q.P1.19

	One-step approach for in-situ decoration of TiO2 nanotubes with magnetic nanoparticles D. Beketova[1], M. Motola[1], H. Sopha[1,2], V. ?i?mancova[1], F. Dvo?ak[1], L. Hromadko[1,2], M. Stoica[3], J. M. Macak[1,2] 1. Center of Materials and Nanotechnologies, Faculty of Chemical Technology, University of Pardubice, Nam. Cs. Legii 565, 530 02, Pardubice, Czech Republic; 2. Central European Institute of Technology, Brno University of Technology, Purkynova 123, 612 00 Brno, Czech Republic; 3. Laboratory of Metal Physics and Technology, Department of Materials, ETH Zurich, Vladimir-Prelog-Weg 1-5/10, 8093, Zurich, Switzerland	Q.P1.20
	Fabrication and characterization of doped one dimensional porous silicon nanowire by metal assisted chemical etching (MACE) S. Sadhujan[1], P. Natarajan[1], A. Shalabny[1], T. Heckenthaler[1], Sherina Harilal[1], M. Y Bashouti[1,2]* 1. Department of Solar Energy and Environmental Physics, Swiss Institute for Dryland Environmental and Energy Research, J. Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Midreshset Ben-Gurion 8499000, Israel; 2. The IlSe-Katz Institute for Nanoscale Science & Technology, Ben-Gurion University of the Negev, Beersheva, 8410501, Israel	Q.P1.21
	Syntheses of sensitizer/LRH:RE hybrid nanosheets for white light-emitting colloids and composite films Hong-Gu Jeon, Bora Kang, Song-Ho Byeon Department of Applied Chemistry, Kyung Hee University, Korea	Q.P1.22
	Synthesis of new type nanocrystals - ZnSe2O5 in a-SiO2/Si-n track template: experiments and theoretical calculations Alma Dauletbekova[1]*, Zein Baimukhanov[1], Artem Kozlovskii[2], Lyudmila Vlasukova[3], Sholpan Giniyatova[1], Abai Usseinov[1], Aiman Akylbekova[1], Zhakyp Karipbayev[1] and MaximZdorovets[2,4] 1. L.N. Gumilyov Eurasian National University, Nur-Sultan 01008, Kazakhstan; 2. Institute of Nuclear Physics, Nur-Sultan 010008, Kazakhstan; 3. Scientific Research Laboratory of Materials and Device Structures, Belarus State University, Minsk 220064, Belarus; 4. Ural Federal University, Yekaterinburg 620002, Russia	Q.P1.23
	Modified spray pyrolysis method for ferrites nanoparticles preparation Dzimitry Ivashenka, Elena Petrova, Vladimir Pankov Belarusian state university, Faculty of Chemistry	Q.P1.24
	Physicochemical characteristics of functionalized mesoporous silica nanoflakes produced on graphene oxide as a platform for potential drug delivery application Martyna Trukawka[1], Krzysztof Cendrowski[1], Magda Peru?y?ska[2], Wojciech Konicki[3], Marek Dro?dzik[2], Ewa Mijowska[1] 1. Nanomaterials Physicochemistry Department, Institute of Chemical and Environment Engineering, West Pomeranian University of Technology, al. Piastów 45, 70-322 Szczecin, Poland; 2. Department of Experimental & Clinical Pharmacology, Pomeranian Medical University, Powstancow Wlkp. 72, 70-111 Szczecin, Poland; 3. Department of Integrated Transport Technology and Environmental Protection, Maritime University of Szczecin, H. Poboznego St. 11, 70-507 Szczecin, Poland	Q.P1.25

	Topochemical conversion of Bi4Ti3O12 as a route to highly (100), (001)-oriented A-site-doped BaTiO3-based ferroelectric plates Marjeta Macek Krzmanc[1], Hana Ur?i?[2], Nina Daneu[1], ?pela Kunej[1], Matja? Spreitzer[1], Ioana Dorina Vlaicu[3], Daniela Ghica[3] 1. Advanced Materials Department, Jo?ef Stefan Institute, Jamova 39, Ljubljana 1000, Slovenia; 2. Electronic Ceramics Department, Jo?ef Stefan Institute, Jamova 39, Ljubljana 1000, Slovenia; 3. National Institute of Materials Physics, Atomistilor Str. 405A, Magurele, 077125, Romania	Q.P1.26
	Synthesis, characteristic and application for new tubular form of graphitic carbon nitride (g-C3N4) Klaudia Maslana. Ewa Mijowska West Pomeranian University of Technology in Szczecin, Faculty of Chemical Technology and Engineering, Piastow Ave. 42, 71-065 Szczecin, Poland	Q.P1.27
	Laser ablation of titanium thin film for selective zinc oxide nanorod and nanoflake deposition Nazrin Abdullayeva, Berkay Bayraktar, Esra Demet Karaca, Muratcan Hamarat, Oyku Demirel, Mehmet Sankir, Nurdan Demirci Sankir TOBB University of Economics and Technology, Materials Science and Nanotechnology Engineering	Q.P1.28
	Report on the ammonolysis of selected organosilicon compounds applying the two-stage spray pyrolysis method Cezary Czosnek, Honorata Osip, Mariusz Drygas, Jerzy F. Janik AGH University of Science and Technology, Faculty of Energy and Fuels, Al. Mickiewicza 30, 30-059 Krakow, Poland	Q.P1.29
	Generation of cellulose mechanoradicals and gold-cellulose nanocomposites via ultrasonication Joanna Kwiczak-Yigitbasi[1], Mine Demir[1], Fatma Demir[1], Bilge Baytekin[1,2] 1. Chemistry Department, Bilkent University, 06800, Ankara, TURKEY; 2. UNAM, Bilkent University, 06800, Ankara, TURKEY	Q.P1.30
	An ab initio study of a magnetic van der Waals heterostructure NiPS3/graphene Tomasz Necio, Magdalena Birowska University of Warsaw, Faculty of Physics, Pasteura 5, 02-093 Warsaw, Poland	Q.P1.31
	Chemical Vapor Deposition (CVD) Polymerization of Poly(p-xylylenes) in Metal-Organic Framework (MOF) Templates Farid Behboodi Sadabad[1], Joerg Lahann[1,2] 1. Institute of Functional Interfaces, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany; 2. Biointerfaces Institute, University of Michigan, Ann Arbor, MI, USA	Q.P1.32

	Fabrication of yolk-shell structured Fe3O4@SiO2 nanoparticle and their purification property of the plasmid DNA Gye Seok An, Ah Hyun Oh, Ji Hyun Cha, Sung-Churl Choi Hanyang University	Q.P1.33
	Influence of Cr concentration, strain rate and temperature on the mechanical behavior of Fe-Cr Nanomaterial: MD simulation Saad Abdeslam IOMP, Ferhat Abbas University of Setif 1	Q.P1.34
	Synthesis and directed self-assembly of monodisperse hematite silica rods Rama Kotni and Alfons van Blaaderen Debye Institute for Nanomaterials Science, SOFT Condensed Matter group, Utrecht University, The Netherlands	Q.P1.36
	Atomic layer deposition of copper (I) bromide wide bandgap semiconductors Richard Krumpolec[1], Dominik Ba?a[1], David C. Cameron[1], Jana Jurmanová[1], Ond?ej Caha[2], Josef Humli?ek[2] 1. R & D Center for Low-Cost Plasma and Nanotechnology Surface Modifications (CEPLANT), Department of Physical Electronics, Faculty of Science, Masaryk University, Kotlárská 267/2, 611 37 Brno, Czech Republic; 2. Department of Condensed Matter Physics, Masaryk University, Kotlá?ská 267/2, 611 37 Brno, Czech Republic	Q.P1.37
	Enhanced sensitivity in non-enzymatic glucose detection by improved growth kinetics of Ni-based nanostructures Mario Urso[1], Giovanna Pellegrino[1], Vincenzina Strano[2], Elena Bruno[1,2], Francesco Priolo[1,2], Salvo Mirabella[1,2] 1. MATIS IMM-CNR and Dipartimento di Fisica e Astronomia "Ettore Majorana", Università di Catania, via S. Sofia 64, 95123 Catania, Italy; 2. BRIT (Bio-nanotech Research Innovation Tower), Università di Catania, via S. Sofia 89, 95123 Catania, Italy	Q.P1.38

Symposium Q Program

Tuesday, September 17 th, 2019

Session V: Methods for Nanoscale Dynamic Processes : Patricia Abellan		
09:00	**Advancing the understanding of gas-surface interactions of ceria nanoparticles with environmental TEM** Matthieu Bugnet Univ Lyon, INSA Lyon, UCBL Lyon1, MATEIS, CNRS UMR 5510, F-69621 Villeurbanne, France	Q.5.1
09:30	**Multi-scale modelling of coarsening process in the Ag-Cu alloy** Bence Gajdics[1,2], János J. Tomán[1], Helena Zapolsky[2], Zoltán Erdélyi[1], Gilles Demange[2] 1. Department of Solid State Physics, University of Debrecen, P.O. Box 400, H-4002 Debrecen, Hungary; 2. GPM, UMR CNRS 6643, University of Rouen, 76575 Saint Étienne du Rouvray, France	Q.5.2
09:45	**Spinodal decomposition in Ag-Cu nanoparticles - experiments and modelling** János J. Tomán[1], Bence D. Gajdics[1,2], Fanni Misják[3], György Radnóczi[3], Zoltán Erdélyi[1] 1. Department of Solid State Physics, University of Debrecen, H-4002, Debrecen, PO Box 400, Hungary; 2. GPM, UMR 6634, University of Normandy, Saint-Etienne du Rouvray, France; 3. Research Centre for Energy Research, Hungarian Academy of Sciences, H-1525, Budapest, PO Box 49, Hungary	Q.5.3
10:00	**Protochips™ in-situ Electron Microscopy Solutions: Capabilities and Applications** Mathias O. Mosig Protochips, Inc., Germany	Q.5.4
10:20	Coffee Break	
Session VI: 3D Characterization and Multidimensional Data : Matthieu Bugnet		
11:00	**Advanced Compositional Imaging of Nanoparticle Catalysts** Sarah J. Haigh, Yichi Wang, Matthew Lindley, Daniel Kelly, Thomas Slater University of Manchester, Manchester, M13 9PL, United Kingdom, Electron Physical Sciences Imaging Centre, Diamond Light Source Ltd., Oxfordshire OX11 0DE, United Kingdom	Q.6.1

11:30	**3D Mapping of n- and p-Doped Si Nanocrystals Embedded in SiO2 by Atom Probe Tomography** R. Demoulin[1], M. Roussel[1], S. Duguay[1], P. Pareige[1], E. Talbot[1], D. Muller[2], D. Mathiot[2], H. Rinnert[3] 1. Groupe de Physique des Matériaux, Normandie Univ, UNIROUEN, INSA Rouen, CNRS, 76000 Rouen, France ; 2. ICube Laboratory, Université de Strasbourg, CNRS, B.P. 20, 67037 Strasbourg cedex, France; 3. Institut Jean Lamour, Université de Lorraine, CNRS, 54011 Nancy cedex, France	Q.6.2
11:45	**Advanced methods for 3D characterization of nanostructures** Zineb Saghi[1], Martin Jacob[1], Julien Sorel[1,2], Thierry Epicier[2], Pascale Bayle-Guillemaud[3] 1. Univ. Grenoble Alpes, CEA-LETI, F-38000 Grenoble, France; 2. Univ. Lyon, INSA-Lyon, Université C. Bernard Lyon 1, MATEIS, UMR CNRS 5510, 69621 Villeurbanne Cedex, France; 3. Univ. Grenoble Alpes, CEA-INAC, MEM, F-38000 Grenoble, France	Q.6.3
12:15	Lunch Break	
Session VII: Interaction between Nanoparticles and Molecules : Petra de Jongh		
14:00	**Hydrogen interaction with noble metal nanoparticles : size and composition effects** Claudia Zlotea, Abdelmalek Malouche, Wang Liu, Anna Celeste Institut de Chimie et des Matériaux de Paris Est, CNRS-UPEC	Q.7.1
14:30	**Supported silver catalysts prepared via melt infiltration: Synthesis, characterization and catalytic performance** Petra H. Keijzer, Lee J. Durndell, Baira Donoeva, Jovana Ze?evi?, Krijn P. de Jong, Petra E. de Jongh Inorganic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Utrecht University, Universiteitsweg 99, 3584 CG Utrecht, The Netherlands	Q.7.2
15:00	**Tailored morphology and properties of Ni@NiF2 core-shell nanoparticles by controled fluorination** Elodie Disa[1], Léa Doubtsof[1], Katia Guérin[1], Christine Taviot-Guého[1], David Bourgogne[1], Antoine Moreau[2], Angélique Bousquet[1], Guillaume Rogez[3] and Pierre Bonnet[1] 1. Institut de Chimie de Clermont-Ferrand, Université Clermont Auvergne / CNRS / Sigma Clermont - France; 2. Institut Pascal, Université Clermont Auvergne / CNRS / Sigma Clermont - France; 3. Institut de Physique et Chimie des Matériaux de Strasbourg, Université de Strasbourg / CNRS - France	Q.7.3
15:15	**Mysterious influence of amines on the shape of titania nanoparticles** Kai Sellschopp[1], Johannes Gäding[1], Wolfgang Heckel[1], Clemens Schröter[2], Andreas Hensel[2], Tobias Vossmeyer[2], Horst Weller[2], Stefan Müller[1], Gregor B. V. Feldbauer[1] 1. Institute of Advanced Ceramics, Hamburg University of Technology; 2. Institute of Physical Chemistry, University of Hamburg	Q.7.4
15:30	Coffee Break	

Session VIII: (photo)electrochemical applications : Andrea Baldi

16:00	**Platinum electrocatalysts with ultra-low metal loadings: effect of morphology** Taneli Rajala, Rasmus Kronberg, Kari Laasonen, Tanja Kallio Department of Chemistry and Materials Science, School of Chemical Engineering, Aalto University, P.O. Box 16100, FI-00076 Aalto, Finland	Q.8.1
16:30	**Ceria-supported Catalysts for Hydrogen Production Technology: Efects of the Shape of the Ceria Nanoparticles** M. Monte[1#], A. López Cámara[1], C.L. Bolívar-Díaz[1], D. Costa[2], J.C. Conesa[1], P. Pérez-Bailac[1], V. Cortés-Corberán[1], A. Martínez-Arias[1] 1. Inst.de Catálisis y Petroleoquímica, CSIC, Madrid (Spain); 2. Inst. de Recherches Chimie-Paris, ENSCP, Paris (France); # Present address: ESRF, Grenoble (France)	Q.8.2
16:45	**Au nanoparticles supported by titania: a vapor deposition approach via ALD** Fatemeh S. M. Hashemi[1], Fabio Grillo[1], Vikram R. Ravikumar[1], Dominik Benz[1], Ankit Shekhar[1], Matthew B. E. Griffiths[2], Sea?n T. Barry[2] and J. Ruud van Ommen[1] 1. Department of Chemical Engineering, Delft University of Technology, The Netherlands; 2. Department of Chemistry, Carleton University, Canada	Q.8.3
17:00	**Synthesis and in-situ incorporation of Ag nanoparticles into a supramolecular nanofilm for electrochemical sensing of aluminum** Agata Krywko-Cendrowska, Laurent Marot, Fouzia Boulmedais Univeristy of Strasbourg, CNRS, Institut Charles Sadron UPR 22, 67000 Strasbourg, France, Department of Physics, University of Basel, Klingelbergstrasse 82, 4056 Basel, Switzerland, Univeristy of Strasbourg, CNRS, Institut Charles Sadron UPR 22, 67000 Strasbourg, France	Q.8.4
17:15	**Formation of metal nanoclusters on the surface of TiO2 thin films** Mantas Sriubas[1], Tomas Bartnikas[1], Vytautas Kavali?nas[1,3], Kristina Bo?kut?[1], Paulius Palevi?ius[2], Marius Kaminskas[1], ?ilvinas Rinkevi?ius[1,4], Minvydas Ragulskis[2], Giedrius Laukaitis1 1. Kaunas University of Technology, Physics Department, Studentu str. 50, LT-51368, Kaunas, Lithuania; 2. Kaunas University of Technology, Department of Mathematical Modeling, Studentu str. 50, LT-51368, Kaunas, Lithuania; 3. Graduate School of Science and Technology, Shizuoka University, 3-5-1 Johoku, Naka-Ku, Hamamatsu, Shizuoka 432-8011, Japan; 4. Division of Theoretical Chemistry &Biology, School of Biotechnology, KTH Royal Institute of Technology, 109 61 Stockholm, Sweden	Q.8.5

17:30 Poster Session II: Characterization and Application : Patricia Abellan and Petra de Jongh

	Comparison of optical and luminescence properties of as prepared and annealed ZnO nanoparticles prepared using sol-gel method Jatani U, Dejene B.F Department of Physics, University of the Free State (QwaQwa Campus), Private Bag X13, Phuthaditjhaba, 9866, South Africa.	Q.P2.1

Design effective optical nanoparticles and nanocomposites based on CNTs-organic-inorganic nanohybrid for industrial pollutants r Q.P2.2

Adil Alshoaibi, Osama Saber

Physics Department, Faculty of Science, King Faisal University, Al-Hassa 31982, P.O. Box 400, Saudi Arabia Email: adshoaibi@kfu.edu.sa, +966-506933370

Hierarchical carbon nanowires network modified PDCs-SiCN with improved microwave absorption performance Q.P2.3

Fangyuan Ren, Xiaowei Yin

Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University

Properties of single-domain state in nanostructured perovskite manganites with giant magnetocaloric effect Q.P2.4

N.A. Liedienov[1,2], A.V. Pashchenko[1,2,3], Q. Li[1], I.V. Fesych[4], I.V. Zatovskyi[5], A.V. Voznyak[3], V.K. Prokopenko[2], V.G. Pitsyuga[6], G.G. Levchenko[1,2]

1. State Key Laboratory of Superhard Materials, International Centre of Future Science of Jilin University, 130012 Changchun, China; 2. Donetsk Institute for Physics and Engineering named after O. O. Galkin, NASU, 03028 Kyiv, Ukraine; 3. Donetsk National University of Economy and Trade named after Michael Tugan - Baranovsky, MESU, 50005 Kryvyi Rih, Ukraine; 4. Taras Shevchenko National University of Kyiv, 01030 Kyiv, Ukraine; 5. College of Physics of Jilin University, 130012 Changchun, China; 6. Vasyl? Stus Donetsk National University, 21021 Vinnytsia, Ukraine

Photocatalytic and Chemical Sensing Effect of Rapidly Synthesized Cerium Oxide Nanocrystals Q.P2.6

Nam-Woon Kim[1], Dong-Kyu Lee[2] and Hyunung Yu[1]

1. Korea Research Institute of Standards and Science (KRISS), Daejeon 34113, Republic of Korea; 2. Chungbuk National University (CBNU), Cheongju 28644, Republic of Korea

Synthesis and self-assembly of metal fluoride nanoparticles by microemulsion Q.P2.7

Hameed Ullah[1,2], Kabeer Ahmad Khan[2], Guerin Katia[1], Guillaume Rogez[3], Pierre Bonnet[1]

1. Institut de Chimie de Clermont-Ferrand, Université Clermont Auvergne / CNRS / Sigma Clermont - France; 2. Department of Chemistry, Hazara University - Pakistan; 3. Institut de Physique et Chimie des Matériaux de Strasbourg, Université de Strasbourg / CNRS - France

Closely packed ferromagnetic nanoparticles on top of aligned carbon nanotubes array : preparation and magnetic properties Q.P2.9

C.S. Cojocaru[2], A.L. Danilyuk[1], A.V. Kukharev[1], S.L. Prischepa[1,3], F. Le Normand[2]

1. Belarusian State University of Informatics and Radioelectronics, P. Browka 6, Minsk, 220013, Belarus; 2. Institut de Physique et Chimie des Mat_eriaux (IPCMS), CNRS-University of Strasbourg, BP 43, 67034, Strasbourg Cedex 2, France; 3. National Research Nuclear University (MEPhI), Kashirskoe Highway 31, Moscow, 115409, Russia

	Structure and Electrochemical Properties Relationships of Cu-Ni Alloy Chutima Kongvarhodom, Pannarai Jetsadangkool, Kittima Khumsa-Ang Department of Chemical Engineering, Faculty of Engineering, King Mongkut?s University of Technology Thonburi, Bangkok 10140, Thailand, Department of Chemical Engineering, Faculty of Engineering, King Mongkut?s University of Technology Thonburi, Bangkok 10140, Thailand, Canadian Nuclear Laboratories, Ontario K0J 1J0, Canada	Q.P2.10
	YVO4:Eu nanophosphors tailored on layered yttrium hydroxide film for detection and removal of Cu2+ Bora Kang, Hong-Gu Jeon, Song-Ho Byeon Department of Applied Chemistry, Kyung Hee University, Korea	Q.P2.11
	Magnetorheological effect for carrageenan hydrogels with magnetic particles Mika Kawai, Tetsu Mitsumata Graduate School of Science and Technology, Niigata University, Niigata 950-2181, Japan, ALCA, Japan Science and Technology Agency, Tokyo 102-0076, Japan	Q.P2.12
	Physisorptive two dimensional tin sulphide nanoflackes with extraordinary sensitivity and selectivity to NO2 at room temperature Azmira Jannat, Jian Zhen Ou School of Engineering, RMIT University, Melbourne, Australia	Q.P2.13
	Effects of In-Situ Polyaniline Oxidation States on the Growth of Monocrystalline 2D Gold Flakes P. Natarajan[1], A. Shalabny[1], S. Sadhujan[1], A. Idlibi1, M.Y Bashouti[1,2]* 1. Department of Solar Energy and Environmental Physics, Swiss Institute for Dryland Environmental and Energy Research, J. Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Midreshset Ben-Gurion 8499000, Israel; 2. The IISe-Katz Institute for Nanoscale Science & Technology, Ben-Gurion University of the Negev, Beersheva, 8410501, Israel - P Natarajan and A Shalabny are equally contributed	Q.P2.14
	Synthesis and Characterization of Magnetic dCas Peptide-imprinted Chitosan Nanoparticles and Their use in Activation of Protein Mei-Hwa Lee[1], Cheng-Chih Lin[2], Chih-Kai Chan[3] and Hung-Yin Lin[3]* 1. Department of Materials Science and Engineering, I-Shou University, Kaohsiung 84001, Taiwan; 2. Division of Pulmonary Medicine, Department of Internal Medicine, Armed-Forces Zuoying General Hospital, Kaohsiung 81342, Taiwan; 3. Department of Chemical and Materials Engineering, National University of Kaohsiung, Kaohsiung 81148, Taiwan	Q.P2.15
	Near infrared luminescence thermometry of Ln-Y2O3 (Ln=Ho, Er and Yb) Daniel Avram[1,2], Claudiu Colbea[1], Mihaela Florea[3], Ioana Porosnicu[1,2]*, Carmen Tiseanu 1. National Institute for Laser, Plasma and Radiation Physics, P.O. Box MG-36, RO 76900 Bucharest-Magurele, Romania; 2. University of Bucharest, Faculty of Physics, 405 Atomistilor Street, 077125 Magurele-Ilfov, Romania; 3. National Institute of Materials Physics, 405A Atomistilor Street, 077125 Magurele-Ilfov, Romania	Q.P2.16

	Biofunctionalized Silica Nanosponges-Targeting and depleting Alzheimer?s ?-amyloid Peptides against Toxic Self-Assembly Hui Jin Jung, You Jung Chung, Rosemarie Wilton, Chang H. Lee, Byung Il Lee, Jinyoung Im, Elena A. Rozhkova, Chan Beum Park and Joonseok Lee* H. J. Jung, Prof. J. S. LeeMolecular Recognition Research Center, Korea Institute of Science and Technology (KIST), Division of Nano and Information Technology, KIST School, Korea University of Science and Technology (UST), Seoul 02792, Republic of Korea, Y. J. Chung, Dr. C. H. Lee, Dr. B. I. Lee, Prof. C. B. Park Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), 335 Science Road, Daejeon 305?701, Republic of Korea, J. Im, Dr. H. Kang Gwangju Center, Korea Basic Science Institute (KBSI), Gwangju, Republic of Korea, Dr. R. Wilton Biosciences, Argonne National Laboratory, Argonne, Illinois 60439, United States, Dr. E. A. Rozhkova Center for Nanoscale Materials, Argonne National Laboratory, Argonne, Illinois 60439, United States, H. J. Jung, Prof. J. H. Choi Department of Chemistry, Korea University, Seoul 02841, Republic of Korea	Q.P2.17
	Preparation and Characterization of Nitroxide-Based Magnetic Nanoemulsions Directed toward MRI-Visible Targeted Delivery System Kota Nagura, Naoki Komatsu, Rui Tamura Graduate School of Human and Environmental Studies, Kyoto University, Kyoto 606-8501, JAPAN	Q.P2.18
	Sol-gel catalyst for metallization of non-conductors Hohyeong Kim, Heungyeol Lee Korea Institute of Industrial Technology, Incheon 21999, Korea	Q.P2.19
	Enhancement of the Li-ion Conductivity in LiBH4 by mixing with Different Oxide Nanoparticles Valerio Gulino[1], Laura Barberis[2], Peter Ngene[2], Marcello Baricco[1], Petra E. de Jongh[2] 1. Department of Chemistry and Inter-departmental Center Nanostructured Interfaces and Surfaces (NIS), University of Turin, Via Pietro Giuria 7, 10125 Torino, Italy, 2. Inorganic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Utrecht University, Universiteitsweg 99, 3584 CG, Utrecht, The Netherlands (V. Gulino, Presenting Author, valerio.gulino@unito.it)	Q.P2.20
	Highly Sensitive Wearable and Flexible Graphene Fiber Sensors for Room Temperature H2S and NO2 Sensing Ashok D. Ugale[1], Govind G. Umarji[3], Sung Hyeon Jung[2], Nishad G. Deshpande[2], Wonyoung Lee[3], Hyung Koun Cho[2] and Ji-Beom Yoo[1,2]* 1. Sungkyunkwan Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University, Suwon, 440-746, Republic of Korea E-mail: jbyoo@skku.edu; 2. Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon, 440-746, Republic of Korea; 3. Department of Mechanical Engineering, Sungkyunkwan University, Suwon, 440-746, Republic of Korea	Q.P2.21

	Core shell silver-essential oils nanoparticles and nanomodified coatings with antibiofilm effect Alina Maria Holban[1,2], Alexandru Mihai Grumezescu[2], Valentina Grumezescu[3], Lia Mara Ditu[1], Carmen Curutiu[1], Veronica Lazar[1], Mariana Carmen Chifiriuc[1], Bogdan Stefan Vasile[2], Ecaterina Andronescu[2] 1. Department of Microbiology and Immunology, Faculty of Biology, University of Bucharest, Romania; 2. Faculty of Applied Chemistry and Materials Science, Politehnica University of Bucharest, Romania; 3. Laser-Surface-Plasma Interactions Laboratory, Lasers Department, National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania	Q.P2.22
	Electrochemically Prepared Porous Silicon Nanostructures for Photocatalytic Investigation under Direct Sunlight Jeyanthinath Mayandi, Ragavendran Venkatesan,Terje Finstad, Vishnukanthan Venkatachalapathy Department of Materials Science, School of Chemistry, Madurai Kamaraj University, Madurai-625 021, India. Department of Physics/Centre for Materials Science and Nanotechnology, University of Oslo, P.O. Box 1048 Blindern, N-0316 Oslo, Norway, Department of Materials Science, School of Chemistry, Madurai Kamaraj University, Madurai-625 021, India, Department of Physics/Centre for Materials Science and Nanotechnology, University of Oslo, P.O. Box 1048 Blindern, N-0316 Oslo, Norway, Department of Physics/Centre for Materials Science and Nanotechnology, University of Oslo, P.O. Box 1048 Blindern, N-0316 Oslo, Norway Department of Materials Science, National Research Nuclear University ?MEPhI?, 31 Kashirskoe sh, Moscow, Russian Federation	Q.P2.23
	Jamuna Kanaram Vaishnav Jamuna K. Vaishnav and Tushar Kanti Mukherjee Indian Institute of Technology Indore (IITI)	Q.P2.24
	Investigation of electronic mechanisms and associated effects in REFeO3 (RE=Tb, Gd, Ho and Dy) obtained from molecular crystals Maria Cristina Bartha, Alina Crisan, Aurel Leca, Petru Palade, Nicu Iacob National Institute of Materials Physics (NIMP) Magurele, 077125, Romania	Q.P2.25
	Oxidation-induced lattice strain in crystalline silicon nanoparticles Bruno P. Falcão[1]*, Joaquim P. Leitão[1], Maria R. Soares[2], Lídia Ricardo[3], Hugo Águas[3], Rodrigo Martins[3], Rui N. Pereira[1,4] 1. Departamento de Física & I3N, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal; 2. Laboratório Central de Análises, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal; 3. CENIMAT/I3N, Departamento de Ciência dos Materiais, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, CEMOP-UNINOVA, 2829-516 Caparica, Portugal; 4. Walter Schottky Institut and Physik-Department, Technische Universität München, Am Coulombwall 4, 85748 Garching, Germany * Corresponding author: bfalcao@ua.pt	Q.P2.26
	Icephobic performance of nanoparticle-modified coatings: the role of wettability and surface energy Wenjuan Cui, Tapani A. Pakkanen Department of Chemistry, University of Eastern Finland, P.O.Box 111, Joensuu, FI-80101, Finland	Q.P2.27

	Monochromated EELS for the study of metal - organic molecule interactions in nanoparticles Patricia Abellan, Jay A. LaVerne, Ashish Bhattarai, Grant E. Johnson, Fredrik S. Hage, Wayne P. Hess, Rik Brydson, Patrick Z. El-Khoury, Quentin M. Ramasse SuperSTEM Laboratory, Daresbury, U.K., Radiation Laboratory, University of Notre Dame, Notre Dame, U.S.A., Pacific Northwest National Laboratory, Richland, U.S.A, Pacific Northwest National Laboratory, Richland, U.S.A, SuperSTEM Laboratory, Daresbury, U.K., Pacific Northwest National Laboratory, Richland, U.S.A, University of Leeds, Leeds, U.K., Pacific Northwest National Laboratory, Richland, U.S.A, SuperSTEM Laboratory, Daresbury, U.K.	Q.P2.28
	Thin water films on metal oxide nanoparticles: stability and transformation behaviour Gilles R. Bourret, Oliver Diwald Department of Chemistry and Physics of Materials, University of Salzburg, Jakob-Haringer-Strasse 2a, A-5020 Salzburg	Q.P2.29
	Bound water behavior in TiO2 nanopowders investigated by 1H-NMR Piotr Nowak[1], Katarzyna Zakrzewska[1], Anna Kusior[2], Agnieszka Lacz[2], Marta Radecka[2], Hubert Haranczyk[3], Karol Kubat[3], Kazimierz Kowalski[4] 1. Faculty of Computer Science, Electronics and Telecommunications, AGH University of Science and Technology, al. Mickiewicza 30, Kraków, Poland; 2. Faculty of Materials Science and Ceramics, AGH University of Science and Technology, al. Mickiewicza 30, Kraków, Poland; 3. Marian Smoluchowski Institute of Physics, Jagiellonian University, ul. Lojasiewicza 11, Kraków, Poland; 4. Faculty of Metals Engineering and Industrial Computer Science, AGH University of Science and Technology, al. Mickiewicza 30, Kraków, Poland	Q.P2.30
	Particle size, promoter and support effects for carbon-supported Cu and CuZnOx catalysts in MeOH synthesis Rolf Beerthuis, Lisette Pompe, Krijn de Jong, Petra E. de Jongh Debye Institute for Nanomaterials Science, Utrecht University, Utrecht, The Netherlands	Q.P2.31
	Effect of nanoparticles in ferromagnetic Fe-alloys formed under ageing on martensitic transformation and shape memory effect Anatoliy Titenko[1], Lesya Demchenko[2], Larisa Kozlova[1], Mustafa Babanli[3], Sergiy Sidorenko[2], Sayami Huseynov[3] 1. Institute of Magnetism, National Academy of Sciences and Ministry of Education and Science of Ukraine, 36-b, Vernadskoho Blvd, Kyiv, Ukraine; 2. National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", 37, Peremohy Ave, Kyiv, Ukraine; 3. Azerbaijan State University of Oil and Industry, Azadliq Ave, 20, Baku, Azerbaijan	Q.P2.32
	Investigation and characterization of spin-coated semi-transparent Ag nanoparticle layers for solar cell applications Hye Ryeon Yun, Hoi Jin Yoon, Sunho Jeong, Seung-Yun Lee* Hanbat National University, Korea Research Institute of Chemical Technology	Q.P2.33

Symposium Q Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session IX: Optical Nanomaterials : Paola Ceroni		
14:00	**Interaction between plasmonic nanoparticles and reducible oxides** Paola Luches Consiglio Nazionale delle Ricerche, Istituto Nanoscienze, Via G. Campi 213/a, 41125 Modena, Italy	Q.9.1
14:30	**Reaction mechanisms and optical properties of pure and Er3+-doped LiNbO3 nanoparticles synthesized from the alkoxide route** M. Urbain[1], F. Riporto[1], K. Bredillet[1], R.Le Dantec[1], S. Beauquis[1], V. Monnier[2], Y. Chevolot[2], C. Galez[1], Y. Mugnier[1] 1. Université Savoie Mont Blanc, SYMME, F-74000, Annecy, France; 2. Université de Lyon, Ecole Centrale de Lyon, UMR CNRS 5270, Institut des Nanotechnologies de Lyon, F-69134, Ecully, France	Q.9.2
14:45	**Optical properties of Yb3+,Er3+-doped SHG-active ?-La(IO3)3 nanocrystals prepared from a microwave-assisted synthesis** Sylvain Regny, Kévin Bredillet, Jérémy Riporto, Yannick Mugnier, Ronan Le Dantec, Isabelle Gautier-Luneau, Géraldine Dantelle Université Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 38000 Grenoble, France Sylvain Regny Isabelle Gautier-Luneau Géraldine Dantelle Université Savoie Mont Blanc, SYMME, F?74000, Annecy, France Kévin Bredillet Jérémy Riporto Yannick Mugnier Ronan Le Dantec	Q.9.3
15:00	**Sensitized Si-nanocrystals: The Role of Diphenylanthracene** T. Popelár[1], K.K?sová[1], P. Ceroni[2] 1. Institute of Physics of the ASCR, v.v.i., Cukrovarnická 10, 162 00 Prague 6, Czech Republic; 2. Department of Chemistry ?G. Ciamician?, University of Bologna, Via Selmi 2, 40126 Bologna, Italy	Q.9.4
15:15	**Cu2ZnSnS4 nanoparticle inks** Christian Rein[1], Sara Engberg[2], Jens Wenzel Andreasen[1] 1. Technical University of Denmark, Department of Energy Conversion and Storage, Frederiksborgvej 399, 4000 Roskilde, Denmark; 2. Technical University of Denmark, Department of Photonics Engineering, Frederiksborgvej 399, 4000 Roskilde, Denmark	Q.9.5

15:30	Coffee Break	
Session X: Plasmonic Nanoparticles : Paola Luches		
16:00	**Sensing and driving chemical reactions using plasmonic nanoparticles** Andrea Baldi DIFFER - Dutch Institute for Fundamental Energy Research	Q.10.1
16:30	**How Does a Plasmon-Induced Hot Charge Carrier Break a C-C Bond?** Hyun Huh, Hoa Duc Trinh, Dokyung Lee, Sangwoon Yoon* Chung-Ang University	Q.10.2
16:45	**Spectrally broad plasmonic absorption in Ga and In nanoparticle hybrids** N. Gordillo, S. Catalán-Gómez, J.L. Pau, A. Redondo-Cubero Microelectronics Lab. Department of Applied Physics, Universidad Autónoma de Madrid E-28049 Madrid, Spain	Q.10.3
17:00	**Radiative damping of surface plasmon resonance in gold nanoparticles: the effect of shape, size, and substrate material** Z. Zolnai, D. Zámbó, D. P. Szekrényes, and A. Deák Centre for Energy Research, Institute of Technical Physics and Materials Science (MFA), Konkoly-Thege M. út 29-33, H-1121 Budapest, Hungary	Q.10.4
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium Q Program

Thursday, September 19 th, 2019

Session XI: Luminescent Nanoparticles : Petra Szilagyi

09:00	**Luminescent silicon nanocrystals for energy conversion and imaging** Paola Ceroni Department of Chemistry "Giacomo Ciamician" - University of Bologna	Q.11.1
09:30	**Synthesis and characterization of the lanthanum vanadate luminescent nanoparticles doped with europium and erbium ions** Chukova O.[1], Nedilko S.A.[1], Nedilko S.G.[1], Slepets A.[1], Voitenko T.[1], Androulidaki M.[2], Papadopoulos A.[2], Stratakis E.[2] 1. Taras Shevchenko National University of Kyiv, Volodymyrska Str., 64/13, Kyiv 01601, Ukraine. E-mail: chukova@univ.kiev.ua; 2. Institute of Electronic Structure & Laser (IESL) of Foundation for Research & Technology Hellas (FORTH), Heraklion 711 10 Crete, Greece	Q.11.2
09:45	**Optimized synthesis of luminescent silica nanoparticles for oxygen sensing** Benedetta Del Secco, Luca Ravotto, Tatiana V. Esipova, Sergei A. Vinogradov, Damiano Genovese, Nelsi Zaccheroni, Enrico Rampazzo, Luca Prodi Department of Chemistry ?Giacomo Ciamician?, University of Bologna, Via Selmi 2,40126 Bologna, Italy; Departments of Biochemistry and Biophysics and of Chemistry, University of Pennsylvania, Philadelphia, PA 19104, USA	Q.11.3
10:00	**Structural and optical properties of silicon nanoparticles fabricated by pulsed laser ablation in water** Stanislav V. Zabotnov[1], Fedor V. Kashaev[1], Anastasiia V. Skobelkina[1], Denis E. Presnov[1], Daria A. Kurakina[2], Aleksandr V. Khilov[2], Ekaterina A. Sergeeva[2], Mikhail Yu. Kirillin[2], Leonid A. Golovan[1] 1. Lomonosov Moscow State University, Faculty of Physics, 1/2 Leninskie Gory, Moscow, 119991 Russia; 2. Institute of Applied Physics RAS, 46 Uljanov str., Nizhny Novgorod, 603950 Russia	Q.11.4
10:15	**Effect of growth temperature on structural and luminescence properties of ZnO nanoparticles** Ungula J., Dejene B.F. Department of Physics, University of the Free State (Qwaqwa Campus), Private Bag X13, Phuthaditjhaba, 9866, South Africa	Q.11.5

10:30	Coffee Break	
Session XII: Modelling and Simulation : Zineb Saghi		
11:00	**Ab initio study of mixed manganese nickel phosphorus trichalcogenides - 2D layered materials** Aleksandra Jankowska and Magdalena Blrowska University of Warsaw, Faculty of Physics, Pasteura 5, 02-093 Warsaw, Poland	Q.12.1
11:15	**Theoretical investigation of phase equilibrium in CdS@SiO2 nanoparticles** Ilya S. Popov, Nataliya S. Kozhevnikova, Andrey S. Vorokh, Andrey N. Enyashin Institute of Solid State Chemistry UB RAS, Ekaterinburg, Russia	Q.12.2
11:30	**Exciton delocalization on quantum dots aggregates: insights from TD-DFT calculations** Maurizio Coden, Barbara Fresch Università degli studi di Padova, Università degli studi di Padova	Q.12.3
11:45	**DFT simulations of structural, electronic, and excited-state properties of detonation diamond nanoparticles with polypyrrole** Petra Matunová, Vít Jirásek, Bohuslav Rezek Faculty of Electrical Engineering, Czech Technical University, Technická 2, Prague 6, 166 27, Czech Republic, Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, Prague 6, 162 00, Czech Republic, Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, Prague 6, 162 00, Czech Republic, Faculty of Electrical Engineering, Czech Technical University, Technická 2, Prague 6, 166 27, Czech Republic, Institute of Physics, Czech Academy of Sciences, Cukrovarnická 10, Prague 6, 162 00, Czech Republic	Q.12.4
12:00	**Using machine learning to study amphiphilic nanoparticles** Tu C. Le School of Engineering, RMIT University, GPO Box 2476, Melbourne, VIC 3001, Australia	Q.12.5
12:15	Lunch Break	

Symposium R

Sessions: Room 328 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

FUNDAMENTALS:

Surface and Interfaces of Nanocarbons

Symposium Organizers: **Jean-Charles ARNAULT**, CEA LIST, France
Naoki KOMATSU, Kyoto University, Japan
Nianjun YANG, University of Siegen, Germany
Olga A. SHENDEROVA, Adámas Nanotechnologies, Inc., USA

SYMPOSIUM R TIMETABLE

Symposium R				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30	(08:50-09:00) Symposium Presentation (09:00-10:30) Session I	Session V	Plenary Session 09:00-12:30	(09:00-10:15) Session XII (10:15-10:25) Concluding remarks
10:30 – 11:00	Coffee Break			
11:00 – 12:30	(11:00-12:15) Session II	Session VI		
12:30 – 14:00	Lunch Break			
14:00 – 15:30	Session III	Session VII	Session X	
15:30 – 16:00	Coffee Break			
16:00 – 17:30	(16:00-17:15) Session IV	Session VIII	Session XI	
17:30 – 19:30		Poster Session	Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium R location

Sessions: 328 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium R Program

Monday, September 16 th, 2019

08:50	Symposium Presentation	
Session I: Application Fields of Nanocarbons : J.C. Arnault		
09:00	**Tailoring nanocarbons for water disinfection applications** Yuan Chen The University of Sydney	R.1.1
09:30	**Grafting of carbon nanostructures for biomedical applications** Tatiana Da Ros Department of Chemical and Pharmaceutical Sciences University of Trieste Via L. Giorgieri 1 34127 Trieste Italy	R.1.2
10:00	**Catalysis in Lithium-sulfur Batteries** Quan-Hong Yang Nanoyang Group, State Key Laboratory of Chemical Engineering, School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China	R.1.3
10:30	Coffee Break	
Session II: Synthesis of Nanocarbons : T. Petit		
11:00	**Extreme synthesis and characterization of silicon-doped diamond nanocrystals** Crane, Matthew J.[1], Stroud, Rhonda M.[2], Beck, Ryan A.[1], Petrone, Alessio[1], Li, Xiaosong[1], Pauzauskie, Peter J.[1,3] 1. University of Washington; 2. Naval Research Laboratory; 3. Pacific Northwest National Laboratory	R.2.1
11:30	**Tremendously enhanced and switchable silicon-vacancy photoluminescence in air-annealed nanocrystalline diamond films** Yang B.[1], Yu B.[1], Jiang X.[1,2] 1. Institute of Metal Research, Chinese Academy of Sciences (CAS); 2. Institute of Materials Engineering, University of Siegen	R.2.2

11:45	**Original microporous layer based on oriented carbon nanotubes forests** Fontana Marie, Dijon Jean, Ramos Raphaël, Morin Arnaud Université Grenoble Alpes and CEA-LITEN, CEA-LITEN, CEA-LITEN, CEA-LITEN	R.2.3
12:00	**Effects of boron doping on buckling behaviors of carbon nanocones** Ming-Liang Liao Department of Aircraft Engineering, Air Force Institute of Technology, Kaohsiung 820, Taiwan	R.2.4
12:15	Lunch Break	
Session III: Interfaces and Colloids : P. Colavita		
14:00	**In situ characterization of the nanocarbon-water interface** Tristan Petit Institute for Nanospectroscopy, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Albert-Einstein-Str. 15, 12489 Berlin, Germany	R.3.1
14:30	**Nanocarbon effects on Escherichia coli bacteria** Bohuslav Rezek[1], Jaroslav Jira[1], David Rutherford[1], Anna Artemenko[2], Pavla Stenclova[2], Alexander Kromka[2], Iva Matolínová[3], Viera Skakalova[4] 1. Faculty of Electrical Engineering, Czech Technical University, Technická 2, 166 27 Prague 6, Czech Republic; 2. Institute of Physics, Academy of Sciences of the Czech Republic, Cukrovarnická 10, 162 00 Prague 6, Czech Republic; 3. Faculty of Mathematics and Physics, Charles University, V Holešovičkách 2, 18100 Prague 8, Czech Republic; 4. Danubia NanoTech, s.r.o., Ilkovicova 3, 841 04 Bratislava, Slovak Republic	R.3.2
14:45	**"Ultramixing": A Simple and Effective Method To Obtain Controlled and Stable Dispersions of Graphene Oxide in Cell Culture Media** Giacomo Reina[1], Amalia Ruiz[1], Diane Murera[1], Yuta Nishina[2], Alberto Bianco[1] 1. University of Strasbourg, CNRS, Immunology, Immunopathology and Therapeutic Chemistry, UPR 3572, 67000 Strasbourg, France; 3. Graduate School of Natural Science and Technology and Research Core for Interdisciplinary Sciences, Okayama University, Tsushimanaka, Kita-ku, Okayama 700-8530, Japan	R.3.3
15:00	**Transition sol-gel in nanodiamond hydrosols** A. Vul Ioffe Institute, St.Petersburg, Russia	R.3.4
15:30	Coffee Break	

Session IV: Catalysis : T. Da Ros

16:00	**Model surfaces for understanding the oxygen reduction reaction at metal-free N-doped non-crystalline carbons** Paula E. Colavita School of Chemistry, Trinity College Dublin, College Green, Dublin 2, Ireland	R.4.1
16:30	**Improvement of the structural and chemical properties of carbon nano-onions for electrocatalysis** Marta E. Plonska-Brzezinska, Piotr Olejnik Medical University of Bialystok	R.4.2
16:45	**Effect of carbon nanotube surface functionalization on copper electrodeposition** Ewa Kazimierska, Enrico Andreoli, Andrew R. Barron Energy Safety Research Institute, College of Engineering, Swansea University, Bay Campus, Swansea, SA1 8EN, UK	R.4.3
17:00	**The rise of nanodesign for catalysis** Leandro Hostert, Yane H. Santos, Jéssica E.S. Fonsaca, Thayna H.P. Lima, Naiane Naidek, Samantha Husmann, Aldo J. G. Zarbin, Elisa S. Orth Department of Chemistry, Universidade Federal do Paraná (UFPR), CP 19032, CEP 81531-980, Curitiba, PR, Brazil	R.4.4

Symposium R Program

Tuesday, September 17 th, 2019

Session V: Drug delivery and Nanocarbons : S. Sotoma		
09:00	**Carbon nanotube-based innovative treatment of lupus autoimmune disease** Cécilia Ménard-Moyon University of Strasbourg, CNRS, Immunology, Immunopathology and Therapeutic Chemistry, UPR 3572, 67000 Strasbourg, France	R.5.1
09:30	**Carbon dot - photosensitiser conjugates for improved drug delivery** Jose R. Aguilar Cosme, Nicola Green, Helen E. Bryant, Frederik Claeyssens The University of Sheffield, United Kingdom	R.5.2
09:45	**Antiviral properties of the novel water-soluble fullerene derivatives** O.A. Kraevaya[1,2], A.S. Peregudov[3], S. I. Troyanov[4], A.A. Kushch[5], D. Schols[6] and P.A. Troshin[1,2] 1 Skolkovo Institute of Science and Technology, Nobel St. 3, Moscow, 143026, Russia; 2. Institute for Problems of Chemical Physics of Russian Academy of Sciences, Semenov ave 1, Chernogolovka, Moscow region, 142432, Russia; 3. A. N. Nesmeyanov Institute of Organoelement Compounds of Russian Academy of Sciences, 1 Vavylova st. 28, B-334, Moscow, 119991, Russia; 4. Moscow State University, Department of Chemistry, Leninskie gory 1, Moscow, 119991, Russia; 5. Honored Academician N.F. Gamaleya Federal Research Center for Epidemiologyand Microbiology of the Ministry of Health of the Russian Federation, Gamaleya st. 18, 123098, Moscow, Russia; 6. Rega Institute for Medical Research, Minderbroedersstraat 10, B-3000, Leuven, Belgium	R.5.3
10:00	**Overcoming Multiple Drug Resistance by Functional 2D Nanomaterials** Rainer Haag, Mohsen Adeli Institut für Chemie und Biochemie, Freie Universität Berlin, Takustr. 3, 14195 Berlin, Germany Department of Chemistry, Lorestan University, Khorramabad, Iran	R.5.4
10:30	Coffee Break	
Session VI: Electronic Properties of Nanocarbons : A. Kumatani		
11:00	**The Importance of Surface and Bulk Structuring of Nanocrystalline CVD Diamond for Electron Field Emission** K. Haenen[1,2] 1. Hasselt University, Institute for Materials Research (IMO), Diepenbeek, Belgium; 2. IMEC vzw, IMOMEC, Diepenbeek, Belgium	R.6.1

11:30	**Simulation of a 3D model for the calculation of vertical resolution for subsurface images of carbon nanotubes by EFM** Carlos Rosero-Zambrano, Jeison Obando, Diego Mora, Brayan Tello South Colombian International Logistics Center, Servicio Nacional de Aprendizaje (National Apprentice Service) – SENA, Tecnoacademia, Tuquerres, Colombia	R.6.2
11:45	**The closed-edge structure of graphite and the effect of electrostatic charging** Victor Posligua[1], Joana Bustamante[2], Cesar H. Zambrano[2], Peter J. F. Harris[3], Ricardo Grau-Crespo[1] 1. Department of Chemistry, University of Reading, Whiteknights, Reading RG6 6AD, United Kingdom; 2. Instituto de Simulacion Computacional (ISC-USFQ), Diego de Robles y Via Interoceanica, Universidad San Francisco de Quito, 17-1200-841 Quito, Ecuador; 3. Electron Microscopy Laboratory, J. J. Thomson Building, University of Reading, Whiteknights, Reading RG6 6AF, United Kingdom	R.6.3
12:00	**Graphene doping by oxygen adsorption driven by substrate interaction** A. Armano[1,2], G. M. Lo Piccolo[1,2], F. Bruno[1], G. Buscarino[1,3,4], M. Cannas[1], F. M. Gelardi[1], F. Giannazzo[4], E. Schilirò[4], S. Agnello[1,3,4] 1. University of Palermo, Department of Physics and Chemistry, Via Archirafi 36, 90123 Palermo, Italy; 2. University of Catania, Department of Physics and Astronomy, Via Santa Sofia 64, 95123 Catania, Italy; c) University of Palermo, ATeN Center, Viale delle Scienze Edificio 18, 90128 Palermo, Italy; d) National Research Council of Italy-Institute for Microelectronics and Microsystems, Strada VIII 5, 95121 Catania, Italy	R.6.4
12:15	**Electric field controlled optical magnetic circular dichroism hysteresis loops of Co/C heterostructures** Jing-Ya Huang[1], Wei-Xuan Huang[1], Yun-Kai Shiu[1], Hua Shu Hsu*[1] and Yen Fa Liao[2] 1. Department of Applied Physics, National Pingtung University, No. 4-18, Taiwan, R. O. C., e-mail: hshsu@mail.nptu.edu.tw; 2. National Synchrotron Radiation Research Center, 101 Hsin-Ann Road, Hsinchu, 30013, Taiwan ROC *email: hshsu@mail.nptu.edu.tw	R.6.5
12:30	Lunch Break	
Session VII: Nanocarbons and Electrochemistry : K. Haenen		
14:00	**Initiation of electrochemical active sites on two-dimensional material surface by nanoscale electrochemical technique** A. Kumatani WPI-AIMR Tohoku University	R.7.1

14:30	**Electrochemical Interface Modification on Practical Carbon Anodes for More Efficient Sodium-ion Batteries** Jun Zhang[1,2], Wei Lv[2], Feiyu Kang[1,2], Quan-Hong Yang[1,2,3] 1. Shenzhen Environmental Science and New Energy Technology Engineering Laboratory, Tsinghua-Berkeley Shenzhen Institute (TBSI), Tsinghua University, Shenzhen 518055, China; 2. Shenzhen Geim Graphene Center, Engineering Laboratory for Functionalized Carbon Materials, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China; 3. Nanoyang Group, State Key Laboratory of Chemical Engineering, School of Chemical Engineering and Technology, Tianjin University, Tianjin, 300072, China	R.7.2
14:45	**Graphene oxide printed electronics: electrochemical tuning of charge transport in electrolyte-gated field-effect transistors** Sandra Vasilijević, Nicolas Battaglini, Giorgio Mattana, Guillaume Anquetin, Benoît Piro ITODYS, Université Paris Diderot, Sorbonne Paris Cité, Paris, FRANCE	R.7.3
15:00	**Electrochemical applications of conductive diamond powders** Takeshi Kondo Department of Pure and Applied Chemistry, Faculty of Science and Technology, Tokyo University of Science, 2641 Yamazaki, Noda, Chiba 278-8510, Japan	R.7.4
15:30	Coffee Break	
Session VIII: Nanocarbons for Composites : P. Pauzauskie		
16:00	**Effect of thickness and substrate type on the structure and photoemission of carbyne-containing nanocomposite** E.A. Buntov, A.F. Zatsepin, A.I. Slesarev, Yu.V. Schapova, S. Challinger, I. Baikie Ural Federal University, Russian Federation, e.a.buntov@urfu.ru, Zavaritsky Institute of Geology and Geochemistry, Russian Academy of Sciences, Russian Federation, KP Technology Ltd, Wick, Caithness, KW1 5AF, United Kingdom	R.8.1
16:15	**RGO/Silicon Nitride Composite for Cooperative EM Absorption in Wide Temperature Spectrum with Ex** Zexin Hou Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University	R.8.2
16:30	**Graphitized layers on DLC films obtained by thermocatalytic treatments as transparent conductive material** N. Boubiche[1], J. Hulik[1], M. Abdesslam[1,3], S. Zafeiratos[4], W. Luo[4], C. Speisser[1], D. Muller[1], S. Garreau[5], F. Djeffal[2] and F. Le Normand[1] 1. MaCEPV/ICube, Université de Strasbourg and CNRS, STRASBOURG, 23 rue de Loess, BP 20CR, 67037 STRASBOURG, FRANCE; 2. Department Electronics, University of BATNA-1, 05000 BATNA, ALGERIA; 3. Department of Radiation Physics, University of Science and Technology Houari Boumédiène, ALGER, ALGERIA; 4. ICPESS, Université de Strasbourg and ICube 5 IS2M, Bâtiment CNRS/Université Haute Alsace, 15, rue Jean Starcky, BP 2488, 68057 Mulhouse cedex, FRANCE	R.8.3

16:45	**Effect of laser ablative carbonized epoxy resin-based quartz fiber reinforced material on the dielectric constant** Yongqiang Zhang, Fuli Tan, Li Zhang Institute of Fluid Physics, China Academy of Engineering Physics	R.8.4
17:00	**Controllable synthesis of defective carbon nanotubes/Sc2Si2O7 ceramic with adjustable dielectric properties** Hanjun Wei Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University, 710072, Xi'an, China	R.8.5
17:15	**Photoelectrochemical Performance of TiO2/ Boron-Doped Diamond Patterns** Ze Jian[1], Nianjun Yang[1]*, Michael Vogel[1]*, Paul Kienitz[2], Anna Schulte[3], Holger Schönherr[3] and Xin Jiang[1]* 1. Institute of Materials Engineering, University of Siegen, Paul-Bonatz Str. 9-11, Siegen 57076, Germany; 2. Group of Graphene-based Nanotechnology, University of Siegen, Hölderlinstr. 3, Siegen 57076, Germany; 3. Physical Chemistry I, Department of Chemistry and Biology, University of Siegen, Adolf-Reichwein-Str. 2, Siegen 57076, Germany	R.8.6
17:30 Poster Session: N. Yang, N. Komatsu		
	Epoxy-functionalization of graphene oxide and application for hyperbranched polyurethane photo-actuators Vinay Deep Punetha, Jae Whan Cho Division of Chemical Engineering, Konkuk University, Seoul, Korea	R.P.1
	Pressure-retarded membrane distillation for low-grade heat recovery: the critical roles of pressure-induced membrane deformation Ziwen Yuan, Li Wei, Qianhong She* and Yuan Chen* School of Chemical and Biomolecular Engineering, The University of Sydney, Darlington, NSW, Australia, 2006	R.P.2
	Water dispersion of graphitized detonation nanodiamonds Masahiro Nishikawa, Ming Liu, Hisayoshi Ito Daicel Corporation	R.P.3
	Supported carbon molecular sieve membrane for olefin/paraffin separation and its pre-crosslinking effect on physical aging Seong-Joong Kim[1], Seung-Eun Nam[1], Hosik Park[1], You-In Park[1], MinYoung Shon[2] 1. Korea Research Institute of Chemical Technology (KRICT); 2. Pukyong National University	R.P.4

	Bidirectional photo-sintering of copper/graphene-core/shell structure for printed electrode applications Jae-Won Lee, Ho Young Kim, Seung Yol Jeong, Joong Tark Han, Geon-Woong Lee, Hee Jin Jeong Nanocarbon Material Research Group, Korea Electrotechnology Research Institute, Changwon 642-120, Korea	R.P.5
	Preparation and Characterization of Nitroxide-Based Magnetic Nanoemulsions Directed toward MRI-Visible Targeted Delivery System Kota Nagura, Naoki Komatsu, Rui Tamura Graduate School of Human and Environmental Studies, Kyoto University, Kyoto 606-8501, JAPAN	R.P.6
	An efficient and scalable production of 2D material dispersions using hexahydroxytriphenylene as a versatile exfoliant Gang Liu, Naoki Komatsu Graduate School of Human and Environmental Studies, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan	R.P.7
	Readily Available Stock Solid of MoS2 and WS2 Nanosheets through Solid-Phase Exfoliation by Ball Milling Gang Liu, Naoki Komatsu Graduate School of Human and Environmental Studies, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan	R.P.8
	A Case Study for Nanoparticles on Nanodiamond: Facile Preparation of Nanodiamond-iron oxide Nanohybrid Ahmad Tayyebi, Naoki Komatsu Graduate School of Human and Environmental Studies, Kyoto University, Kyoto 606-8501	R.P.9
	Production of highly concentrated SiV center in polycrystalline diamond thin film Masahiro Nishikawa[1], Ming Liu[1], Shinji Nagamachi[2], Motoi Nakao[3] 1. Daicel Corporation; 2. Nagamachi Science Laboratory Co., Ltd.; 3. Kyushu Institute of Technology	R.P.10
	Reactive sputtered tin adhesion layer for wastewater treatment for bdd electrodes Seo Han Kim, Mi Young You, Pung Keun Song Department of Materials Science and Engineering, Pusan National University	R.P.11
	Charge-induced structural transformation of carbon spiroids Alexandra Siklitskaya[1]*, Sergey Yastrebov[2], James L. Pogrebetsky[1], Jacek A. Majewski[3] 1. Institute of Chemical Physics Polish Academy of Sciences, Warsaw, Poland; 2. Ioffe Physical-Technical Institute, St. Petersburg, Russia; 3. Institute of Theoretical Physics, University of Warsaw, Warsaw, Poland	R.P.12

Direct laser writing of ZnO/laser-induced graphene composites: exploring biosensing applications R.P.13

J. Zanoni, S. O. Pereira, N. F. Santos, G. Gaspar, A. J. S. Fernandes, A. F. Carvalho, T. Monteiro, F. M. Costa, J. Rodrigues

Departamento de Física & I3N, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal

Electrocatalytic Oxidation of Short Carbon-Chained Liquid Fuels Using Nanocarbon Supported metal Catalysts R.P.14

Yuanyuan Zhang[1]*, Ting Zeng[1], Qijin Wan[1], Nianjun Yang[1,2]

1. School of Chemistry and Environmental Engineering, Key Laboratory for Green Chemical Process of Ministry of Education, Hubei Key Lab of Novel Reactor and Green Chemical Technology, Wuhan Institute of Technology, Wuhan 430073, China; 2. Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany E-mail: yyzhang@wit.edu.cn

Electrochemical sensing of multiple phenols using expanded graphite decorated with PdO@C nanoparticles R.P.15

Gehua Zheng[1], Yuanyuan Zhang[1]*, Tianming Nie[2], Xingmao Jiang[2], Qijin Wan[1], Yawei Li[3], Nianjun Yang[1,4]

1. School of Chemistry and Environmental Engineering, Key Laboratory for Green Chemical Process of Ministry of Education, Hubei Key Lab of Novel Reactor and Green Chemical Technology, Wuhan Institute of Technology, Wuhan 430073, China; 2. School of Chemical Engineering & Pharmacy, Wuhan Institute of Technology, Wuhan 430073, China; 3. The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology, Wuhan 430081, China; 4. Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany

Electrochemical sensing applications of nanocarbons R.P.16

Yuanyuan Zhang[1]* Jun Yu[1], Hui Li[1], Qijin Wan[1]*, Yawei Li[2], Nianjun Yang[1,3]

1. School of Chemistry and Environmental Engineering, Key Laboratory for Green Chemical Process of Ministry of Education, Hubei Key Lab of Novel Reactor and Green Chemical Technology, Wuhan Institute of Technology, Wuhan 430073, China; 2. The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology, Wuhan 430081, China; 3.Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany

Zinc Oxide Deposited Carbon Nanowalls for Sensing of Acetone R.P.17

Hyeokjoo Choi, Seok Hun Kwon, Hyunil Kang and Wonseok Choi*

Department of Electrical Engineering, Hanbat National University, Daejeon 34158, Republic of Korea

Carbon monoxide trapping at graphene/nickel interface R.P.18

Simone Del Puppo[1], Francesca Zarabara[1], Virginia Carnevali[1], Maria Peressi[1], Sara Fiori[1,2], Mirko Panighel[2], Alessandro Sala[1,2], Cinzia Cepek[2], Cristina Africh[2], Giovanni Comelli[1,2], Željko Šljivančanin[3]

1. Department of Physics, University of Trieste, Via Valerio 2, 34127 Trieste, Italy; 2. CNR-IOM, Basovizza, Strada Statale 14 km 163,5, 34149 Trieste, Italy; 3. Vinča Institute of Nuclear Sciences, Dept. of Theoretical Physics, Belgrade, Serbia

Symposium R Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session X: Environmental impact and Energy Applications : C. Menard-Moyon		
14:00	**The role of surface chemistry on the environmental impact of carbon nanomaterials** E. Flahaut[1]*, L. Evariste[2], A. Mottier[2], L. Lagier[2], M. Garacci[2], M. Barret[2], F. Mouchet[2], E. Pinelli[2], L. Gauthier[2] 1. ECOLAB, Université de Toulouse, UMR CNRS-UPS-INP N°5245, Toulouse, France; 2. CIRIMAT, Université de Toulouse, UMR CNRS-UPS-INP N°5085, Toulouse, France	R.10.1
14:30	**Harvesting Environment Energy from Water-Evaporation over Free-Standing Graphene Oxide Sponges** Guang Zhang, Yantong Xu Department of Space Science Research, Qian Xuesen Laboratory of Space Technology, China Academy of Space Technology, Beijing 100094, China	R.10.2
14:45	**Paper-based sensor for water quality assessment** Grégoire Le Brun, Jean-Pierre Raskin Institute of Information and Communication Technologies, Electronics and Applied Mathematics, Université catholique de Louvain, 1348 Louvain-La-Neuve, Belgium	R.10.3
15:00	**Humidity and organic solvent sensing by laser produced graphene functionalized by metal nanoparticles** V. Scardaci, L. Fichera, N. Tuccitto, G. Compagnini Università degli Studi di Catania, Dipartimento di Scienze Chimiche, V.le A. Doria 6, 95125 Catania (Italy)	R.10.4
15:15	**Diamond Composites for High-Performance Supercapacitors** Jing Xu, Siyu Yu, Nianjun Yang,* Xin Jiang* Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany	R.10.5
15:30	Coffee Break	

Session XI: Nanocarbons for Labelling : A. Mohsen

16:00	**Fluorescent nanodiamonds for bioimaging applications** Shingo Sotoma[1], Feng-Jen Hsieh[2], Huan-Cheng Chang[2] and Yoshie Harada[1] 1. Institute for Protein Research, Osaka University; 2. Institute of Atomic and Molecular Sciences, Academia Sinica.	R.11.1
16:30	**Polyglycerol grafted nanoparticles improve stealth effect by resisting protein corona formation: A comparison study to PEG** Y. Zou, N. Komatsu Graduate School of Human and Environmental Studies, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan	R.11.2
16:45	**Diamond magnetometry in a cell** Felipe Perona Martinez, Anggrek Citra Nusantara, Alina Sigaeva, Aryan Morita, Thamir Hamoh, Romana Schirhagl University of Groningen, The Netherlands	R.11.3
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium R Program

Thursday, September 19 th, 2019

Session XII: Surfaces : B. Rezek

09:00	**Hydrated electron quantification when detonation nanodiamonds are submitted to radiations** Emilie Brun, Hugues A. Girard, Jean-Charles Arnault, Cécile Sicard-Roselli 1. Laboratoire de Chimie Physique, CNRS UMR 8000 Université Paris-Saclay 91405 Orsay Cedex, France; 2. CEA, LIST, Diamond Sensors Laboratory, 91191, Gif-sur-Yvette, France	R.12.1
09:15	**Intercalation, decomposition, entrapment - a new route to graphene nanobubbles** Khadisha M. Zahra, Conor Byrne, Alex, S. Walton School of Chemistry and Photon Science Institute, The University of Manchester, Manchester, M13 9PL, UK	R.12.2
09:30	**Surface and bulk chemistry of HOPG electrochemical exfoliation: new insights from low-energy ion beam analysis** Luca Tortora[1,2,4]*, Stefania De Rosa[1,3], Paolo Branchini[1,4], Valentina Spampinato[6], Alexis Franquet[6], Rossella Yivlialine[7], Lamberto Duò[5] and Gianlorenzo Bussetti[5] 1. Surface Analysis Laboratory INFN, Roma Tre University, via della Vasca Navale 84, Rome, Italy; 2. Department of Science, Roma Tre University, via della Vasca Navale 84, Rome, Italy; 3. Department of Mathematics and Physics, Roma Tre University, via della Vasca Navale 84, Rome, Italy; 4. CNR-IMM, via del Fosso del Cavaliere 100, Rome, Italy; 5. Department of Physics, Politecnico di Milano, Piazza Leonardo da Vinci 32, I-20133 Milano, Italy; 6. Imec, Kapeldreef 75, B-3001, Leuven, Belgium; 7 current address: Department of Materials Science, Università di Milano-Bicocca, v. R. Cozzi 55, I-20125 Milano, Italy, Acknowledgments: The TOF-SIMS/SPM instrument was financially supported by the HERCULES foundation. Part of this project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No.688225 (Metro4-3D)	R.12.3
09:45	**Isotopic investigations of hydrogenated detonation nanodiamonds** Arnault J.C.[1], Nehlig E.[2], Girard H.A.[1], Garcia-Argote S.[2], Feuillastre S.[2], Moskura M.[3], Charpentier T.[3], Schlegel M.L.[4], Pieters G.[2] 1. CEA, LIST, Diamond Sensors Laboratory, F-91191 Gif sur Yvette, France; 2. CEA, SCBM, Tritium Labelling Laboratory, F-91191 Gif sur Yvette, France; 3. NIMBE, CEA, CNRS, Université Paris-Saclay, CEA Saclay, F-91191 Gif sur Yvette, France; 4. CEA, DEN, SEARS, Université Paris-Saclay, F-91191 Gif sur Yvette, France	R.12.4

10:00	**Quantitative evaluation of polymer density and net charge effects on nanodiamond surface toward protein affinity** Yajuan Zou, Naoki Komatsu Graduate School of Human and Environmantal Studies, Kyoto University	R.12.5
10:15	Concluding remarks	

Symposium S

Sessions: Room 113 | Faculty of Physics Building
Poster Session: Main Aula | Faculty of Physics Building

FUNDAMENTALS:

New frontiers for the in-situ and operando spectroscopic investigation of interfaces applied to catalysis and electrochemistry

Symposium Organizers: **Luca ARTIGLIA**, Paul Scherrer Institute, Switzerland

Marco FAVARO, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Germany

Virginia PÉREZ-DIESTE, ALBA Synchrotron Light Source, Spain

SYMPOSIUM S TIMETABLE

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(09:10-10:25) Session I</td><td>(09:00-10:15) Session VI</td><td rowspan="3">Plenary Session
09:00-12:30</td><td></td></tr>
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Symposium S location

Sessions: 113 | Faculty of Physics Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium S Program

Monday, September 16 th, 2019

09:00	Welcome - Luca Artiglia, Virginia Perez-Dieste, Marco Favaro	
Session I: Imaging and Spectroscopy : Luca Artiglia		
09:10	**Catalysts Live & Up Close** Bert M. Weckhuysen University of Utrecht, Debye Institute for Nanomaterials Science, Inorganic Chemistry and Catalysis, David de Wiedgebouw Universiteitsweg 99, 3584 CG Utrecht	S.1.1
09:45	**Novel Solutions for Near – Ambient Pressure in-situ and operando photoelectron spectro-microscopy** Matteo Amati, Patrick Zeller, Luca Gregoratti Elettra – Sincrotrone Trieste S.C.p.A di interesse nazionale, Strada Statale 14 - km 163,5 in AREA Science Park, 34149 Basovizza, Trieste ITALY	S.1.2
10:05	**Using machine learning-based clustering techniques for the analysis of in situ X-ray spectromiscroscopy data** Lukas Pielsticker, Rachel L. Nicholls, Mark T. Greiner, Robert Schlögl Max-Planck Institute for Chemical Energy Conversion, Department of Heterogeneous Reactions, Mülheim an der Ruhr, Germany	S.1.3
10:30	Coffee Break	
Session II: Spectroscopy and Carbon Dioxide Reduction : Virginia Perez-Dieste		
11:00	**AP-XPS Studies of the CO2 Reduction Reaction on Metal Catalyst Surfaces** Yifan Ye[1,2,3], Jin Qian[4], Hao Yang[4], Hongyang Su[2,5], Kyung-Jae Lee[2,6], Tao Cheng[4,7], Hai Xiao[4,7], William A. Goddard III[4,7], Ethan J. Crumlin[2], Junko Yano[1,8] 1. Joint Center for Artificial Photosynthesis, Lawrence Berkeley National Laboratory, Berkeley, United States; 2. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, United States; 3. Chemical Sciences Division, Lawrence Berkeley National Laboratory, United States; 4. Materials and Process Simulation Center, California Institute of Technology, United States; 5. Hefei National Laboratory for Physical Sciences at the Microscale, University of Science and Technology of China, Hefei, P. R. China; 6. Department of Physics and Photon Science, Gwangju Institute of Science and Technology, Gwangju, South Korea; 7. Joint Center for Artificial Photosynthesis, California Institute of Technology, Pasadena, United States; 8. Molecular Biophysics and Integrated Bioimaging Division, Lawrence Berkeley National Laboratory, Berkeley, United States	S.2.1

11:35	**IR-operando studies on emerging CO2 electrocatalysts** Philipp Stadler Linz Institute of Technology and Institute of Physical Chemistry, Johannes Kepler University Linz, Austria	S,2.2
12:10	Lunch Break	
Session III: AP-HAXPES to probe the solid-liquid interface : Marco Favaro		
14:00	**Probing Electrochemical Interface and Electrolyte Using In-Situ Photoelectron Spectroscopy** Zhi Liu School of Physical Science and Technology ShanghaiTech University, China, Shanghai Institute of Microsystem and Information Technology, CAS, China E-mail: liuzhi@shanghaitech.edu.cn	S.3.1
14:35	**Ambient pressure hard x-ray photoelectron spectroscopy investigations of bismuth vanadate – electrolyte interfaces** Michael J Sear, Marco Favaro, Pip CJ Clark, Roel van de Krol, David E Starr Helmholtz Zentrum Berlin fuer Materialien und Energie GmbH	S.3.2
14:55	**Temperature effects on Cu(In,Ga)Se2 absorber layers with CdS and Zn(O,S) buffers - an in situ hard X-ray photoelectron spectrosc** Robert Wenisch[1], Tim Kodalle[1], Natalia Maticiuc[1], Yajie Wang[1], Tobias Bertram[1], Hasan A.Yetkin[1], Jérome Deumer[1], Silvio Knoop[1], Christian A. Kaufmann[1], Rutger Schlatmann[1,2], Iver Lauermann[1] 1. Helmholtz-Zentrum Berlin für Materialien und Energie PVcomB; 2. Hochschule für Technik und Wirtschaft Berlin	S.3.3
15:30	Coffee Break	
Session IV: Characterize the solid-liquid interfaces with XPS and XAS : Zhi Liu		
16:00	**In operando XPS and XAS on active oxygen evolution reaction catalysts in confined liquid electrolyte** Rik Mom, Lorenz Frevel, Juan Velasco-Velez, Travis Jones, Axel Knop-Gericke, Robert Schlögl Fritz Haber Institute of the Max Planck Society, Faradayweg 4-6, 14195 Berlin, Germany	S.4.1
16:20	**Liquid-phase chemistry: graphene nanobubbles for in-situ electron spectroscopy** Silvia Nappini[1], Elena Magnano[1], Federica Bondino[1], Igor Pîš[1,2], Alessia Matruglio[3], Simone Dal Zilio[1], Denys Naumenko[2], Marco Lazzarino[1] 1. CNR-IOM, Laboratorio TASC, S.S. 14-km 163.5, 34149 Basovizza, Trieste, Italy; 2. Elettra-Sincrotrone Trieste S.C.p.A, S.S. 14-Km 163.5,34149 Basovizza, Trieste, Italy; 3. CERIC-ERIC, S.S. 14-Km 163.5, 34149 Basovizza,Trieste, Italy	S.4.2

16:40	**The Off-set Droplet Technique, A Pathway to Lab Based Operando XPS Electrochemistry** Conor Byrne, Khadisha Zahra, Alex Walton School of Chemistry, University of Manchester, Manchester M13 9PL Photon Science Institute, University of Manchester, Manchester M13 9PL	S.4.3
17:00	**Chemical reactions, corrosion and electrochemistry at solid-liquid interfaces – Routine operando studies with Near Ambient Press** Liana Socaciu-Siebert, Paul Dietrich, Andreas Thissen SPECS Surface Nano Analysis GmbH, Berlin, Germany	S.4.4
17:30 Poster Session: Luca Artiglia, Marco Favaro, Virginia Perez-Dieste		
	Metal-oxide electrode-electrolyte interfaces investigated by operando photoelectron spectroscopy Dennis Hein[1,2], Garlef Wartner[1,2], Martin Schellenberger[1,2], Robert Seidel[1,2] 1. Helmholtz-Zentrum Berlin, Albert-Einstein-Straße 15, 12489 Berlin, Germany; 2. Humboldt-Universität zu Berlin, Institut für Chemie, Brook-Taylor-Straße 2, 12489 Berlin, Germany	S.P.1
	Operando ATR-SEIRAS study of the electrochemical double layer at Au thin film electrodes using low-cost Si wafer IREs Mailis Lounasvuori, Tristan Petit Helmholtz-Zentrum Berlin für Materialien und Energie, Institute for Nanospectroscopy, Albert-Einstein-Str. 15, 12489 Berlin, Germany	S.P.2
	A study of GaN surfaces under ambient conditions by NAP-XPS, LEED and AFM techniques Mais Ahmad, Hannes Raschke, Ravi Prakash, Esser Norbert, Roland Hergenröder Leibniz-Institut für Analytische Wissenschaften – ISAS – e.V., Bunsen-Kirchhoff-Straße 11-44139, Dortmund, Germany Leibniz-Institut für Analytische Wissenschaften – ISAS – e.V., Schwarzschildstr. 8, 12489 Berlin, Germany	S.P.3
	SpAnTeX – a new ambient pressure XPS endstation for exploring interfaces involving liquids Pip C. J. Clark[1], Marco Favaro[1], Michael J. Sear[1,2], Martin Johansson[2], Sven Maehl, Roel van de Krol[1], David E. Starr[1] 1. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Institute for Solar Fuels, Hahn-Meitner-Platz 1, D-14109 Berlin, Germany; 2. SPECS Surface Nano Analysis GmbH, 13355 Berlin, Germany	S.P.4
	Characterization of Cu-based catalysts under Methanol Steam Reforming conditions: An in situ Time-Resolved Spectroscopic study D. Ruano, J. Cored, V. Pérez-Dieste, P. Concepción ALBA Synchrotron Light Source, Instituto de Tecnología Química, Universitat Politècnica de València - Consejo Superior de Investigaciones Científicas (UPV-CSIC) ,ALBA Synchrotron Light Source, Instituto de Tecnología Química, Universitat Politècnica de València - Consejo Superior de Investigaciones Científicas (UPV-CSIC)	S.P.5

	Liquid environment at BACH beamline: achievements and perspectives E. Magnano, S. Nappini, F. Bondino, I. Píš IOM-CNR, Laboratorio TASC, S.S. 14-km 163.5, 34149 Basovizza, Trieste, Italy Elettra-Sincrotrone Trieste S.C.p.A, S.S. 14-Km 163.5,34149 Basovizza, Trieste, Italy	S.P.6
	Investigating synergetic effects in Cu-Sn mixed metal oxide CO2 reduction electrocatalysts by hard and soft X-ray spectroscopy Dr. Laura C. Pardo-Perez, Sasho Stojkovikj, Alexander Arndt, Dr. Matthew T. Mayer Nachwuchsgruppe Elektrochemische Umwandlung von CO2, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH	S.P.7
	A high-pressure x-ray photoelectron spectroscopy instrument for studies of catalytic reactions above atmospheric pressure Peter Amann[1], David Degerman[1], Mikhail Shipilin[1], Patrick Loemker[2], Christoph Schlueter[2], Sara Blomberg[3], and Anders Nilsson[1] 1. Department of Physics, Stockholm University, AlbaNova University Center, 10691 Stockholm, Sweden; 2. Photon Science, Deutsches Elektronen Synchrotron DESY, 22607 Hamburg, Germany; 3. Department of Physics, Lund University, Lund 221 00, Sweden	S.P.8
	XAS/DRIFTS/MS spectroscopy for operando investigations on heterogeneous catalysts G. Agostini, D. Meira, M. Monte, H. Vitoux, A. Iglesias-Juez, M. Fernández-García, O. Mathon, F. Meunier, G. Berruyer, F. Perrin, S. Pasternak, T. Mairs, S. Pascarelli, B. Gorges ERSF – European Synchrotron Radiation Facility, Grenoble (France), ALBA - Synchrotron, Cerdanyola del Valles (Spain), Instituto de Catálisis y Petroleoquimica (ICP-CSIC), Madrid, Institut de Recherches sur la Catalyse et l'Environnement de Lyon, Villeurbanne (France)	S.P.9
	In-Situ Spectroscopy: a beamline for the characterization of solid-gas and solid-liquid interfaces at the Swiss light source Luca Artiglia[1], Zbynek Novotny[1,2], Anthony Boucly[1], Nicoló Comini[2], Joerg Raabe[1], Thorsten Bartels-Rausch[1], Markus Ammann[1], Jeroen van Bokhoven[1,3], Juerg Osterwalder[2] 1. Paul Scherrer Institute, Forschungsstrasse 111, 5232 Villigen (Switzerland); 2. University of Zurich, Winterthurerstrasse 190, 8057 Zurich (Switzerland); 3. ETH Zurich, Vladimir-Prelog-Weg 1/10, 8093 Zurich (Switzerland)	S.P.10

Symposium S Program

Tuesday, September 17 th, 2019

Session VI: Spectroscopy and Electrochemistry : Junko Yano

09:00	**In situ methods for analysis of the ORR, CO2RR and other energy conversion reactions** Ib Chorkendorff Department of Physics, Technical University of Denmark (DTU) Fysikvej, Building 312, DK-2800 Kongens Lyngby, Denmark	S.6.1
09:35	**Understanding lithium storage mechanism in MnO2@CNT hybrid by in-situ synchrotron X-ray scattering study and Raman spectroscopy** Moumita Rana, Venkata Sai Avvaru, Nicola Boaretto, Vinodkumar Etacheri and Juan Jose Vilatela Multifunctional Nanocomposite Group IMDEA Materials Institute C/ Eric Kandel 2, Parque de Tecnogetafe 28906-Madrid, Spain	S.6.2
09:55	**Surface segregation acts as surface engineering for the oxygen evolution reaction on perovskite oxides in alkaline media** Anthony Boucly[1], Emiliana Fabbri[1], Luca Artiglia[1], Xi Cheng[1], Daniele Pergolesi[1,] Thomas Lippert[1], Markus Amman[1], Thomas J. Schmidt[1,2] 1. Paul Scherrer Institut, Forschungsstrasse 111, CH−5232 Villigen PSI, Switzerland; 2. Laboratory of Physical Chemistry, ETH Zürich, CH−8093 Zürich, Switzerland	S.6.3
10:30	Coffee Break	

Session VII: Spectroscopy and Catalysis I : Anja Bieberle

11:00	**Operando Raman and infrared study on the role of additives to modulate toluene combustion on ceria-based catalysts** Miguel A. Bañares[1], Qingyue Wang[1,2], Raquel Portela[1], Celina Barrios[3], Sebastián Collins[3], King L. Yeung[2] 1. Institute for Catalysis, CSIC, Madrid, SPAIN; 2. The Hong Kong University of Science and Technology, HONG KONG, 3 INTEC, CONICET, Santa Fe, ARGENTINA	S.7.1

11:35	**Active Mo species in methane dehydroaromatization reaction** Angeles Lopez-Martin, Gerardo Colon, Alfonso Caballero Instituto de Ciencia de Materiales de Sevilla (CSIC-University of Seville) and Departamento de Quimica Inorganica. University of Seville. Av. Americo Vespucio, 49, 41092 Seville, Spain	S.7.2
11:55	**NAP-XPS study of AgPd single-atom alloy catalysts** C. Hartwig, K. Schweinar, S. Beeg, M. Greiner, R. Schlögl Max-Planck Institute for Chemical Energy Conversion, Department of Heterogeneous Reactions, Mülheim an der Ruhr, Germany, Max-Planck Institute for Iron Research, Düsseldorf, Germany, Fritz Haber Institute of the Max-Planck Society, Berlin, Germany	S.7.3
12:15	Lunch Break	

Session VIII: Spectroscopy and Catalysis II : Miguel Banares

14:00	**CO oxidation on ceria-based catalysts: Complexity of reaction mechanisms uncovered by time-resolved X-ray spectroscopy** Olga V. Safonova Paul Scherrer Institute, 5232 Villigen PSI, Switzerland	S.8.1
14:20	**Oxidation of CO on a curved Pt(111) surface investigated with Near-Ambient X-ray Photoemission** Fernando García-Martinez[1], Iradwinaraki Waluyo[2], Andrew Walter[2], Adrian Hunt[2], Frederik M. Schiller[1] and J. Enrique Ortega[1,3,4] 1. Centro de Física de Materiales CSIC, San Sebastian (Spain); 2.National Synchrotron Light Source II, Brookhaven National Lab (USA); 3. Departamento Física Aplicada I, Universidad del País Vasco, 20018-San Sebastian (Spain); 4. Donostia International Physics Center DIPC, 20018-San Sebastian (Spain)	S.8.2
14:40	**The activity of single atoms and particles in steam-treated Pt/CeO2 catalyst studied with in situ AP-XPS** Xiansheng Li[1,2], Luca Artiglia*[1], Jeroen A. van Bokhoven*[1,2] 1. Paul Scherrer Institute, CH-5232 Villigen, Switzerland; 2. Institute for Chemical and Bioengineering, ETH Zurich, CH-8093 Zurich, Switzerland	S.8.3
15:00	**Operando study of CO oxidation at 1 bar using XPS** Sara Blomberg, Hanna Karlsson, Christian Hulteberg, Johan Gustafson, Uta Hejral, Stefano Albertin, Edvin Lundgren, Peter Amann, Mikhail Shipilin, David Degerman, Anders Nilsson, Patrick Lömker, Christoph Schlueter Dept. Chemical Engineering Lund University, Dept. Physics Lund University, Dept. Physics Stockholm University, Photon Science DESY	S.8.4
15:30	Coffee Break	

Session VIII: Spectroscopy and Catalysis III : Peter Amann

16:00	**Tailoring Catalyst Surfaces for Chemical Energy Conversion – Operando Spectroscopic Studies of Nanoparticle Exsolution** L. Lindenthal[1], R. Rameshan[1], J. Popovic[1], T. Ruh[1], J. Raschhofer[1], A. Nenning[2], A.K. Opitz[2], C. Rameshan[1] 1. all Institute of Materials Chemistry, TU Wien, Austria; 2. Institute of Chemical Technologies and Analytics, TU Wien, Austria	S.9.1
16:20	**Photo-induced reduction of platinum films mediated by water** Jordi Fraxedas[1], Borja Sepúlveda[1], María José Esplandiu[1], Xènia García de Andrés[2], Jordi Llorca[2], Virginia Pérez-Dieste[3], Carlos Escudero[3] 1. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Campus UAB, Bellaterra, Barcelona, 08193, Spain; 2. Institute of Energy Technologies, Department of Chemical Engineering and Barcelona Research Center in Multiscale Science and Engineering, Universitat Politècnica de Catalunya, EEBE, Eduard Maristany 10-14, Barcelona, 08019, Spain; 3. Alba Synchrotron Light Source, Carrer de la Llum 2-26, Cerdanyola del Vallès, Barcelona, 08290, Spain	S.9.2
16:40	**Spectroscopic signatures of chemical and structural changes in mixed transition metal oxides upon chemical potential variation** S. Beeg, C. Correa da Silva, J. Cao, C. Hartwig, T. E. Jones, M. T. Greiner and R. Schloegl Max-Planck Institute for Chemical Energy Conversion, Department of Heterogeneous Reactions Mülheim an der Ruhr, Germany, Max-Planck Institute for Iron Research, Düsseldorf, Germany, Fritz Haber Institute of the Max-Planck Society, Berlin, Germany	S.9.3

Symposium S Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session X: In-situ and Operando vibrational spectroscopies I : Philipp Stadler		
14:00	**Operando infrared spectroscopy for elucidating the surface intermediates in water splitting** Aafke C. Bronneberg, Richard van de Sanden and Anja Bieberle-Hütter Dutch Institute for Fundamental Energy Research (DIFFER), Eindhoven, 5612AJ, The Netherlands	S.10.1
14:35	**In situ Raman spectroscopy study of bio-corrosion products on the surface of carbon steel** Houcem Elmaaoui Universite de Caen	S.10.2
14:55	**Operando multi-wavelength Raman / UV-Vis spectroscopy as applied to oxidative dehydrogenation** Simone Rogg, Patrick Ober, Marcel Heber, Christian Hess Eduard-Zintl Institute of Inorganic and Physical Chemistry, TU Darmstadt, Germany	S.10.3
15:15	Coffee Break	
Session XI: In-situ and Operando vibrational spectroscopies II : Luca Artiglia		
16:00	**QMMM modelling on Cu-containing zeolites** Jingcheng Guan, Alexey Sokols, Richard Catlow University College London	S.11.1
16:20	**Tracking Molecular Mechanism in Redox Based Memristors using In-situ Spectroscopic Techniques** Sreetosh Goswami, T. Venkatesan National University of Singapore, National University of Singapore	S.11.2
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium T

Sessions: Room 102 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

FUNDAMENTALS:

Nanomaterial thermal transport properties and nanothermodynamics

Symposium Organizers: **F-Xavier ALVAREZ**, Autonomous University of Barcelona (UAB), Spain
Konstantinos TERMENTZIDIS, CETHIL – CNRS, France
P-Olivier CHAPUIS, CETHIL – CNRS, France
Xanthippi ZIANNI, Technological Educational Institution of Sterea Ellada, Greece

SYMPOSIUM T TIMETABLE

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<tr><td>9:00 – 10:30</td><td></td><td>Session I</td><td rowspan="3">Plenary Session
09:00-12:30</td><td>(09:00-10:10) Session VIII</td></tr>
<tr><td>10:30 – 11:00</td><td colspan="2">Coffee Break</td><td>Coffee Break</td></tr>
<tr><td>11:00 – 12:30</td><td></td><td>(11:00-12:40) Session II</td><td>(11:00-12:40) Session IX</td></tr>
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<tr><td>15:30 – 16:00</td><td colspan="4">Coffee Break</td></tr>
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<tr><td>17:30 – 19:30</td><td></td><td>Poster Session</td><td>Graduate Student Awards Ceremony & Reception 18:00-21:00</td><td></td></tr>
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Symposium T location

Sessions: 102 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium T Program

Tuesday, September 17 th, 2019

Session I: Nanoscale thermal radiation : Session chair P-Olivier Chapuis		
09:00	**Fundamental limits on thermal radiation and heat transfer in arbitrary geometries: from subwavelength to ray optics** Sean Molesky, Prashanth Venkataram, Weiliang Jin and Alejandro W. Rodriguez Department of Electrical Engineering, Princeton University	T.1.1
09:30	**Magneto-optical control with non-reciprocal surface waves for nanoscale thermotronics** Annika Ott, Riccardo Messina, Svend-Age Biehs, Philippe Ben-Abdallah 1. Institut für Physik, Carl von Ossietzky Universität, D-26111 Oldenburg, Germany; 2. Laboratoire Charles Fabry,UMR 8501, Institut d'Optique, CNRS, Universite Paris-Sud	T.1.2
09:50	**Near-field thermophotovoltaic conversion with InSb cells** C. Lucchesi[1], D. Cakiroglu[2],J.-P. Perez[2], T. Taliercio[2], E. Tournié[2], P.-O. Chapuis[1], R. Vaillon[2] 1. Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008, F-69621, Villeurbanne, France; 2. IES, Univ. Montpellier, CNRS, F-34000 Montpellier, France	T.1.3
10:10	**Thermodynamics of thermal radiation at the nanoscale** A. Pérez-Madrid[1], L.C. Lapas[2], I. Latella[1], J.M. Rubi[1] 1. Departament de Física de la Matèria Condensada, Facultat de Física, Universitat de Barcelona, Martí i Franquès 1, 08028 Barcelona, Spain; 2. Interdisciplinary Center for Natural Sciences, Universidade Federal da Integraçao Latino-Americana, P.O. Box 2067, 85867-970 Foz do Iguazu, Brazil	T.1.4
10:30	Coffee Break	
Session II: Nanoscale transport : Session chair F-Xavier Alvarez		
11:00	**Modulating thermal transport in soft materials with nanoparticles: from ultrafast phase change to polymer nanocomposites** J. Lombard[1], T. Biben[1], M. Orrit[2], C. Ma[1], F. Detcheverry[1], F. Leroy[3], S. Merabia[1] 1. Institute Light and Matter, Université Lyon 1 and CNRS, Villeurbanne, France; 2. University of Leiden, Netherlands; 3. Technische Universität Darmstadt, Darmstadt, Germany	T.2.1

11:20	**Thermal conductivity measurements of nanostructured thin films** J. Paterson, D. Singhal, D. Tainoff, J. Richard, O. Bourgeois Institut Néel, CNRS, 38000 Grenoble, France, Univ. Grenoble Alpes, Grenoble, France	T.2.2
11:40	**Height and morphology dependent heat transfer of carbon nanotube forests** Yaniv Cohen, Siva Reddy, Yahav Ben-Shabat, Assaf Ya'akobovitz Faculty of Engineering Sciences Ben-Gurion University of the Negev, Israel	T.2.3
12:00	**Thermal conductivity measurements of single semiconductor nanowires: a novel approach** A. Campo, M.J. Carballido, G. Gadea, M. De Luca, F. Rossella, V. Zannier, A. Lugstein, L. Sorba, M.Y. Swinkels, I. Zardo Department of Physics, University of Basel, Klingelbergstrasse 82, 4056 Basel, Switzerland, Department of Physics, University of Basel, Klingelbergstrasse 82, 4056 Basel, Switzerland, Department of Physics, University of Basel, Klingelbergstrasse 82, 4056 Basel, Switzerland, Department of Physics, University of Basel, Klingelbergstrasse 82, 4056 Basel, Switzerland, NEST, Scuola Normale Superiore and Istituto Nanoscienze-CNR, Piazza S. Silvestro 12, I-56127 Pisa, Italy, NEST, Scuola Normale Superiore and Istituto Nanoscienze-CNR, Piazza S. Silvestro 12, I-56127 Pisa, Italy, Institute of Solid State Electronics, TU Wien, Gußhausstraße 25-25a, 1040 Vienna, Austria, NEST, Scuola Normale Superiore and Istituto Nanoscienze-CNR, Piazza S. Silvestro 12, I-56127 Pisa, Italy, Department of Physics, University of Basel, Klingelbergstrasse 82, 4056 Basel, Switzerland, Department of Physics, University of Basel, Klingelbergstrasse 82, 4056 Basel, Switzerland	T.2.4
12:20	**Enhanced Thermal conductivity measurement of aluminum nitride thin film** M. Rammal[1], B. Garnier[2], A. Rhallabi[1], D. Néel[3], A. Shen[3], M.A. Djouadi[1] 1. Institut des Matériaux Jean Rouxel, CNRS, 2 Rue de la Houssinière 44322 Nantes, France Laboratoire de; 2. Thermique et Energie de Nantes, CNRS, Polytech'Nantes, BP50609 44306 Nantes, France; 3. III-V Lab, Campus de Polytechnique, 1, Avenue Augustin Fresnel, 91767 Palaiseau	T.2.5
12:40	Lunch Break	
Session III: Thermodynamics and scattering effects : Session chair Xanthippi Zianni		
14:00	**Thermoelecticity and Thermodynamics: a feedback story** C. Goupil[1], E. Herbert[1], H. Ouerdane[2], Ph. Lecoeur[3] 1. Université Paris Diderot, 5 Rue Thomas Mann, F-75013, Laboratoire Interdisciplinaire des Energies de Demain (LIED), CNRS UMR8236; 2. Center for Energy Science and Technology, Skolkovo Institute of Science and Technology; 3. Nobel Street, Skolkovo, Moscow Region 121205, Russia; 3. Université Paris-Sud 11 · Centre de Nanosciences et de Nanotechnologies (C2N) France · Orsay.	T.3.1

14:30	**Thermal conductivity in disordered porous nanomembranes** Marianna Sledzinska[1], Bartlomiej Graczykowski[2,3], Francesc Alzina[1], Umberto Melia[4], Konstantinos Termentzidis[5], David Lacroix[6] and Clivia M. Sotomayor Torres[1,7] 1. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and The Barcelona Institute of Science and Technology Campus UAB, Bellaterra, 08193 Barcelona, Spain; 2. Faculty of Physics, Adam Mickiewicz University, Umultowska 85, 61-614 Poznan, Poland; 3. Max Planck Institute for Polymer Research, Ackermannweg 10, 55218 Mainz, Germany; 4. Department of ESAII, Centre for Biomedical Engineering Research, Universitat Politècnica de Catalunya, CIBER-BBN, Barcelona, Spain; 5. Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008, F-69621, Villeurbanne, France; 6. Université de Lorraine, CNRS, LEMTA, Nancy, F-54000, France; 7. ICREA - Institucio Catalana de Recerca i Estudis Avancats, 08010 Barcelona, Spain	T.3.2
14:50	**Thermal Conductance Scaling of Silicon Phononic Crystals** Alexander N. Robillard, Ralf Meyer Laurentian University	T.3.3
15:10	**Thermal rectification based on porous Si membranes** M. Kaprzak[1], M. Sledzinska[2], K. Zaleski[3], I. Iatsunskyi[3], F. Alzina[2], C.M. Sotomayor Torres[2], B. Graczykowski[1] 1. Faculty of Physics, Adam Mickiewicz University, Umultowska 85, 61645 Poznań, Poland; 2. Catalan Intitute of Nanoscience and Nanotechnology (ICN2), Campus UAB, 08193 Barcelona, Spain; 3. NanoBioMedical Centre, Adam Mickiewicz University, Umultowska 85, 61645 Poznań, Poland	T.3.4
15:30	Coffee Break	
Session IV: Thermoelectric phenomena and devices : Session chair Konstantinos Termentzidis		
16:00	**Thermoelectricity beyond local and instantaneous approximations** Dario Narducci University of Milano Bicocca, Dept. Materials Science	T.4.1
16:30	**The thermal conductance of the Single Electron Transistor from the quantum to the classical regime** Xanthippi Zianni National and Kapodistrian University of Athens, Greece	T.4.2
16:50	**Strong through-junction phonon isolation in solid-state thermionics** Janne S. Lehtinen, Emma Mykkänen, Alberto Ronzani, Leif Grönberg, Antti Kemppinen, Antti J. Manninen and Mika Prunnila VTT Technical Research Centre of Finland Ltd, Tietotie 3, 02150 Espoo, Finland	T.4.3

17:10	**STM-based single-molecule thermopower: a comparative study** Hamill J.M., Albrecht T. School of Chemistry, University of Birmingham	T.4.4
17:30	Poster Session: FX Alvarez, PO Chapuis, K. Termentzidis, X. Zianni	
	Thermal conductivity and mechanical properties of germanene nanosheets Te-Hua Fang*, Chen Fang-Yi Department of Mechanical Engineering, National Kaohsiung University of Science and Technology, Kaohsiung 80778, Taiwan	T.P.1
	Thermal Manipulations of Carbon Nanoutube Forests Alignment Yaniv Cohen and Assaf Ya'akobovitz Ben-Gurion University of the Negev, Israel	T.P.2
	Probing phonon mean free path in silicon membranes Roman Anufriev, Jose Ordonez-Miranda, Masahiro Nomura Institute of Industrial Science, The University of Tokyo, Tokyo 153–8505, Japan, Institut Pprime, CNRS, Université de Poitiers, ISAE-ENSMA, F-86962 Futuroscope Chasseneuil, France, CREST, Japan Science and Technology Agency, Saitama 332–0012, Japan	T.P.3
	Soft thermal nanoimprint with a 10 nm feature size Ashish Pandey, Sivan Tzadka, Dor Yehuda and Mark Schvartzman Department of Materials Engineering, Ilse Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, Beer-Sheva, 84105, Israel	T.P.4
	Experimental estimations of specularity factors for a thick Si membrane at low temperatures Y. Vaheb[1] , S. Volz[2], J. Amrit[1] 1. Laboratoire d'Informatique pour la Mécanique et les Sciences de l'Ingénieur, LIMSI-CNRS, Université Paris-Saclay, Orsay, 91405, France; 2. Laboratory for Integrated Micro-Mechatronic Systems, LIMMS/CNRS-IIS, Institute of Industrial Science, University of Tokyo, Meguro-ku, Tokyo, 153-8505, JAPAN	T.P.5
	Thermal investigation of nanocontacts by means of Scanning Thermal Microscopy: Impact of roughness and amorphous carbon monoatom E. Guen[1], P. Mangel[1], N. J. Kaur[2], P. Vincent[3], A. Ayari[3], P. Klapetek[2], P.-O. Chapuis[1] and S. Gomès[1] 1. Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008, F-69621, Villeurbanne, France; 2. Czech Metrology Institute, Okruzni 31, 638 00 Brno, Czech Republic; 3. Univ Lyon, CNRS, Université Claude Bernard Lyon 1, ILM Villeurbanne, France	T.P.6

	Study of anomalous effects in thermal conductivity in c-GaN/a-SiO2 nano-composites Paul Desmarchelier, Konstantinos Termentzidis, Anne Tanguy Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008, F-69621, Villeurbanne, France. Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008, F-69621, Villeurbanne, France. LaMCos, INSA-Lyon, CNRS UMR5259, Université de Lyon, F-69621 Villeurbanne Cedex, France (Received)	T.P.7
	Thermal conductivity of "porous silicon – water" nanocomposite with molecular dynamics Xiaorui Wang[1], Mykola Isaiev[2,3], Severine Gomes[1,3], David Lacroix[2], Konstantinos Termentzidis[1,3] 1. CETHIL, INSA of Lyon; 2. LEMTA laboratory; University of Lorraine; 3. CNRS	T.P.8
	Microstructure and tunneling magnetoresistive characteristics of laser irradiated magnetic data recording head P. Rakpongsiri, S. Pintasiri, K. Ruthe, S. Tungasmita Nanoscience and Technology Program, Graduate School, Chulalongkorn University, Bangkok 10330 Thailand, Western Digital Corporation, Bang Pa-in, Phra Nakhon Si Ayutthaya 13160 Thailand, Department of Physics, Faculty of Science, Chulalongkorn University, Bangkok 10330 Thailand	T.P.9
	Thermal boundary resistance from phonon hydrodynamics model L. Sendra, A. Beardo, J. Bafaluy, J. Camacho, F.X. Alvarez Physics Department, Universitat Autònoma de Barcelona, 08193 Bellaterra, Spain	T.P.10
	Local thermal properties dependence on sample surface morphology. The SThM measurements with Nanothermal and Wollaston probe for CuPc thin layers Dominika Trefon-Radziejewska, Justyna Juszczyk, Jean Stéphane Antoniow, Maciej Krzywiecki Institute of Physics Center for Science and Education, Silesian University of Technology, Konarskiego 22B, 44-100 Gliwice, Poland UFR Sciences, GRESPI, Moulin de la Housse, BP 1039F-51687 Reims, Cedex 2, France	T.P.11
	Green-Kubo relation for thermal radiation in non-reciprocal systems Florian Herz, Svend-Age Biehs Oldenburg University	T.P.12

Symposium T Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VI: Ballistic transport		
14:00	**Length and temperature ranges of ballistic thermal conduction in serpentine silicon nanowires** Roman Anufriev, Sergei Gluchko, Sebastian Volz, Masahiro Nomura Institute of Industrial Science, The University of Tokyo, Tokyo 153–8505, Japan, Laboratory for Integrated Micro Mechatronic Systems / National Center for Scientific Research-Institute of Industrial Science (LIMMS/CNRS-IIS), The University of Tokyo, Tokyo 153–8505, Japan, CREST, Japan Science and Technology Agency, Saitama 332–0012, Japan	T.6.1
14:20	**Ballistic phonon transport in nanowires** Milo Y. Swinkels, Daniel Vakulov, Subash Gireesan, Luca Gagliano, Peter A. Bobbert, Erik P.A.M. Bakkers, Ilaria Zardo Department of Physics, University of Basel, 4056 Basel, Switzerland.,Department of Applied Physics, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands.,Department of Applied Physics, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands.,Center for Computational Energy Research, 5600 HH Eindhoven, The Netherlands.,Department of Applied Physics, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands.,Department of Applied Physics, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands.,Center for Computational Energy Research, 5600 HH Eindhoven, The Netherlands.,Department of Applied Physics, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands.,Kavli Institute of Nanoscience, Delft University of Technology, 2600 GA Delft, The Netherlands,Department of Physics, University of Basel, 4056 Basel, Switzerland	T.6.2
14:40	**Implementation of the Hydrodynamic heat transport model for complex geometries using Finite Elements** Albert Beardo, Juan Camacho, Lluc Sendra, Javier Bafaluy, Francesc Xavier Alvarez Departament de Física, Universitat Autònoma de Barcelona, 08193, Bellaterra, Barcelona, Catalonia, Spain	T.6.3

15:00	**Quasi-ballistic thermal transport and temperature jumps in nanostructures** Ali Alkurdi[1], Weizheng Cheng[1], Carolina Abs Da Cruz[1], Trang Nghiem[2,1], Jaona Randrianalisoa[2], Elyes Nefzaoui[3], Pierre-Olivier Chapuis[1] 1. Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008, F-69621, Villeurbanne, France; 2. ITheMM, Université de Reims-Champagne Ardennes, F-51687, Reims, France; 3. Université Paris-Est, ESYCOM (FRE2028), CNAM, CNRS, ESIEE Paris, Université Paris-Est Marne-la-Vallée, F-77454 Marne-la-Vallée, France	T.6.4
15:20	Coffee Break	
Session VII: Thermo-optics and Nanoparticles		
16:00	**Ultrafast Thermo-Optical Dynamics of Metal Nano-objects** Paolo Maioli, Aurélien Crut, Francesco Banfi, Fabrice Vallée, Natalia Del Fatti FemtoNanoOptics group, Université de Lyon, Université Claude Bernard Lyon 1, CNRS, Institut Lumière Matière, F-69622 Villeurbanne, France	T.7.1
16:30	**Effect of different aggregated nanoparticles on thermal conductivity and viscosity of nanofluid: A molecular dynamics approach** Zeeshan Ahmed, Atul Bhargav IIT GANDHINAGAR	T.7.2
16:50	**The impact of heat on optomechanical cavities properties** Jeremie Maire[1], Nestor E. Capuj[2,3], Martin F. Colombano[1,4], E. Chavez-Angel[1], Guillermo Arregui[1], Amadeu Griol[5], Alejandro Martinez[5], Jouni Ahopelto[6], Clivia M. Sotomayor-Torres[1,7], Daniel Navarro-Urrios[8] 1. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Campus UAB, Bellaterra, 08193 Barcelona, Spain; 2. Depto. Física, Universidad de La Laguna, 38200 San Cristóbal de La Laguna, Spain; 3. Instituto Universitario de Materiales y Nanotecnología, Universidad de La Laguna, 38071 Santa Cruz de Tenerife, Spain; 4. Depto. Física, Universidad Autonoma de Barcelona, Bellaterra, 08193 Barcelona, Spain; 5. Nanophotonics Technology Center, Universitat Politècnica de València, 46022 València, Spain; 6. VTT Technical Research Centre of Finland Ltd, P.O. Box 1000, FI-02044 VTT, Espoo, Finland; 7 Catalan Institute for Research and Advances Studies ICREA, 08010 Barcelona, Spain; 8 MIND-IN2UB, Departament d'Electrònica, Facultat de Física, Universitat de Barcelona, Martí i Franquès 1, 08028 Barcelona, Spain	T.7.3
17:10	**Thermal conductivity of Ge rich GeSbTe alloy within a nanostructured configuration** Jean-Luc Battaglia, Andrzej Kusiak, Anna-Lisa Serra, Gabriele Navarro, Marie-Claire Cyrille I2M, CNRS, University of Bordeaux CEA-LETI	T.7.4
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium T Program

Thursday, September 19 th, 2019

Session VIII: 2D materials and structures

09:00	**Nanoscale thermal transport and unconventional thermoelectric phenomena in 2D materials** O.V. Kolosov[1]*, J. Spiece[1], C. Evangeli[1], A. Harzheim[2], P. Gehring[2], E. McCann[1], V. Falko[3], H. Sadeghi[1], Y. Sheng[2], J.H. Warner[2], G.A.D. Briggs[2], C. Lambert[1] and J.A. Mol[2] 1. Physics Department, Lancaster University, LA1 4YB, Lancaster, UK; 2. Department of Materials, University of Oxford, 16 Parks Road, Oxford OX1 3PH, UK; 3. Physics Department, University of Manchester, Manchester, M13 9PL, UK	T.8.1
09:30	**Experimental and theoretical studies of ballistic heat conduction in graphene** A.A. Sokolov, A.V. Ankudinov, A.M. Krivtsov, W.H. Müller Continuum Mechanics and Materials Theory, Technische Universität Berlin, Einsteinufer 5, 10587 Berlin, Germany, Theoretical and Applied Mechanics, Peter the Great Saint Petersburg Polytechnic University, Politekhnicheskaja 29, 195251 St.P., Russia, A.F. Ioffe Physico-Technical Institute, Polytechnicheskaya 26, St. Petersburg, 194021, Russia, Theoretical and Applied Mechanics, Peter the Great Saint Petersburg Polytechnic University, Politekhnicheskaja 29, 195251 St.P., Russia, Institute for Problems in Mechanical Engineering of the Russian Academy of Sciences, Bol'shoy pr. 61, V.O., 199178 Saint Petersburg, Russia, Continuum Mechanics and Materials Theory, Technische Universität Berlin, Einsteinufer 5, 10587 Berlin, Germany	T.8.2
09:50	**Thermal properties of titanium trisulfide nanoribbons** Chao Wu, Chenhan Liu, Xianyi Tan, Juekuan Yang, Qingyu Yan, Yunfei Chen Jiangsu Key Laboratory for Design and Manufacture of Micro-Nano Biomedical Instruments, School of Mechanical Engineering, Southeast University, Nanjing, 211100, P. R. China, School of Materials Science and Engineering, Nanyang Technological University, 639798, Singapore	T.8.3
10:10	Coffee Break	

Session IX: Scanning thermal microscopy

11:00	**Thermal properties of all-inorganic halide perovskites: dependence on dimensionality and crystal-phase** Tobias Haeger, Ralf Heiderhoff, Thomas Riedl Institute of Electronic Devices, University of Wuppertal	T.9.1

11:20	**Approach curves in scanning thermal microscopy** Ali Alkurdi[1], Axel Pic[1,2], Eloïse Guen[1], Antonin Mouhannad Massoud[1,3], Jan Martinek[4], Christophe Lucchesi[1], Rodolphe Vaillon[5,1], Sébastien Gallois-Garreignot[2], Petr Klapetek[4], Jean-Marie Bluet[3], Séverine Gomes[1], Pierre-Olivier Chapuis[1] 1. Univ Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008, F-69621, Villeurbanne, France; 2. STMicroelectronics, 850 Rue Jean Monnet, 38920 Crolles, France; 3. Univ Lyon, Institut des Nanotechnologies de Lyon (INL), CNRS, INSA de Lyon, F-69621 Villeurbanne, France; 4. Czech Metrology Institute, Okruzni 31, 638 00 Brno, Czech Republic; 5. IES, Univ. Montpellier, CNRS, F-34000 Montpellier, France	T.9.2
11:40	**Optical and contact characterization methods for microscale heat transfer in insulating materials** Joris Doumouro[1], Elodie Perros[1-2], Valentina Krachmalnicoff[1], Alix Dodu[1], Nancy Rahbany[1], Rémi Carminati[1], Dominique Leprat[3], Wilfrid Poirier[3], Yannick De Wilde[1] 1. Institut Langevin, ESPCI Paris, CNRS, PSL University, 1 rue Jussieu, 75005, Paris, France; 2. Saint-Gobain Recherche, 39 Quai Lucien-Lefranc, Aubervilliers, France; 3. LNE-Laboratoire national de métrologie et d'essais, 78197 Trappes, France	T.9.3
12:00	**SThM nanoscale imaging in active mode under ambient and vacuum conditions** A. Metjari, G. Pernot, D. Lacroix Laboratoire d'Energie et de Mécanique Théorique et Appliquée, UMR CNRS 7563, Université de Lorraine, 54505 Vandoeuvre les Nancy, France	T.9.4
12:20	**Development of Highly Sensitive Niobium Nitride Resistive Thermal Probes for Nanoscale Thermal Microscopy** R. Swami[1,2*], J. Paterson[1,2], D. Singhal[1,2,4], G. Julié[1,2], S. Le-Denmat[1,2], J.F. Motte[1,2], A. Alkurdi[3], J. Yin[5], J.F. Robillard[5], P.-O. Chapuis[3], S. Gomès[3] & O. Bourgeois[1,2] 1. Institut Néel, CNRS, Grenoble, France; 2. Université Grenoble Alpes, Grenoble, France; 3. CETHIL, INSA, Campus de la Doua, Villeurbanne, France; 4. Université Grenoble Alpes, CEA-Pheliqs, Grenoble, France; 5. Institut d'Electronique, de Microélectronique de Nanotechnologie (IEMN), Villeneuve d'Ascq cedex, France	T.9.5

Symposium U Publications: Participants of the Symposium U will have a unique possibility to publish their results in a Special Issue on "X-ray based techniques for sustainable energy related materials" at the Applied Surface Science Journal (Impact Factor: 5.155)

Manuscript submission deadline is: November, 3th, 2019

For more details visit Symposium U website:

https://www.european-mrs.com/x-ray-based-techniques-sustainable-energy-related-materials-emrs

Symposium U

Sessions: Room 103 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

FUNDAMENTALS:

X-ray based techniques for sustainable energy related materials

Symposium Organizers: **Chittaranjan DAS**, Karlsruhe Institute of Technology, Germany
Malgorzata KOT (SOWINSKA), BTU Cottbus-Senftenberg, Germany
Mykhailo VOROKHTA, Charles University, Czech Republic

SYMPOSIUM U TIMETABLE

Symposium U				
	Monday September 16 th	**Tuesday September 17 th**	**Wednesday September 18 th**	**Thursday September 19 th**
9:00 – 10:30		Session IV	Plenary Session 09:00-12:30	
10:30 – 11:00	Coffee Break			
11:00 – 12:30		Session V		
12:30 – 14:00	Lunch Break			
14:00 – 15:30	(14:15-14:30) Opening remarks (14:30-15:30) Session I	Session VI	Session VIII	
15:30 – 16:00	Coffee Break			
16:00 – 17:30	(16:00-17:45) Session II	Session VII	(16:00-17:30) Session IX (17:30-17:40) Closing remarks	
17:30 – 19:30	(18:00-19:30) Poster Session		Graduate Student Awards Ceremony & Reception 18:00-21:00	

Symposium U location

Sessions: 103 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium U Program

Monday, September 16 th, 2019

14:15	Opening Remarks	
Session I: Małgorzata Kot		
14:30	**Introducing first-principles modelling as a useful tool for interpreting core-electron XPS spectra** Juhan Matthias Kahk, Johannes Lischner Imperial College London	U.1.2
14:45	**The limits of CuFeO2 (and other iron containing?) photocatalysts** Yannick Hermans[1], Andreas Klein[1], Henrik Junge[3], Thierry Toupance[2], Wolfram Jaegermann[1] 1. Surface Science TU Darmstadt Otto-Berndt-Str. 3, 64287 Darmstadt (Germany); 2. Molecular Chemistry and Materials, ISM UBordeaux ISM, UMR 5255 CNRS, 351 Cours de la Libération F-33405 Talence Cedex (France); 3. Leibniz-Institut für Katalyse e.V. Universität Rostock Albert-Einstein-Str. 29a, 18059 Rostock (Germany)	U.1.3
15:00	**Energy applications in the tender X-ray energy range: spectroelectrochemical cell and first results** Kim-Chi Le[2], Madeleine Han[1,2], Clément Larquet[2], Sophie Carenco[2], Victor Pinty[1], Benedikt Lassalle-Kaiser[1] 1. Synchrotron SOLEIL, l'Orme des Merisiers, 91192, Gif sur Yvette, France; 2. Sorbonne Université, CNRS, Collège de France, Laboratoire Chimie de la Matière Condensée de Paris, 4 Place de Jussieu, 75005 Paris, France	U.1.4
15:15	**X-ray Absorption Spectroscopy for spintronic materials: experiment versus multiple scattering theory** I.A. Kowalik[1], M. A. Niño[2], Juwon Lee[3], N.G. Subramaniam[3], T.W. Kang[3], D. Arvanitis[4] 1. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 2. IMDEA Nanociencia, Campus de Cantoblanco E-28049 Madrid, Spain; 3. Quantum Functional Semiconductor Research Center and Nano Information Technology Academy(NITA), Dongguk Univ., 26 Phildong 3ga Chung gu, Seoul, 100-715, Rep. of Korea; 4. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden	U.1.5
15:30	Coffee Break	
Session II: Chittaranjan Das		

16:00	**INVITED: Unveiling physical mechanisms of catalytic functionalities via in house XAS and synchrotron PEEM** Marko Huttula University of Oulu, Faculty of Science, Finland	U.2.1
16:30	**INVITED: Correlation of Optical Properties, Electronic Structure and Photocatalytic Activity in Nanostructured Tungsten Oxide** Chris Blackman Department of Chemistry, University College London, WC1H 0AJ c.blackman@ucl.ac.uk	U.2.2
17:00	**Electrochemical XPS on Pt electrocatalysts using confined electrolyte and graphene windows** Rik Mom, Lorenz Frevel, Juan Velasco-Velez, Axel Knop-Gericke, Robert Schlögl Fritz Haber Institute of the Max Planck Society, Faradayweg 4-6, 14195 Berlin, Germany	U.2.3
17:15	**Electrochemical reduction and brass formation in copper-zinc nanocatalysts: deciphering in-situ EXAFS data using neural network** Janis Timoshenko, Hyo Sang Jeon, Beatriz Roldan Cuenya Department of Interface Science, Fritz-Haber-Institute of the Max Planck Society, 14195 Berlin, Germany	U.2.4
17:30	**In situ GISAXS investigation of PtNi fuel cell catalyst under realistic operational environment** Ivan Khalakhan, Marco Bogar, Heinz Amenitsch Charles University, Faculty of Mathematics and Physics, Department of Surface and Plasma Science, V Holešovičkách 2, 18000 Prague, Czech Republic, Graz University of Technology, Institute for Inorganic Chemistry, Stremayrgasse 9, 8010 Graz, Austria, CERIC-ERIC c/o Elettra Synchrotron, S.S. 14 Km 163.5, 34149 Basovizza, Trieste, Italy	U.2.5
18:00 Poster Session: Chittaranjan Das, Małgorzata Kot		
	Resonant photoemission study on samarium 4f states in Pb0.97Ge0.03Te crystal E. Guziewicz*, B. A. Orlowski, A. Reszka, M.A. Pietrzyk, B.J. Kowalski Institute of Physics Polish Academy of Sciences, Al. Lotnikow 32/46, PL-02 668 Warsaw, Poland	U.P.1
	GaN nanoparticles in SiO2/Si matrices by ion implantations and heat treatment under nitrogen Agar L.[1,3], D. Bradai[1,2], M. Abdesslam[1,3], Y. Bourezg[1], A.C Chami[1], C. Mocuta[2], D. Thiaudiere[2], C. Speisser[3], C. Bouillet[4], F. Le Normand[3] 1. Faculty of Physics, University of Sciences and Technology Houari Boumediene, Algiers, Algeria; 2. Synchrotron SOLEIL, L'Orme des Merisiers, Saint-Aubin, 91192 Gif-sur-Yvette Cedex, France; 3. ICube, UMR 7357 CNRS-Université de Strasbourg, 67037 Strasbourg, France; 4. IPCMS, UMR 7504 CNRS-Université de Strasbourg, Strasbourg, France	U.P.2

	Interactions between electrolyte and binder and their influence on the Si surface in Li ion battery anodes Ahmad Ghamlouche, Chittaranjan Das, Julia Maibach Institute for Applied Materials - Energy Storage Systems	U.P.3
	Development operando synchrotron technique application on lithium battery study Liao Yen-Fa[1], Chiu Jian-Ming[2], Hu Chih-Wei[3] 1. National Synchrotron Radiation Research Center; 2. National Taiwan University of Science and Technology; 3. National Chung-Shan Institute of Science and Technology	U.P.4
	Can Ar ion cluster sputtering be used to depth profile the solid electrolyte interphase? Chittaranjan Das, Ahmad Ghamlouche and Julia Maibach Institute for Applied Materials - Energy Storage Systems Karlsruhe Institute of Technology Eggenstein-Leopoldshafen	U.P.5
	Intrinsic defects and passivation mechanisms of Al2O3-ALD films deposited on CH3NH3PbI3 at room temperature Malgorzata Kot, Klaus Müller, Karsten Henkel and Dieter Schmeißer Applied Physics and Semiconductor Spectroscopy, Brandenburg University of Technology Cottbus-Senftenberg, Konrad-Zuse-Straße 1, 03046 Cottbus, Germany	U.P.6
	In-situ Investigation of Film Formation and Degradation of Reduced Dimensional Perovskites Fabricated via Various Methods Rahim Munir[1], Aboma Merdasa[1], Katrin Hirselandt[1], Oleksandra Shargaieva[1], Janardan Dagar[1], Florian Mathies[1], Roland Mainz[1], Eva Unger[1,2] 1. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin 12489, Germany; 2. Chemical Physics and NanoLund, Lund University, P.O. Box 124, Lund 22100, Sweden	U.P.7
	Structure-Property Correlation in Perovskite Photovoltaic Materials Ashutosh Mohanty, Sharada Govinda, Diptikanta Swain, Tayur N. Guru Row and D. D. Sarma Solid State and Structural Chemistry Unit, Indian Institute of Science, Bengaluru - 560012, India	U.P.8
	Investigation on the band alignment of Zn(O,S)/Cu(In,Ga)Se2 interface for thin-film solar cell applications Yong-Duck Chung[1,2]*, Dae-Hyung Cho[1], Woo-Jung Lee[1], Kihwan Kim[3], Jae Ho Yun[3] 1. Electronics and Telecommunications Research Institute (ETRI), Daejeon 34129, Republic of Korea; 2. Korea University of Science and Technology (UST), Daejeon 34113, Republic of Korea; 3. Korea Institute of Energy Research (KIER), Daejeon 34129, Republic of Korea	U.P.9

Symposium U Program

Tuesday, September 17 th, 2019

Session IV: Gianluca Ciatto

09:00	**INVITED: Metal Halide Perovskites Illuminated by X-ray Spectroscopies - Results and Challenges** Regan G. Wilks Department Interface Design, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Hahn-Meitner Platz 1, Berlin 14109, Germany	U.4.1
09:30	**INVITED: X-ray characterization of Pt3Y alloy catalyst for low temperature fuel cells** Björn Wickman[1], Rosemary Brown[1], Mykhalio Vorokhta[2], TomáS Skála[2], Ivan Khalakhan[2], Niklas Lindahl[1], Björn Eriksson[3], Carina Lagergren[3], Iva Matolínová[2], Vladimír Matolín[2] 1. Department of Physics, Chalmers University of Technology Gothenburg, Sweden; 2. Charles University, Prague, Czech Republic; 3. Department of Chemical Engineering, KTH Royal Institute of Technology, Stockholm, Stockholm, Sweden	U.4.2
10:00	**Effect of Na from soda-lime glass substrate and as post-deposition on Cu(In,Ga)Se2 absorbers** Isheta Majumdar, Vladimir Parvan, Rutger Schlatmann and Iver Lauermann Freie Universität Berlin, Competence Centre Thin Film and Nanotechnology for Photovoltaics Berlin (PVcomB)/Helmholtz Zentrum Berlin (HZB)	U.4.3
10:15	**Methylammonium nitrogen-derived electronic levels hybridize differently to the lead-iodide and lead-bromide perovskite lattices** Gabriel J. Man[1], Konstantin A. Simonov[1], Pabitra K. Nayak[2], Fredrik O. Johansson[1], Sebastian Svanström[1], Yasmine Sassa[3], Ruslan Ovsyannikov[4], Erika Giangrisostomi[4], Henry J. Snaith[2], Sergei M. Butorin[1], Michael Odelius[5], Håkan Rensmo[1] 1. Division of Molecular and Condensed Matter Physics, Department of Physics, Uppsala University, Box 516, Uppsala, 75121, Sweden; 2. Clarendon Laboratory, Department of Physics, University of Oxford, Oxford, OX1 3PU, UK; 3. Department of Physics, Chalmers University of Technology, Göteborg, 41296, Sweden; 4. Institute Methods and Instrumentation for Synchrotron Radiation Research, Helmholtz-Zentrum Berlin GmbH, Albert-Einstein-Strafze 15, Berlin, 12489, Germany; 5. Department of Physics, Stockholm University, AlbaNova University Center, Stockholm, 10691, Sweden	U.4.4
10:30	Coffee Break	

Session V: Karsten Henkel

11:00	**INVITED: Synchrotron radiation investigation of III-V semiconductor and oxide components for photovoltaics** Gianluca Ciatto Synchrotron SOLEIL, L'Orme des Merisiers, Saint-Aubin, BP 48 F-91192 Gif sur Yvette CEDEX (France)	U.5.1
11:30	**INVITED: In-situ spectroscopic techniques for understanding surfaces** David J. Payne Department of Materials, Imperial College London, Exhibition Road, London, SW7 2AZ, UK	U.5.2
12:00	**Lab-based near ambient pressure XPS for in-situ characterization of heterogeneous catalysts and gas sensors** Mykhailo Vorokhta[1], Ivan Khalakhan[1], Tomas Skála[1], Jan Vlček[2], Premysl Fitl[2], Martin Vrňata[2], Jan Lančok[3], Anton Kozma[4], Iva Matolínová[1], Vladimir Matolín[1] 1. Department of Surface and Plasma Science, Charles University, Prague, Czech Republic; 2. Department of Physics and Measurements, Institute of Chemical Technology, Prague, Czech Republic; 3 Institute of Physics, Academy of Sciences of the Czech Republic, Prague, Czech Republic; 4 Department of Physical and Colloid Chemistry, Uzhhorod National University, Uzhhorod, Ukraine	U.5.3
12:15	**Oxidation mechanisms onto semiconductor surfaces** Xueqiang Zhang[1,2], Tadashi Ogitsu[3], Brandon C. Wood[3], Tuan Anh Pham[3], Sylwia Ptasinska[1,4] 1. Radiation Laboratory, University of Notre Dame, Notre Dame, IN 46556, USA; 2. Department of Chemistry and Biochemistry, University of Notre Dame, IN 46556, USA; 3. Quantum Simulations Group, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA; 4. Department of Physics, University of Notre Dame, Notre Dame, IN 46556, USA	U.5.4
12:30	Lunch Break	

Session VI: Chittaranjan Das

14:00	**INVITED: Performance of Li-ion batteries as studied by X-ray spectroscopies: contribution of electronic and ionic factors** Wolfram Jaegermann Surface Science Division, Materials Science, TU Darmstadt Otto Berndt-Str. 3, D-64287 Darmstadt, Germany	U.6.1
14:30	**INVITED: Operando X-ray Absorption Spectroscopy probing Dynamic Processes in Batteries** Moniek Tromp University of Groningen, Faculty of Science and Engineering, Zernike Institute for Advanced Materials, Materials Chemistry, Nijenborgh 4, 9747 AG Groningen, Moniek.Tromp@rug.nl	U.6.2

15:00	**Title: In-situ Biasing and Operando measurements on Ferroelectric Photovoltaics by X-ray Spectroscopy** Dibya Phuyal, Soham Mukherjee, Shyamashis Das, Sergei M. Butorin, D.D. Sarma, Olof Karis, Håkan Rensmo Department of Physics and Astronomy, Molecular and Condensed Matter Physics, Uppsala University Box 516, SE-75120 Uppsala, Sweden Department of Solid State and Structural Chemistry Unit, Indian Institute of Science - Bengaluru 560012, India	U.6.3
15:15	**Operando X-ray absorption spectroscopy electrochemical study of cation-intercalated Ti3C2Tx MXene in sulfuric acid** Ameer Al-Temimy[1,2], Michael Naguib[3], Ronny Golnak[1], Mailis Lounasvuori[1], Kaitlyn Prenger[3], Tristan Petit[1] 1. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Albert-Einstein-Str. 15, 12489 Berlin, Germany; 2. Department of Physics, Freie Universität Berlin, Arnimallee 14, 14195 Berlin, Germany; 3. Department of Physics and Engineering Physics, Tulane University, New Orleans, LA 70118, USA	U.6.4
15:30	Coffee Break	
Session VII: Małgorzata Wierzbowska		
16:00	**INVITED: X-Ray Insight Into Fuel Cell Catalysis: Operando Studies of Model Surfaces and Working Devices** J. Drnec, T. Fuchs, T. Wiegmann, I. Martens, A. Vamvakeros, R. Chattot, D. Harrington, O.M. Magnussen ESRF, Kiel University, Kiel University, University of British Columbia, Finden Ltd., Grenoble University, University of Victoria, Kiel University	U.7.1
16:30	**Band alignment engineering of ZnS/Cu2O hetrojunction photovoltaics** S.M. Polyakov[1], J.W. Wells[1], M. Nematollahi[1], U.J. Gibson[1] & S.P. Cooil[2,1] 1. Department of Physics, Norwegian University of Science and Technology (NTNU), Trondheim, Norway, NO 4791; 2. Department of Physics, Aberystwyth University, Aberystwyth, Wales, SY23 3B	U.7.2
16:45	**Phase Formation Dynamics of Mixed-halide Perovskites by Real-time In-Situ Optical and X-ray Spectroscopy** Justus Just, Klara Suchan, Pascal Becker, Eva Unger and Thomas Unold MAX IV Laboratory, Fotongatan 2, 22484 Lund, Sweden, Lund University, Paradisgatan 2, 22350 Lund, Sweden, Helmholtz-Zentrum Berlin, Hahn-Meitner-Platz 1, 14109 Berlin, Germany, Helmholtz-Zentrum Berlin, Hahn-Meitner-Platz 1, 14109 Berlin, Germany, Helmholtz-Zentrum Berlin, Hahn-Meitner-Platz 1, 14109 Berlin, Germany	U.7.3

17:00	**In-situ carbon dioxide behaviors in local pores of mesoporous metal organic frameworks with different metals** Sang Rim Shin, Hae Sung Cho, Suji Gim, Yongmin Jung, Hyung Jun Kim and Jeung Ku Kang Department of Materials Science & Engineering and Graduate School of Energy, Environment, Water, and Sustainability (EEWS), Korea Advanced Institute of Science and Technology (KAIST), 291 Daehak-ro, Yeseong-gu, Daejeon 305-701, Republic of Korea, Inorganic Chemistry and Catalysis group, Debye Institute for Nanomaterials Science, Faculty of Science, Utrecht University, 3584 CG Utrecht, Netherland	U.7.4
17:15	**Surface sensitive X-ray absorption spectroscopy on oxynitride thin film photoanodes for visible light driven water splitting** C. Lawley, M. Nachtegaal, D. Pergolesi, T. Lippert Paul Scherrer Institut, ETH Zurich	U.7.5

Symposium U Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session VIII: Chittaranjan Das		
14:00	**INVITED: Space-resolved photoelectron spectroscopy of energy materials with tunable x-rays** D.D. Sarma Solid State and Structural Chemistry Unit Indian Institute of Science Bengaluru 560012 INDIA	U.8.1
14:30	**XRD evidence for the recovery of high-optical-absorption r8-Si** S. Wong[1,7], B. Haberl[2], B.C. Johnson[3], A. Mujica[4], M. Guthrie[6,7], J.C. McCallum[3], J.S. Williams[1], J.E. Bradby[1] 1. Department of Electronic Materials Engineering, Research School of Physics and Engineering, The Australian National University, Canberra, Australian Capital Territory 0200, Australia; 2. Neutron Sciences Directorate, Oak Ridge National Laboratory, Neutron Scattering Division, Oak Ridge, Tennessee 37781, USA; 3. School of Physics, The University of Melbourne, Melbourne, Victoria 3010, Australia; 4. Departamento de Fisica, MALTA Consolider Team, Universidad de La Laguna, La Laguna 38206, Tenerife, Spain; 5. European Spallation Source, Lund, SE-221 00, Sweden; 6. School of Physics, University of Edinburgh, Edinburgh, EH9 3FD, United Kingdom; 7. Department of Physics, School of Science, RMIT University, Victoria 3001, Australia	U.8.2
14:45	**Mapping of large volumes of reciprocal space by rotating grazing-incidence X-ray diffraction** Benedikt Schrode, Stefan Pachmajer, Christian Röthel, Sebastian Hofer, Jari Domke, Torsten Fritz, Roland Resel, Oliver Werzer Institute of Solid State Physics, Graz University of Technology, Petersgasse 16, 8010 Graz, Austria, Institute of Solid State Physics, Graz University of Technology, Petersgasse 16, 8010 Graz, Austria, Institute of Pharmaceutical Sciences, Department of Pharmaceutical Technology, University Graz, 8010 Graz, Austria, Institute of Solid State Physics, Graz University of Technology, Petersgasse 16, 8010 Graz, Austria, Institute of Solid State Physics, Friedrich Schiller University Jena, Helmholtzweg 5, 07743 Jena, Germany, Institute of Solid State Physics, Friedrich Schiller University Jena, Helmholtzweg 5, 07743 Jena, Germany, Institute of Solid State Physics, Graz University of Technology, Petersgasse 16, 8010 Graz, Austria, Institute of Pharmaceutical Sciences, Department of Pharmaceutical Technology, University Graz, 8010 Graz, Austria	U.8.3

15:00	**Technological processing impact on morphological, chemical and electronic structure of thin sol-gel ZnO layers** Lucyna Grządziel[1]*, Maciej Krzywiecki[1,2], Adnan Sarfraz[2], Andreas Erbe[2,3] 1. Institute of Physics &#8211, Center for Science and Education, Silesian University of Technology, S. Konarskiego Str. 22B, 44-100 Gliwice, Poland; 2. Max-Planck-Institut für Eisenforschung GmbH, Max-Planck-Str. 1, 40237 Düsseldorf, Germany; 3. Department of Materials Science and Engineering, NTNU, Norwegian University of Science and Technology, 7491 Trondheim, Norway * email: Lucyna.Grzadziel@polsl.pl	U.8.4
15:15	**An Up-scalable Chemical Vapor Deposition Process (CVD) for Perovskite Solar Cells** Claudiu Mortan, Tim Hellmann, Moritz Buchhorn, Marco d'Eril Melzi, Thomas Mayer and Wolfram Jaegermann Technische Universität Darmstadt, Darmstadt, 64287, Germany cmortan@surface.tu-darmstadt.de	U.8.5
15:30	Coffee Break	
Session IX: Mykhailo Vorokhta		
16:00	**INVITED: Model approach to fuel cell catalysis** Yaroslava Lykhach[1], Olaf Brummel[1], Tomás Skála[2], Nataliya Tsud[2], Mykhailo Vorokhta[2], Bretislav Smíd[2], Vladimír Matolín[2], Kevin C. Prince[3], Jörg Libuda[1] 1. Interface Research and Catalysis, Erlangen Catalysis Resource Center, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, 91058, Germany; 2. Department of Surface and Plasma Science, Charles University, Prague, 18000, Czech Republic; 3. Elettra-Sincrotrone Trieste SCpA, Basovizza-Trieste, 34149, Italy	U.9.1
16:30	**INVITED: XANES in perovskites and GaN under pressure, theory compared to experiment** Malgorzata Wierzbowska, Bogdan Sadovyi, Svitlana Stelmakh, Izabella Grzegory Institute of High Pressure Physics Polish Academy of Sciences	U.9.2
17:00	**Structural and electronic monitoring of batteries: Operando X-ray absorption and X-ray diffraction studies on Prussian-Blue lik** Marco Giorgetti[1], Angelo Mullaliu[2], Giuliana Aquilanti[3], Jasper Plaisier[3] 1. Dept. of Industrial Chemistry, University of Bologna, Italy); 2. (KIT - HIU Ulm, Germany); 3. (Elettra - Sincrotrone Trieste, Italy)	U.9.3
17:15	**Heterostructure of Pure and Anion Exchanged Cesium Lead Halide Nanocubes** Pralay K. Santra Centre for Nano and Soft Matter Sciences, Bengaluru 560013	U.9.4
17:30	Closing remarks	
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium V

Sessions: Room 107 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

FUNDAMENTALS:

Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials IX

Symposium Organizers: **Bert MULLER**, The Material Science in Medicine Centre (BMC) of the University of Basel, Switzerland

Emmanuel STRATAKIS, Institute of Electrnic Structure and Laser (IESL), Crete

Eugenia BUZANEVA, Taras Shevchenko National University of Kyiv, Ukraine

Peter SCHARFF, Technical University of Ilmenau, Germany

SYMPOSIUM V TIMETABLE

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September 17 th</th><th>Wednesday
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September 19 th</th></tr>
<tr><td>9:00 – 10:30</td><td>(09:00-09:10) Opening remarks
(09:10-10:30) Session I</td><td>(08:30-10:40) YSF Session</td><td rowspan="3">Plenary Session
09:00-12:30</td><td>(08:30-10:30) Session IV</td></tr>
<tr><td>10:30 – 11:00</td><td colspan="2">Coffee Break</td><td>Coffee Break</td></tr>
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(17:10-17:30) Concluding remarks</td><td colspan="2">Coffee Break</td></tr>
<tr><td>16:00 – 17:30</td><td>(15:50-17:50) Session III
(17:50-18:00) Concluding remarks</td><td>(16:00-17:25) Session IV</td></tr>
<tr><td>17:30 – 19:30</td><td>Poster Session I and II:
17:30 Special Session
17:40 General Session</td><td>17:40 YSF Poster Session</td><td>Graduate Student Awards Ceremony & Reception 18:00-21:00</td><td></td></tr>
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Symposium V location

Sessions: 107 | MiNI Building
Poster Session: Main Aula | Faculty of Physics Building

Symposium V Program

Monday, September 16 th, 2019

09:00	Opening remarks & Symposium Presentation Prof. Bert Mueller	
Session I: Keynote Forum In honor of the 80th Birthday of Nobel Laureate in Chemistry1987 Professor Jean-Marie Lehn From Nature to Developed Nano-materials/systems/interfaces Multi-functionality for Human Well-being : Chairs:Professors Dr. Bert Mueller and Insung S.Choi, Asst. Prof., Dr. Angelo Accardo, Dr. Radoslaw Mrowczynski and Dr.Maciej Cieplak		
09:10	**(project) Honorary Distinguished Lecture Nobel Laureate in Chemistry** **Prof. J-M Lehn: Supramolecules for regenerative medicine** Professor Jean-Marie Lehn Nobel laureate in Chemistry (1987) Institute of Advanced Study, University of Strasbourg, 8 allée Gaspard Monge BP 70028&#1073, F-67083, Strasbourg, France, lehn@unistra.fr	V.1.1
10:00	**(project) Round Table** **Biological Supramolecules and Bioinspired Designs Multifunctionality Concepts for Health** Prof. Ioan Andricioaei[1], Dr. Monica Marini[2], Prof.Karsten Haupt[3], Grazia M.L. Messina[4] 1. University of California Irvine, USA; 2. DISAT, Politecnico di Torino, Italy; 3. CNRS Institute for Enzyme and Cell Engineering, Sorbonne Universities, Universite de Technologie Compiegne, France; 4. Lab. for Molecular Surfaces and Nanotechnology, Dep. of Chemical Sciences University of Catania, Italy	V.1.2
10:30	Coffee Break & General Photo	
10:50	**Dynamic cell instructive materials to control and guide tissue formation in vitro** Paolo A. Netti Interdisciplinary Research Centre for Biomaterials (CRIB), University of Naples Federico II and Centre for Advanced Biomaterials for Health Care - Istituto Italiano di Tecnologia - Napoli, Italy	V.1.3
11:20	**Application of nanostructures in medicine &#8211, Case of NanoBioMedical Centre** Prof. dr hab. Stefan Jurga and Dr Radosław Mrówczyński NanoBioMedical Centre, Adam Mickiewicz University, ul. Wszechnicy Piastowskiej 3, PL-61614 Poznań, Poland	V.1.4

11:40	**"To scaffold or not to scaffold", pros and cons in the realization of biomimetic neuronal microenvironments** Asst. Prof. Dr. Angelo Accardo Delft University of Technology (TU Delft), Precision and Microsystems Engineering (PME) Department, Delft, Netherlands	V.1.5
12:00	**Super anti-wetting surface with high repellency towards liquids of extremely high viscosity and low surface tension** Zhu Qing, Xie Xiao, Zheng Baohui Institute of Chemical Materials, China Academy of Engineering Physics	V.1.6
12:20	**Biomimetically synthesis of micro- and nano-structured titania with induced by polyamines and related moleculars at room temper** Yong Yan Beijing Key Laboratory for Green Catalysis and Separation, College of Environmental & Energy Engineering, Beijing University of Technology, Pingle yuan 100, 100124 Beijing, P.R. China Email: yong.yan@bjut.edu.cn	V.1.7
12:40	**Biomolecules orientation by tailored nanostructured surface** G.M.L. Messina[1], C.Mazzuca[2], A.Palleschi[2] and G. Marletta[1] 1. Laboratory for Molecular Surfaces and Nanotechnology, Dept. of Chemical Sciences University of Catania, Viale A. Doria, 6 Catania, 95125, Italy; 2. Department of Chemical Sciences and Technologies, University of Roma Tor Vergata, Via della Ricerca Scientifica, 00133 Roma, Italy	V.1.8
13:00	Lunch Break	
14:00	**Molecularly imprinted polymers as plastic antibodies for immunotherapy** Dr. K. Haupt CNRS Institute for Enzyme and Cell Engineering, Sorbonne Universités, Université de Technologie de Compiègne, France	V.1.9
14:20	**Protein imprinting. Better control over deposited polymer structure for better sensor performance** Maciej Cieplak[1]* Marcin Dąbrowski[1], Jakub Kałęcki[1], Agnieszka Zimińska[1], Krzysztof Noworyta[1], Alexander Kuhn[2,3]* and Piyush Sindhu Sharma[1]* 1. Institute of Physical Chemistry, Polish Academy of Sciences (IPC PAS), Kasprzaka 44/52, 01-224 Warsaw, Poland; 2. Institut des Sciences Moléculaires, University of Bordeaux, Bordeaux INP, ENSCBP, 16 Avenue Pey Berland, 33607, Pessac, France; 3. CNRS, ISM, UMR 5255, 351 Cours de la Liberation, 33400, Talence, France	V.1.10
14:40	**Simulation of the reflectance changes induced by vapor condensation in butterfly wing scales** G.I. Márk[1], K. Kertész[1], G. Piszter[1], Zs. Bálint[2] and L.P. Biró[1] 1. Institute of Technical Physics and Materials Science, (MFA), Centre for Energy Research, Hungarian Academy of Sciences, Budapest, Hungary, http://www.nanotechnology.hu/; 2. Hungarian Natural History Museum, Baross Utca 13, H-1088 Budapest, Hungary	V.1.11

15:00	**Soft electronic and robotic systems from resilient yet biocompatible and degradable materials** Martin Kaltenbrunner Soft Matter Physics, Johannes Kepler University Linz, Altenbergerstr. 69, A-4040 Linz, Austria Soft Materials Laboratory, LIT, Johannes Kepler University Linz, Altenbergerstr. 69, A-4040 Linz, Austria	V.1.12
15:30	**Biomimicking Polymers toward Spatially Resolved and Selective Electro-Coupling to Cells** Bo ZHU School of Materials Science and Engineering, Shanghai University, 99 Shangda Road, BaoShan, Shanghai, 200444, China	V.1.13
15:50	**Recent Applications of Electrochemical Biosensors for Detection of Nucleic Acids** Arzum Erdem Ege University, Faculty of Pharmacy, Analytical Chemistry Department, Bornova, 35100 Izmir, TURKEY * email: arzum.erdem@ege.edu.tr and arzume@hotmail.com Web site: www.arzumerdem.com/indexen.html	V.1.14
16:10	**Realizing efficient and selective gas sensing platform with a potential application in medical diagnostics** Nikita Lukashkin[1], Alexey Parfenov[1] Diana Sagdullina[1] and Pavel Troshin[2,1] 1. Institute for Problems of Chemical Physics, Russian Academy of Sciences, Chernogolovka, Moscow region, Russia; 2. Skolkovo Institute of Science and Technology, Moscow, Russia	V.1.15
16:30	**Integrated Refractive Index Sensing with Ge PIN Photodiodes** Inga Anita Fischer Experimentalphysik und Funktionale Materialien, Brandenburgische Technische Universität Cottbus-Senftenberg	V.1.16
16:50	**Nanoscale amorphous oxides – complex dependencies of properties and composition** Ainur Zhussupbekova[1], Emma Norton[1], Leo Farrell[1], Igor V. Shvets[1], David Caffrey[1] and Karsten Fleischer[1,2] 1. School of Physics and Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College, The University of Dublin, Dublin 2, Ireland; 2. School of Physical Sciences, Dublin City University, Dublin 9, Ireland	V.1.17
17:10	**Methods and Computerized Equipment of Identification and Express Analysis of Carcinogenic Components in Bioactive Environments** Heorhii Vorobets[1], Mikhailo Solomiychuk[2], Aurelia Zelya[2], Viktor Strebezhev[3], Maria Vorobets[4], Volodymyr Buchakchiyskyi[1], Olexiy Pshenychnyi[1] 1. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua; 2. Ukrainian Scientific - Research Station of the Plants Quarantine at the Institute of Plants Protection of the National Agricultural Academy Sciences of Ukraine, 60321, Ukraine, Chernivtsi region, vil. Boyany, ukrndskr.zam@gmail.com; 3. Department of Semiconductor Physics and Nanostructures, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, v.strebezhev@chnu.edu.ua; 4. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, m.vorobets@chnu.edu.ua	V.1.18

17:30 Poster Session I: Keynote and Invited Presenters POSTER Session :
Chair Asst. Prof., Dr. Angelo Accardo (NL) and Priv.- Doz.Dr. Dong Wang (Ge)

	Hydrogenated Black TiO2 Nanoparticles for Cancer Photothermal Therapy Wenzhi Ren[1], Yong Yan[2], Leyong Zeng[1], Zhenzhi Shi[1], An Gong[1], Peter Schaaf[2], Dong Wang[2]* Jinshun Zhao[3], Baobo Zou[3], Hongsheng Yu[4], Ge Chen[5],* Eric Michael Bratsolias Brown[6] and Aiguo Wu[1]* 1. Key Laboratory of Magnetic Materials and Devices & Division of Functional Materials and Nanodevices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China; 2. Materials for Electrical Engineering and Electronics, Institute of Materials Engineering and Institute of Micro- and Nanotechnology, TU Ilmenau, Germany; 3. Public Health Department, Ningbo University, China; 4. Affiliated Hospital of Medical School, Ningbo University, China; 5. College of Environmental & Energy Engineering, Beijing University of Technology, China; 6. Department of Biological Sciences, University of Wisconsin-Whitewater, US	V.P1.1
	Smart lotus-like nanostructured surfaces as a tool for synchrotron characterization of neurodegenerative peptides Asst. Prof. Dr. Angelo Accardo Delft University of Technology (TU Delft), Precision and Microsystems Engineering (PME) Department, Delft, Netherlands	V.P1.2
	The influence of nanodisperse dioxide titanium and basalt tuff on biofilm forming by microorganisms strain reference Kobasa I.M.[1], Rotar D.V.[2], Vorobets M.M.[1], Vorobets G.I.[3] 1. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, m.vorobets@chnu.edu.ua; 2. Department of Microbiology and Virology, Bukovinian State Medical University, 58001 Chernivtsi, Ukraine, diana.rotar@bsmu.edu.ua; 3. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	V.P1.3
	Simulation of interference filters for the study of narrow-band spectra of visible and near-infrared wavelength Heorhii Vorobets[1], Olexandr Vorobets[1], Viktor Strebezhev [2], Ivan Yuriychuk[2] 1. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua; 2. Department of Semiconductor Physics and Nanostructures, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, v.strebezhev@chnu.edu.ua	V.P1.4
	Plasma-assisted synthesis of hydrogenated TiO2 for energy storage and conversion Yong Yan[1], Dong Wang[2], Peter Schaaf[2] 1. Beijing Key Laboratory for Green Catalysis and Separation, College of Environmental & Energy Engineering, Beijing University of Technology, Pingle yuan 100, 100124 Beijing, P. R. China; 2. Chair Materials for Electronics, Institute of Materials Engineering and Institute of Micro- and Nanotechnologies MarcoNano®, TU Ilmenau, Gustav-Kirchhoff-Str. 5, 98693 Ilmenau, Germany	V.P1.5

	Super anti-wetting surface with high repellency towards liquids of extremely high viscosity and low surface tension Zhu Qing, Xie Xiao, Zheng Baohui Institute of Chemical Materials, China Academy of Engineering Physics	V.P1.6
	Molecularly Imprinted Polymer Nanoparticles for the Detection and Modulation of Cellular Functions Paulina Medina Rangel, Bernadette Tse Sum Bui, Karsten Haupt Sorbonne Universités, Université de Technologie de Compiègne, CNRS Enzyme and Cell Engineering Laboratory Compiègne, France	V.P1.7
	Plasmonic Nanosponges Dong Wang, Peter Schaaf Group Materials for Electrical Engineering and Electronics Institute of Materials Science and Engineering Institute of Micro-and Nanotechnology TU Ilmenau	V.P1.8
	Versatile Tubular Electroassembly of Functionalized PEDOT toward Bioelectronics Zhi Geng, Qichao Pan, Yaqiong Zhang, Bo Zhu College of Materials Science and Engineering, Shanghai University, 99 Shangda Road, BaoShan, Shanghai, 200444, China, e-mail: bozhu@shu.edu.cn	V.P1.9
	Bioinspired coating for nanodiamonds Damian Maziukiewicz, Bartosz Grześkowiak, Stefan Jurga, Radosław Mrówczyński NanoBioMedical Centre, Adam Mickiewicz University in Poznan, Wszechnicy Piastowskiej 3, PL-61614 Poznan, Poland	V.P1.10
	Novel Surface Strategies to Combat Biomaterial-Associated Infections Martijn Riool and Sebastian A.J. Zaat Amsterdam UMC, location AMC, The Netherlands	V.P1.11
	Fluorescent nanodiamonds as a robust temperature sensor inside a single cell Shingo Sotoma, Yoshie Harada Institute for Protein Research, Osaka University, Japan & Japan Society for the Promotion of Science (JSPS), Japan, Institute for Protein Research, Osaka University, Japan & Institute for Open and Transdisciplinary Research Initiatives, Osaka University, Japan	V.P1.12
	Nanoparticles for (bio)applications Jiří Kratochvíl[1,2]*, Ondřej Kylián[2], David Kahoun[1], Ján Štěrba[1], Vítězslav Straňák[1] 1. Faculty of Science, University of South Bohemia in Ceske Budejovice, Branisovska 1760, 37005, Ceske Budejovice, Czech Republic, *jkratochvil@prf.jcu.cz, kratji@seznam.cz; 2. Faculty of Mathematics and Physics, Charles University, V Holesovickach 2, 18200, Prague, Czech Republic, *jiri.kratochvil@mff.cuni.cz, kratji@seznam.cz	V.P1.13

	Supramolecular ds DNA self assembling: models and conductance characterization Dr., Docent Oleksandr Ivanyuta Taras Shevchenko National University of Kyiv,64/13, Volodymyrska Str., Kyiv, 01601, Ukraine iva@univ.net..ua	V.P1.14
	Highly sensitive gas sensors based on complex lead halides with perovskite structure Aleksei A. Parfenov[2], Olga R. Yamilova[1,2], Diana K. Susarova[2], Pavel A. Troshin[1,2] 1. Skolkovo Institute of Science and Technology, Moscow, Russia; 2. Institute for Problems of Chemical Physics of RAS, Chernogolovka, Russia	V.P1.15
	Optical properties of biocomposites hydroxyapatite O. Ivanyuta Taras Shevchenko National University of Kiyv, 64, Volodymyrska str., Kiyv, 01033, Ukraine E-mail: iva@univ.net.ua	V.P1.16
	Exploring directional cell alignment and migration induced by well-designed nanostructure substrates Fan-Ching Chien Department of Optics and Photonics, National Central University, Taoyuan 32001, Taiwan	V.P1.17
	Fabrication of orthopedic implant material using Mg-Ti composite by EDS(electro-discharge-sintering) Soyoung Kim, Yonghee Yoon, Cheolhwan Jeong, Wonhee Lee Sejong University	V.P1.18
17:40	Poster Session II: General Poster Session with Evening Party : Chair Dr. Oleksandr Ivanyuta	
	Conducting samples of composites based on calcium apatites L.I. Karbivska, V.L. Karbivskyy, V.A. Dubok, S.S. Smolyak, D.A. Savchenko, G.V. Kurdyumov Institute for Metal Physics of the N.A.S. of Ukraine	V.P1.19
	Adsorption and antimicrobial properties of some materials based on the natural aluminosilicates Matiiuk S.P.[1], Grubinko V.V.[1], Kobasa I.M.[2], Vorobets G.I.[3] 1. Ecology and environment Department, Chemical faculty, Lesya Ukrainka Eastern European National University, 43021 Lutsk, Ukraine, bestkoreancosm@gmail.com, v.grubinko@gmail.com; 2. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, oksi-sema@ukr.net, m.vorobets@chnu.edu.ua; 3. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	V.P1.20

	Electric Conduction Mechanism for Biobased Polyimide films from 4-Aminocinnamic Acid Photodimer Mika Kawa[1], Fitri Adila Amat Yusof[1], Tatsuo Kaneko[2], Tetsu Mitsumata[1] 1. Graduate School of Science and Technology, Niigata University, Niigata, Japan, ALCA, Japan Science and Technology Agency, Tokyo 102-0076, Japan; 2. Scool of Materials Science, Japan Advanced Institute of Science and Technology, Ishikawa, Japan, ALCA, Japan Science and Technology Agency, Tokyo 102-0076, Japan	V.P1.21
	Hydroxyapatite nanoparticles for sustained delivery release and anticancer action of piperine prodrug Khaled AbouAitah[1]*, Agnieszka Chodara[1], Iman M. Higazy[2], Jacek Wojnarowicz[1], Anna Swiderska-Sroda[1], Samar A. Shahein[3], Ahmed M. Aboul-Enein[3] and Witold Lojkowski[1] 1. Laboratory of Nanostructures, Institute of High Pressure Physics, Polish Academy of Sciences, Warsaw, Poland; 2. Department of Pharmaceutical Technology, Pharmaceutical and Drug Industries Research Division, National Research Centre (NRC), 12622, Dokki, Giza, Egypt. 3Biochemistry Department, Faculty of Agriculture, Cairo University, P.C. 12613 Giza, Egypt	V.P1.22
	Bioactive zinc oxide nanoparticles prepared in natural polymer media Voitenko T.A.[1], Fesych I.V.[1], Nedilko S.A.[1], Dziazko O.G.[1], Zelenko M.A.[1], Chukova O.V.[1], Nedilko S.G.[1], Liedienov N.A.[2,3], Pashchenko A.V.[2,3,4,5], Levchenko G.G.[2,3] 1. Taras Shevchenko National University of Kyiv, Volodymyrska Street, 60, Kyiv, 01033, Ukraine; 2. State Key Laboratory of Superhard Materials, International Center of Future Science of Jilin University, 130012 Changchun, China; 3. Donetsk Institute for Physics and Engineering named after O. O. Galkin, NASU, 03028 Kyiv, Ukraine; 4. Institute of Magnetism of NASU and MESU, 03142 Kyiv, Ukraine; 5. Donetsk National University of Economy and Trade named after Michael Tugan - Baranovsky, MESU, 50005 Kryvyi Rih, Ukraine	V.P1.23
	Supramolecular C60/ds-DNA conductive photosensitive Chip N. Tsierkezos, U. Ritter, P. Scharff[2], H.Gogotsi, O.Ivanyuta, E. Buzaneva[1] 1. National Taras Shevshenko University of Kyiv, 64/13, Vladimirska Str., 01033, Kiev, Ukraine e-mail: iva@univ.net.ua; 2. Technische Universitat Ilmenau, Institut fur Chemistry & Biotechnoly, Postfach 100565, 986884 Ilmenau, Germany	V.P1.24
	Modelling of the MWCN's surface/biointerface bonds at a suspension and coating layer supported by the experiments N. Tsierkezos, U. Ritter, P. Scharff[2], O. Gogotsi, O. Ivanyuta, E. Buzaneva[1] 1. National Taras Shevshenko University of Kyiv, 64/13, Vladimirska Str., 01033, Kiev, Ukraine e-mail: iva@univ.net.ua; 2. Technische Universitat Ilmenau, Institut fur Chemistry & Biotechnoly, Postfach 100565, 986884 Ilmenau, Germany	V.P1.25
	Cellulose nanocrystals-incorporated fibroin films for enhancing barrier properties Hyoung-Joon Jin Inha University	V.P1.26
	Biointegrated nanocarbon supramolecules: architecture-optical function relationships H. Gogotsi, O. Ivanyuta, E. Buzaneva[1], Uwe Ritter, Peter Scharff[2] 1. Taras Shevchenko National University of Kyiv, Volodymyrska str. 64, 01033 Kyiv, Ukraine; 2. Technical University of Ilmenau, Institute for Chemistry and Biotechnology, Postfach 100565, 986884 Ilmenau, Germany	V.P1.27

	OFET-based gas sensors using fluorinated naphthalenediimide semiconductor films Diana Sagdullina[1], Nikita Lukashkin[1], Alexey Parfenov[1], Konstantin Lyssenko[2] and Pavel Troshin[1,3] 1. Institute for Problems of Chemical Physics, Russian Academy of Sciences; 2. A.N. Nesmeyanov Institute of Organoelement Compounds, Russian Academy of Sciences; 3. Skolkovo Institute of Science and Technology	V.P1.28
	Biological-derived hydroxyapatite coatings synthesized by PLD from renewable resources L. Duta[1], M.C. Chifiriuc[2,3], G.E Stan[4], F.N. Oktar[5,6], V. Craciun[1] 1. National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania; 2. Department of Microbiology, Faculty of Biology, University of Bucharest, Bucharest, Romania; 3. Research Institute of the University of Bucharest (ICUB), Earth, Environmental and Life Sciences Division, Bucharest, Romania; 4. National Institute of Materials Physics, Magurele, Romania; 5. Department of Bioengineering, Faculty of Engineering, University of Marmara, Istanbul, Turkey; 6. Advanced Nanomaterials Research Laboratory (ANRL), University of Marmara, Istanbul, Turkey	V.P1.29

Symposium V Program

Tuesday, September 17 th, 2019

Young Scientists Forum:
In honor of the 80th Birthday of Nobel Laureate in Chemistry1987 Professor Jean-Marie Lehn Multi-functionality of Nano-materials/systems Inspired by Nature for Human Well-being : Chairs: PhD, Post-Doctoral Researchers Bruna Costa, Brazil

08:30	**Tutorial Lecture: Concepts for closely Mimicking Biological Learning with Memristive Devices: Principles to Emulate Cellular Forms of Learning** Martin Ziegler Technische Universität Ilmenau Electrical Engineering and Information Technology Microelectronic and Nanoelectronic Systems Gustav-Kirchhoff-Str. 1, D-98684 Ilmenau Germany Email: martin.ziegler@tu-ilmenau.de https://www.tu-ilmenau.de/mne-mns/ https://www.tu-ilmenau.de/nsme/	V.YSF.1
09:10	**Improved Fabrication Technique in HfO2-based MIM Modules for RRAM Applications Mamathamba** Kalishettyhalli Mahadevaiah[1], Eduardo Perez[1], Christian Wenger[1,2], Marco Lisker[1], Mirko Fraschke[1], Steffen Marschmeyer[1], Detlef Schmidt[1] and Andreas Mai[1,3] 1. IHP-Leibniz-Institut für innovative Mikroelektronik, Im Technologiepark 25, 15236 Frankfurt (Oder), Germany; 2. Brandenburg medical School Theodor Fontane, Fehrbelliner Strasse 38, 16816 Neuruppin,Germany; 3. University of Applied Science Wildau, Hochschulring 1, 15745 Wildau,Germany	V.YSF.2
09:25	**Hardware realization of neuromorphic circuits for pattern recognition based on memristive devices** Finn N. Zahari[1], Christian Wenger[2,3], Mirko Hansen[1], Mamathamba K. Mahadevaiah[2], Eduardo Pérez[2], Ingo Beckers[1], Hermann Kohlstedt[1], Martin Ziegler[4] 1. Nanoelectronics, Faculty of Engineering, Kiel University, 24143 Kiel, Germany, fnz@tf.uni-kiel.de; 2. IHP – Leibniz-Institut für innovative Mikroelektronik, 15236 Frankfurt (Oder), Germany; 3. Brandenburg Medical School Theodor Fontane, 16816 Neuruppin, Germany; 4. Department of Micro- and Nanoelectronic Systems, TU Ilmenau, 98693 Ilmenau, Germany	V.YSF.3

09:40	**3D PEDOT-PSS scaffolds for stem cells expansion and osteogenic differentiation** Donata Iandolo[1,5], Jonathan Sheard[2,3], Galit Katarivas Levy[4], Charalampos Pitsalidis[5], Ellasia Tan[6], Ji-Seon Kim[6], Athina E. Markaki[4], Darius Widera[2], Roisin M. Owens[5] 1. École Mines de Saint-Étienne (Saint-Étienne, France); 2. Stem Cell Biology and Regenerative Medicine Group, School of Pharmacy, University of Reading, Whiteknights campus, Reading, RG6 6AP, United Kingdom; 3. Sheard BioTech Limited, 20-22, Wenlock Road London N17GU, United Kingdom; 4. Department of Engineering, University of Cambridge, Trumpington Street, Cambridge; 5. Department of Chemical Engineering and Biotechnology, University of Cambridge CB2 1PZ, UK; 6. Department of Physics and Centre for Plastic Electronics, Imperial College London, South Kensington, London, UK	V.YSF.4
10:00	**Biosynthesis of Metal Oxides nanomaterials from green extracts of Moringa Olefera, Aspalathus Linearis, Sageretia Thea, Maize (Zea Mays L) and Persea Americana Seeds: Electrochemical electrode activity for application in Supercapacitors and Ps** Noluthando Mayedwa[1,2], Assumpta Chinwe Nwanya[1,2,3], Nolubabalo Matinise[2], Aiman Bashir[2], Malik Maaza[1,2] 1. UNESCO-UNISA Africa Chair in Nanosciences-Nanotechnology, College of Graduate Studies, University of South Africa, Muckleneuk Ridge, South Africa; 2 Nanosciences African Network (NANOAFNET), iThemba LABS-National Research Foundation, 1 Old Faure Road, Somerset West 7129, PO Box 722, Somerset West, South Africa; 3. SensorLab, Department of Chemistry, University of the Western Cape, Bellville, 7535 Cape Town, South Africa	V.YSF.5
10:20	**Employing artificial intelligence to design intelligent materials** Tu C. Le School of Engineering, RMIT University, GPO Box 2476, Melbourne VIC 3001, Australia	V.YSF.6
10:40	Coffee Break	

Young Scientists Forum: Heddle's Lab Session with Invited Presenters

11:00	**Keynote Lecture: Boxes, Tubes, Cages and Beyond: Designing Nanostructures with DNA and Protein** Jonathan Gardiner Heddle[1], Artur Biela[1,2] 1. Malopolska Centre of Biotechnology, Jagiellonian University, 30-387 Krakow, Poland; 2. Department of Cell Biology and Imaging, Institute of Zoology and Biomedical Research, Jagiellonian University, 30-387 Krakow, Poland, jonathan.heddle@uj.edu.pl	V.YSF.7
11:30	**Invited Lecture: Understanding the interplay between local and global dynamics for DNA and protein filaments using computer simulations** Ioan Andricioaei University of California, Irvine	V.YSF.8

11:55	**DNA/ligands structural study** M. Marini[1,2], S. Stassi[1], M. Allione[2], B. Torre[2], A. Giugni[2], M. Moretti[2], P. Zhan[2], C.F. Pirri[1], C. Ricciardi[1], E. Di Fabrizio[2] 1. DISAT, Politecnico di Torino, Corso Duca Degli Abruzzi, 24, 10129 Torino, Italy; 2. SMILEs Lab, PSE Division, KAUST, Thuwal 23955, Saudi Arabia	V.YSF.9
12:10	**DNA origami nanocapsules for controllable cargo accessibility** Yusuke Sakai, Joanna Markiewicz, Martyna Adamiak, Jonathan Gardiner Heddle Malopolska Centre of Biotechnology, Jagiellonian University, Krakow 30-387, Poland	V.YSF.10
12:25	**Investigation of cancer biomarker-aptamer attached DNA origami interaction by QCM and its application for biosensor** Naoto Asai[1], Yusuke Sakai[2], Jonathan Heddle[2], Ichiro Yamashita[3], Tomohiro Shimizu[1], Shoso Shingubara[1], Takeshi Ito[1] 1. Graduate School of Science and Engineering, Kansai University, 3-3-35,Yamatecho, Suita, Osaka, Japan; 2. Malopolska Centre of Biotechnology, Jagiellonian University, 7A, Gronostajowa Street, 30-387 Krakow, Poland; 3. Graduate School of Engineering, Osaka University, 1-1, Yamadaoka, Suita, Osaka, Japan	V.YSF.11
12:35	**Large and small artificial protein cage – using gold to control size** Karolina Majsterkiewicz[1,2], Soumyananda Chakraborti[1], Agnieszka Kowalczyk[1,3], Bernard M.A.G. Piette[4], Sourav Maity[5], Wouter H. Roos[5], Jonathan G. Heddle[1] 1. Bionanoscience and Biochemistry Laboratory, Malopolska Centre of Biotechnology, Jagiellonian University, Krakow, Poland; 2. Postgraduate School of Molecular Medicine, Warsaw, Poland; 3.Faculty of Mathematics and Computer Science, Jagiellonian University, Kraków, Poland; 4. Department of Mathematical Sciences, Durham University, UK; 5. Molecular Biophysics, Zernike Institute for Advanced Materials, Rijksuniversiteit Groningen	V.YSF.12
12:45	**Ferritin: The most interesting bionano component?** Soumyananda Chakraborti[1]*, Antti Korpi[2], Mantu Kumar[1,3], Mauri A. Kostiainen[2], Jonathan G. Heddle[1]* 1. Bionanoscience and Biochemistry Laboratory, Malopolska Centre of Biotechnology, Jagiellonian University, Gronostajowa 7A, 30-387 Krakow, Poland; 2. Biohybrid Materials, Department of Bioproducts and Biosystems, Aalto University, FI-00076 Aalto, Finland. 3Postgraduate School of Molecular Medicine, Żwirki i Wigury 61, 02-091 Warsaw, Poland	V.YSF.13
13:00	Lunch Break	
14:00	**Tutorial Lecture: Single-Cell Nanoencapsulation** Insung S. Choi KAIST	V.YSF.14

14:40	**Porous and Durable TiO2 encapsulation of Individual Jurkat T Cells for Cytoprotection and Cell Therapy** Wongu Youn, Sang Yeong Han, Seok-Pyo Hong, Insung S. Choi Department of chemistry, KAIST, Korea	V.YSF.15
14:50	**Passive and active saccharide functional layers for sensing applications** Adam T. Myles, James A. Behan, Brendan Twamley, Thomas K. Doyle, Eoin M. Scanlan, Paula E. Colavita School of Chemistry, Trinity College Dublin, College Green, Dublin 2, Ireland	V.YSF.16
15:10	**Hierarchical structures formed by single-step plasma patterning with dual-scale etching mask** Tae-Jun Ko, Sang Jin Park, Sun Mi Yoon, Seong Jin Kim, Young A Lee and Myoung-Woon Moon Life and Materials Science Research Division, Korea Institute of Science and Technology, Seoul 02792, Republic of Korea	V.YSF.17
15:25	**Ultrasensitive Electrochemical Detection of Alpha Synuclein (SNCA) with Peptide-imprinted Poly(hydroxymethyl 3,4-ethylenedioxyth** Kuan-Ting Liu[1], Mei-Hwa Lee[2], Zi-Lin Su[3], Danny O'Hare[4], Jens Christian Schwamborn[5], Shyh-Chyang Luo[1]* and Hung-Yin Lin[3]* 1. Department of Materials Science and Engineering, National Taiwan University, Taipei 10617, Taiwan; 2. Department of Materials Science and Engineering, I-Shou University, Kaohsiung 84001, Taiwan; 3. Department of Chemical and Materials Engineering, National University of Kaohsiung, Kaohsiung 81148, Taiwan; 4. Department of Bioengineering, Imperial College, London SW7 2BY, United Kingdom; 5. Developmental and Cellular Biology, University of Luxembourg, Belvaux L-4367, Luxembourg	V.YSF.18

15:40 Young Scientists Forum: Invited Presentations : The 7en minutes Reports

	High-quality multilayer graphene formed by thickness-controlled metal-induced layer exchange Hiromasa Murata, Takashi Suemasu, Kaoru Toko University of Tsukuba	V.YSF.19
	Fluorescent Nanodiamond-decorated Polydopamine Spheres as Theranostic Agents in Cancer Treatment Damian Maziukiewicz, Bartosz Grześkowiak, Radosław Mrówczyński, Stefan Jurga NanoBioMedical Centre, Adam Mickiewicz University, ul. Wszechnicy Piastowskiej 3, PL-61614 Poznań, Poland	V.YSF.20
	Versatile Tubular Electroassembly of Functionalized PEDOT toward Bioelectronics Zhi Geng, Qichao Pan, Yaqiong Zhang, Bo Zhu College of Materials Science and Engineering, Shanghai University, 99 Shangda Road, BaoShan, Shanghai, 200444, China, e-mail: bozhu@shu.edu.cn	V.YSF.21

	Photocatalytic and Antibacterial Activity of Nanodispersed TiO2 Obtained by the Pyrogenic Method (part I) Kobasa I.M.[1], Rotar D.V.[2], Kondrachuk I.V.[1], Vorobets M.M.[1], Vorobets G.I.[3] 1. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, i.kondratieva@chnu.edu.ua, m.vorobets@chnu.edu.ua; 2. Department of Microbiology and Virology, Bukovinian State Medical University, 58001 Chernivtsi, Ukraine, diana.rotar@bsmu.edu.ua; 3. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	V.YSF.22
	Biological-derived hydroxyapatite coatings synthesized by PLD from renewable resources L. Duta[1], M.C. Chifiriuc[2,3], G.E. Stan[4], F.N. Oktar[5,6], V. Craciun[1] 1. National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania; 2. Department of Microbiology, Faculty of Biology, University of Bucharest, Bucharest, Romania; 3. Research Institute of the University of Bucharest (ICUB), Earth, Environmental and Life Sciences Division, Bucharest, Romania; 4. National Institute of Materials Physics, Magurele, Romania; 5. Department of Bioengineering, Faculty of Engineering, University of Marmara, Istanbul, Turkey; 6. Advanced Nanomaterials Research Laboratory (ANRL), University of Marmara, Istanbul, Turkey	V.YSF.23
	Strong silk fibers containing cellulose nanofibers generated by a bioinspired microfluidic chip Li Lu[1], Suna Fan[1], Qianqian Niu[1], Qingfa Peng[1], Lihong Geng[2], Gesheng Yang[1], Huili Shao[1], Benjamin S. Hsiao[3]* and Yaopeng Zhang[1]* 1. State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Shanghai Belt and Road Joint Laboratory of Advanced Fiber and Low-Dimension Materials, College of Materials Science and Engineering, Donghua University, Shanghai 201620, P.R. China; 2. Key Laboratory of Polymer Materials and Products of Universities in Fujian, Fujian University of Technology, Fujian 350118, P.R. China; 3. Department of Chemistry, Stony Brook University, Stony Brook, NY 11794, USA	V.YSF.24
	Low-temperature synthesis of GaAs films on insulators for wearable solar cells Takeshi Nishida, Takashi Suemasu and Kaoru Toko Institute of Applied Physics, University of Tsukuba	V.YSF.25
	A Biodegradable Multifunctional Graphene Oxide Platform for Targeted Cancer Therapy Cristina Martín[1], Amalia Ruiz[1], Sandeep Keshavan[2], Giacomo Reina[1], Diane Murera[1], Yuta Nishina[3,4], Bengt Fadeel[2], Alberto Bianco[1] 1. University of Strasbourg, CNRS, Immunology, Immunopathology and Therapeutic Chemistry, UPR 3572, 67000 Strasbourg, France; 2. Institute of Environmental Medicine, Karolinska Institutet, 171 77 Stockholm, Sweden; 3. Graduate School of Natural Science and Technology, Okayama University, Tsushimanaka, Kita-ku, Okayama 700-8530, Japan; 4. Research Core for Interdisciplinary Sciences, Okayama University, Tsushimanaka, Kita-ku, Okayama 700-8530, Japan	V.YSF.26

	Exploring water-soluble fullerene derivatives as potential antiviral pharmaceuticals Olga A. Kraevaya[1,2], Ekaterina A. Khakina[2], Alexander V. Zhilenkov[2], A.A. Kushch[3], Timofei Zatsepin[1] and Jan Balzarini[4], Dominique Schols[4] and Pavel A. Troshin[1,2] 1. Skolkovo Institute of Science and Technology, Nobel St. 3, Moscow, 143026, Russia; 2. Institute for Problems of Chemical Physics, Academician Semenov av. 1, Chernogolovka, Moscow region, 142432, Russia; 3. Honored Academician N.F. Gamaleya Federal Research Center for Epidemiologyand Microbiology of the Ministry of Health of the Russian Federation, Gamaleya st. 18, 123098, Moscow, Russia; 4. Rega Institute for Medical Research, Herestraat 49, 1030, 3000, Leuven, Belgium	V.YSF.27
	Atomic force microscopy study of a common polydiacetylene Levente Juhasz and Roberto D. Ortuso, Kaori Sugihara University of Geneva, Physical Chemistry Dept., 30 Quai Ernest Ansermet, 1205 Geneva, Switzerland	V.YSF.28
	Ultra-porous nanocellulose foams with tailored wetting properties Carlo Antonini, Tingting Wu, Tanja Zimmermann, Abderrahmane Kherbeche, Marie-Jean Thoraval. Gustav Nyström, Thomas Geiger Cellulose and Wood Materials, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf, Switzerland - Department of Materials Science, University of Milano - Bicocca, Milano, Italy - State Key Laboratory for Strength and Vibration of Mechanical Structures, Shaanxi Key Laboratory of Environment and Control for Flight Vehicle, International Center for Applied Mechanics, School of Aerospace, Xi'an Jiaotong University, Xi'an 710049, P. R. China	V.YSF.29
	Optical transparency and imprinted CNT/polymer films impedance characteristics A. Bashuk, I. Vlasenko, O. Ivanyuta National Taras Shevshenko University of Kyiv, 64/13, Vladimirska Str., 01033, Kiev, Ukraine e-mail: iva@univ.net.ua	V.YSF.30
	Thermally Responsive Photoluminescent Hybrids from Silicon Quantum Dots and Elastin-Like Polypeptides Christopher Jay T. Robidillo[1,4], Markian S. Bahniuk[2], Sophia Wandelt[3], Gunwant Matharu[1], Larry D. Unsworth[2], Jonathan G.C. Veinot[1] 1. Department of Chemistry, 11227 Saskatchewan Drive, University of Alberta, Edmonton, Alberta, Canada T6G 2G2; 2. Department of Chemical and Materials Engineering, 9211 116th Street, University of Alberta, Edmonton, Alberta, Canada T6G 1H9; 3. Faculty of Chemistry and Pharmacy, Butenandtstr. 5-13, Ludwig-Maximilians-Universität München, Munich, Germany 81377; 4. Department of Physical Sciences and Mathematics, P. Faura Street, Ermita, Manila, University of the Philippines Manila, Philippines 1000	V.YSF.31
	Application of Internet technologies for monitoring the bio-objects and bio-cybernetic systems Heorhii Vorobets, Volodymyr Buchakchiyskyi, Olexiy Pshenychnyi, Olha Vorobets Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	V.YSF.32

	Site Selective Functionalization of Nanowires for Biological Studies Viraj Bhingardive[1,2], Guillaume Le Saux[1,2], Avishay Edri[3], Angel Porgador[3], Mark Schvartaman[1,2] 1. Department of Materials Engineering; 2. Ilse Katz Institute for Nanoscale Science & Technology; 3. The Shraga Segal Department of Microbiology Immunology and GeneticsFaculty of Health Sciences, Ben-Gurion University of the Negev, Israel	V.YSF.33
	Humidity Sensing of Chitosan@SnO2 Hybrid Nanostructures Orhan Sisman[1], Navpreet Kaur[1], Giorgio Sberveglieri[1,2], Estefania Nunez-Carmona[3], Veronica Sberveglieri[3], Elisabetta Comini[1] 1. Sensor Lab, Department of Information Engineering, University of Brescia, Via Valotti 7, 25123 Brescia, ITALY; 2. Nano Sensor Systems s.r.l., Via Branze, 38, 25123 Brescia, ITALY; 3. CNR-IBBR Institute of Biosciences and Bioresources, Via Madonna del Piano 10, 50019 Sesto Fiorentino (FI), ITALY	V.YSF.34
	Smart coatings for tailor-made multistage antibacterial action Vitezslav Stranak[1], Jiri Kratochvil[1,2], David Kahoun[1], Jaroslava Lieskovska[1], Jan Sterba[1], Petr Sezemsky[1], Ondrej Kylian[2] 1. Faculty of Science, University of South, Bohemia in &#268,eské Bud&#283,jovice, 37005, &#268,eské Bud&#283,jovice, Czech Republic; 2. Faculty of Mathematics and Physics, Department of Macromolecular Physics, Charles University, Prague, 182 00, Czech Republic	V.YSF.35
	A detailed compositional study of amorphous ZnSnOy for novel device manufacturing Ainur Zhussupbekova[1], Aitkazy Kaisha[1], Igor V. Shvets[1], David Caffrey[1] and Karsten Fleischer[1,2] 1. School of Physics and Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College, The University of Dublin, Dublin 2, Ireland; 2. School of Physical Sciences, Dublin City University, Dublin 9, Ireland	V.YSF.36
	Employing physical stimuli present at atherosclerotic blood vessels to structurally modify liposomal nano-containers Sofiya Matviykiv[1], Marzia Buscema[1], Hans Deyhle[1,2], Thomas Pfohl[1,3], Andreas Zumbuehl[4], Till Saxer[5], Bert Müller[1] 1. University of Basel, Biomaterials Science Center, Allschwil, Switzerland; 2. University of Southampton, Southampton, United Kingdom; 3. Universität Freiburg, Institute of Physics, Freiburg, Germany; 4. National Center of Competence in Research in Chemical Biology, Geneva, Switzerland; 5. Faculty of Medicine, University of Geneva, Geneva, Switzerland	V.YSF.37
	Biodegradable interfacing nanocomposite coatings for modulating the cellular response V. Dinca[1]*, L. Rusen[1], S. Brajnicov[1], A. Bonciu[1], A. Campean[2] 1. National Institute for Lasers, Plasma and radiation Physics, Bucharest, Romania; 2. University of Bucharest, Faculty of Biology, Bucharest, Romania * valentina.dinca@inflpr.ro	V.YSF.38
	Molecularly imprinted polymer nanoparticles for the detection and modulation of cellular functions Paulina Ximena Medina Rangel, Bernadette Tse Sum Bui, Karsten Haupt Université de Technologie de Compiègne	V.YSF.39

17:10	Concluding Speech Prof.Dr. Bert Mueller with CERTIFICATES awarding	

17:40 YSF Poster Session: Invited Presenters Young Scientists FORUM Poster SESSION with Evening Party : Chairs: PhD, Post-Doctoral Researchers Bruna Costa, Brazil, Tu C. Le, Australia, Donata Iandolo, France and PhD student Hiromasa Murata, Japan

	Polyethylenimine/alginate polyelectrolyte films – preparation, characterization, application Marcin Strawski, Karolina Dolega, Marek Szklarczyk Laboratory of Electrochemistry, Faculty of Chemistry, University of Warsaw, ul. Pasteura 1, 02-093 Warsaw, Poland	V.PYSF.1
	Surface Modified Nanoparticles for Real-Time Imaging Chiung Wen Kuo, Peilin Chen Research Center for Applied Sciences, Academia Sinica, Taiwan	V.PYSF.2
	Preparation of Eco-Friendly Nano-Structured Phospholipid Biosurfactants from Vegetable Oil Sources and Characterization of Their DaNan Yea, SeonHui Jo, JongChoo Lim Dept. of Chemical and Biochemical Eng., Dongguk Univ., Seoul 100-715, Korea	V.PYSF.3
	Biosynthesis and characterization of multifunctional mixed oxides of ZnCr2O4/ZnCrO4 nanoparticulate from natural leaf extracts of Hibiscus Rosa Sinensis N. Mayedwa[1,2], N. Raleie[1], T. Mulaudzi-Masuku[3], N. Matinise[2], M Maaza[1,2] 1, UNESCO-Africa Chair in Nanoscience and Nanotechnology, College of Graduate Studies, University of South Africa, Theo Van Wyk Building 9-119, P. O Box 392, UNISA, 0003, South Africa; 2. Nanosciences African Network, Material Research Department, iThemba Laboratory for Accelerator Based Science, P. O Box 722, Somerset West, 7129, South Africa; 3. Life Science Building, Biotechnolgy Department, University of the Western Cape, Private Bag x17, Bellville, 7535, South Africa	V.PYSF.4
	Porous and Durable TiO2 encapsulation of Individual Jurkat T Cells for Cytoprotection and Cell Therapy Wongu Youn, Sang Yeong Han, Seok-Pyo Hong, Insung S. Choi Department of chemistry, KAIST, Korea	V.PYSF.5
	Systematic design of protic ionic liquids using machine learning Sachini Kadaoluwa Pathirannahalage[1], Tu C. Le[2], Andrew Christofferson[1,2], Tamar Greaves[1] 1. School of Science, RMIT University, GPO Box 2476, Melbourne VIC 3001, Australia; 2. School of Engineering, RMIT University, GPO Box 2476, Melbourne VIC 3001, Australia E-mail: s3544991@student.rmit.edu.au	V.PYSF.6

	Corrosion and tribocorrosion behavior of a new beta Ti-15Zr-15Mo alloy designed for medical implants B.C. Costa[1], C.C. Xavier[1], A.C. Alves[2,3], F. Toptan[2,3], L.A. Rocha[4], P.N. Lisboa-Filho[4] 1. Graduate Program in Materials Science and Technology – POSMAT, UNESP – São Paulo State University, 17033-360 Bauru, SP, Brazil; 2. CMEMS-UMinho – Center for Micro Electro Mechanical Systems, University of Minho, 4800-058, Azurém, Portugal; 3. Department of Mechanical Engineering, University of Minho, 4800-058, Azurém, Portugal; 4. Department of Physics, UNESP - São Paulo State University, 17033-360, Bauru, SP, Brazil	V.PYSF.7
	Strong silk fibers containing cellulose nanofibers generated by a bioinspired microfluidic chip Li Lu[1], Suna Fan[1], Qianqian Niu[1], Qingfa Peng[1], Lihong Geng[2], Gesheng Yang[1], Huili Shao[1], Benjamin S. Hsiao[3]*, Yaopeng Zhang[1]* 1. State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Shanghai Belt and Road Joint Laboratory of Advanced Fiber and Low-Dimension Materials, College of Materials Science and Engineering, Donghua University, Shanghai 201620, P.R. China; 2. Key Laboratory of Polymer Materials and Products of Universities in Fujian, Fujian University of Technology, Fujian 350118, P.R. China; 3. Department of Chemistry, Stony Brook University, Stony Brook, NY 11794, USA	V.PYSF.8
	DNA origami nanocapsules for controllable cargo accessibility Yusuke Sakai, Joanna Markiewicz, Martyna Adamiak, Jonathan Gardiner Heddle Malopolska Centre of Biotechnology, Jagiellonian University, Krakow 30-387, Poland	V.PYSF.9
	Advanced carbon materials: Imprinted CNT/polymer films impedance characteristics A. Bashuk, I. Vlasenko, O. Ivanyuta National Taras Shevshenko University of Kyiv, 64/13, Vladimirska Str., 01033, Kiev, Ukraine e-mail: iva@univ.net.ua	V.PYSF.10
	Al-induced layer exchange of Ge for seed layer applications Takeshi Nishida, Takashi Suemasu and Kaoru Toko Institute of Applied Physics, University of Tsukuba	V.PYSF.11
	Large and small artificial protein cage – using gold to control size Karolina Majsterkiewicz[1,2], Soumyananda Chakraborti[1], Agnieszka Kowalczyk[1,3], Bernard M.A.G. Piette[4], Sourav Maity[5], Wouter H. Roos[5], Jonathan G. Heddle[1] 1.Bionanoscience and Biochemistry Laboratory, Malopolska Centre of Biotechnology, Jagiellonian University, Krakow, Poland; 2. Postgraduate School of Molecular Medicine, Warsaw, Poland; 3.Faculty of Mathematics and Computer Science, Jagiellonian University, Kraków, Poland; 4.Department of Mathematical Sciences, Durham University, UK; 5.Molecular Biophysics, Zernike Institute for Advanced Materials, Rijksuniversiteit Groningen	V.PYSF.12

	Photocatalytic and Antibacterial Activity of Nanodispersed TiO2 Obtained by the Pyrogenic Method (part II experiment) Kobasa I.M.[1], Rotar D.V.[2], Kondrachuk I.V.[1], Vorobets M.M.[1], Vorobets G.I.[3] 1. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, i.kondratieva@chnu.edu.ua, m.vorobets@chnu.edu.ua; 2. Department of Microbiology and Virology, Bukovinian State Medical University, 58001 Chernivtsi, Ukraine, diana.rotar@bsmu.edu.ua; 3. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	V.PYSF.13
	Molecularly Imprinted Polymer Nanoparticles for the Detection and Modulation of Cellular Functions Paulina Medina Rangel, Bernadette Tse Sum Bui, Karsten Haupt Sorbonne Universités, Université de Technologie de Compiègne, CNRS Enzyme and Cell Engineering Laboratory Compiègne, France	V.PYSF.14
	The effect of polymerization on the physiological properties of falcarinol Jiangtao Zhao and Kaori Sugihara Department of Physical Chemistry, University of Geneva	V.PYSF.15
	Theoretical study of the effect of carbonate ions inclusions on the structure and properties of hydroxyapatite Anastas A. Romansky, Lyubov I. Karbivska, Volodymyr L. Karbivskii G.V. Kurdyumov Institute for Metal Physics of the N.A.S. of Ukraine	V.PYSF.16
	Micro-Pillars based Bio-Inspired Super-Hydrophobic Surface for Protein Amyloid Fibrils Analysis Peng Zhang, Manola Moretti, Marco Allione, Enzo Di Fabrizio SMILEs Lab, Physical Science and Engineering (PSE) and Biological and Environmental Science and Engineering (BESE) Divisions, King Abdullah University of Science and Technology, Thuwal 23955-6900, Saudi Arabia	V.PYSF.17
	Application of mathematical modeling to study the fine structure of spectra of protein complexes (experimental aspect) Heorhii Vorobets[1], Olha Vorobets[1], Volodymyr Buchakchiysky[1], Mikhail Solomiychuk[2], Aurelius Zelya[2] 1. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua; 2. Ukrainian Scientific - Research Station of the Plants Quarantine at the Institute of Plants Protection of the National Agricultural Academy Sciences of Ukraine, 60321, Ukraine, Chernivtsi region, vil. Boyany, ukrndskr.zam@gmail.com	V.PYSF.18

	Bioinspired conical microfiber with gradient grooved cross-section for enhanced water harvesting and transport Young A Lee[1,2,3], Seok Chung[2,3], Myoung-Woon Moon[1]* 1. Materials and Life Science Research Division, Korea Institute of Science and Technology, Seoul 02792, Republic of Korea; 2. Biomicro System Technology (Biomicrosystem Technology), Korea University, Seoul 02841, Republic of Korea; 3. Mechanical Engineering, Korea University, Seoul 02841, Republic of Korea	V.PYSF.19
	Fluorescent Nanodiamond-decorated Polydopamine Spheres as Theranostic Agents in Cancer Treatment Damian Maziukiewicz, Bartosz Grześkowiak, Radosław Mrówczyński, Stefan Jurga NanoBioMedical Centre, Adam Mickiewicz University, ul. Wszechnicy Piastowskiej 3, PL-61614 Poznań, Poland	V.PYSF.20
	Detection of Arsenic in water using bacterial flagellin variants Z. Lábadi[1], H. Jankovics[2], P. Szekér[2], É. Tóth[2], A. Saftics[1], B. Kalas[1], M. Fried[1,3], F. Vonderviszt[2], P. Petrik[1] 1. Institute of Technical Physics and Materials Science, Budapest, Hungary; 2. Bio-Nanosystems Laboratory, Research Institute of Biomolecular and Chemical Engineering, University of Pannonia, Veszprém, Hungary; 3. Institute of Microelectronics and Technology, Óbuda University, Budapest, Hungary	V.PYSF.21
	Thermally Responsive Photoluminescent Hybrids from Silicon Quantum Dots and Elastin-Like Polypeptides Christopher Jay T. Robidillo[1,4], Markian S. Bahniuk[2], Sophia Wandelt[3], Gunwant Matharu[1], Larry D. Unsworth[2], Jonathan G.C. Veinot[1] 1. Department of Chemistry, 11227 Saskatchewan Drive, University of Alberta, Edmonton, Alberta, Canada T6G 2G2; 2. Department of Chemical and Materials Engineering, 9211 116th Street, University of Alberta, Edmonton, Alberta, Canada T6G 1H9; 3. Faculty of Chemistry and Pharmacy, Butenandtstr. 5-13, Ludwig-Maximilians-Universität München, Munich, Germany 81377; 4. Department of Physical Sciences and Mathematics, P. Faura Street, Ermita, Manila, University of the Philippines Manila, Philippines 1000	V.PYSF.22
	Biologically relevant hydroxyapatite nanoparticles: calcific aortal valve disease Alexandra Siklitskaya[1], Nikolay Gulyaev[2], Marzena Prus[1], Sergey Yastrebov[3] 1. Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland; 2. Kirov Military Medical Academy, St. Petersburg, Russia; 3. Ioffe Physical Technical Institute, Russian Academy of Sciences, St. Petersburg, Russia	V.PYSF.23
	In vitro and in vivo profile of novel prepared hydrogels based on chitosan-silver nanospheres Alexandru Mihai Grumezescu[1], Alexandra-Cristina Burdusel[2], Alexandra Elena Stoica[1], Alina Maria Holban[3], Valentina Grumezescu[4], Laurentiu Mogoanta[5], Ecaterina Andronescu[1] 1. Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Applied Chemistry and Materials Science, University Politehnica of Bucharest, 1-7 Gheorghe Polizu Street, Bucharest 011061, Romania; 2. Faculty of Engineering in Foreign Languages, University Politehnica of Bucharest, 313 Splaiul Independen□ei, Bucharest 060042, Romania; 3. Microbiology & Immunology Department, Faculty of Biology, University of Bucharest, Bucharest 77206, Romania; 4. Lasers Department, National Institute for Lasers, Plasma and Radiation Physics, Magurele RO-77125, Romania; 5. Research Center for Microscopic Morphology and Immunology, University of Medicine and Pharmacy of Craiova, 2 Petru Rare□ Street, Craiova 200349, Romania	V.PYSF.24

	Supramolecular C60/ds-DNA self-assembled layers on silicon oxide: structural models N. Tsierkezos, U. Ritter, P. Scharff[2], H. Gogotsi, O. Ivanyuta, E. Buzaneva[1] 1. National Taras Shevshenko University of Kyiv, 64/13, Vladimirska Str., 01033, Kiev, Ukraine e-mail: iva@univ.net.ua 2. Technische Universitat Ilmenau, Institut fur Chemistry & Biotechnoly, Postfach 100565, 986884 Ilmenau, Germany	V.PYSF.25
	A study on improving the corrosion resistance of Mg-5Ca-1Zn alloy by the formation of oxide film using anodic oxidation Cheolhwan Jeong, Yonghee Yoon, Soyoung Kim, Wonhee Lee Sejong University	V.PYSF.26
	Metabolism-mimicking lithium-oxygen batteries with natural oxygen carriers Mihui Park, SeonYong Jo, Vincent Wing-hei Lau, Yong-Mook Kang Advanced Energy Materials Lab., Department of Energy and Engineering, Dongguk Univeristy-Seoul, Seoul 04620, Republic of Korea	V.PYSF.27
	3D PEDOT-PSS scaffolds for stem cells expansion and osteogenic differentiation Donata Iandolo[1,5], Jonathan Sheard[2,3], Galit Katarivas Levy[4], Charalampos Pitsalidis[5], Ellasia Tan6, Ji-Seon Kim[6], Athina E. Markaki[4], Darius Widera[2], Roisin M. Owens[5] 1. École Mines de Saint-Étienne (Saint-Étienne, France); 2. Stem Cell Biology and Regenerative Medicine Group, School of Pharmacy, University of Reading, Whiteknights campus, Reading, RG6 6AP, United Kingdom; 3. Sheard BioTech Limited, 20-22, Wenlock Road London N17GU, United Kingdom; 4. Department of Engineering, University of Cambridge, Trumpington Street, Cambridge; 5. Department of Chemical Engineering and Biotechnology, University of Cambridge CB2 1PZ, UK; 6. Department of Physics and Centre for Plastic Electronics, Imperial College London, South Kensington, London, UK	V.PYSF.28
	Water-soluble amino acid fullerene derivatives as promising antiviral drugs A.V. Zhilenkov, A.S. Peregudov, J. Balzarini, D. Schols, A.A. Kushch, P.A. Troshin Institute for Problems of Chemical Physics of RAS, Russia; A.N. Nesmeyanov Institute of Organoelement Compounds of RAS, Russia. Rega Institute for medical research, KU Leuven, Belgium; N. F. Gamaleya Federal Research Center for Epidemiology & Microbiology, Russia; Skolkovo Institute of Science and Technology, Moscow, Russia	V.PYSF.29
	Antimicrobial coating innovations to prevent healthcare-associated infection Martijn Riool, Francy Crijns, Column Dunne, Isabel Gouveia, Nuno Azevedo, Anne Kahru, Merja Ahonen, Martina Modic, Kazimierz Murzyn, Theofilos Papadopoulos, Patrick Cosemans, Peter D. Askew, Minna Keinänen-Toivola Amsterdam UMC, The Netherlands, VieCuri Medical Centre, The Netherlands, University of Limerick, Ireland, University of Beira, Portugal, University of Porto, Portugal, National Institute of Chemical Physics and Biophysics, Estonia, Satakunta University of Applied Sciences, Finland, Jo?ef Stefan Institute, Slovenia, Klaster LifeScience Krakow Fundation, Poland, Aristotele?s University of Thessaloniki, Greece, Sirris, Belgium, IMSL, UK, Satakunta University of Applied Sciences, Finland	V.PYSF.30
	Therapeutic effects of neuropeptide substance P coupled with self-assembled peptide nanofibers on the disease model Youngmee Jung Center for Biomaterials, Korea Institute of Science and Technology, Seoul, Korea	V.PYSF.31

	Electrophysical properties of elements composite gelatin A. Bashuk, I. Vlasenko, O. Ivanyuta Taras Shevchenko National University of Kiyv, 64, Volodymyrska str., Kiyv, 01033, Ukraine E-mail: iva@univ.net.ua	V.PYSF.32

Symposium V Program

Wednesday, September 18 th, 2019

09:00	Plenary Session (Main Hall)	
12:30	Lunch Break	
Session III: BIO-Carbon FORUM : Chairs: Professors Yoshie Harada & Peter Scharff		
13:30	**(project) Carbon materials chemistry and processing for multi-functionality: graphite to fullerenes-tubes-graphene** Prof. Peter Scharff, Univ.-Prof. Dr. rer. nat. habil., Dr. h. c. mult. Prof. h. c. mult. TU Ilmenau, Institute of Chemistry and Biotechnology, Weimarer Straße 25 (Curiebau), D-98693 Ilmenau, Germany. peter. scharff@tu-ilmenau.de	V.3.1
14:00	**Tailoring and integrating nanocarbons for multifunctional applications** Li Song National Synchrotron Radiation Laboratory, University of Science and Technology of China (USTC)	V.3.2
14:30	**Multilayer Graphene: Layer-exchange synthesis of multilayer graphene for flexible carbon electronics** Hiromasa Murata, Takashi Suemasu, Kaoru Toko University of Tsukuba	V.3.3
14:45	**Exploring water-soluble fullerene derivatives as potential antiviral pharmaceuticals** Olga A. Kraevaya[1,2], Ekaterina A. Khakina[2], Alexander V. Zhilenkov[2], A.A. Kushch[3], Timofei Zatsepin[1] and Jan Balzarini[4], Dominique Schols[4] and Pavel A. Troshin[1,2] 1. Skolkovo Institute of Science and Technology, Nobel St. 3, Moscow, 143026, Russia; 2. Institute for Problems of Chemical Physics, Academician Semenov av. 1, Chernogolovka, Moscow region, 142432, Russia; 3. Honored Academician N.F. Gamaleya Federal Research Center for Epidemiologyand Microbiology of the Ministry of Health of the Russian Federation, Gamaleya st. 18, 123098, Moscow, Russia; 4. Rega Institute for Medical Research, Herestraat 49, 1030, 3000, Leuven, Belgium	V.3.4
15:00	**Bioinspired coating for nanodiamonds** Damian Maziukiewicz, Bartosz Grześkowiak, Stefan Jurga, Radosław Mrówczyński NanoBioMedical Centre, Adam Mickiewicz University in Poznan, Wszechnicy Piastowskiej 3, PL-61614 Poznan, Poland	V.3.5

15:30	Coffee Break	
15:50	**Spontaneous Differentiation of human Neural Stem Cells on Nanodiamond** Alice C Taylor, Citlali Helenes González, Patrizia Ferretti, Richard B Jackman London Centre for Nanotechnology and Department of Electronic and Electrical Engineering, University College London, 17-19 Gordon Street, London, WC1H 0AH, UK; Stem Cell and Regenerative Medicine Section, UCL Institute of Child Health, University College London, 30 Guilford Street, London, WC1N 1EH, UK	V.3.6
16:20	**Diamond and Micelle: Hard and Soft Materials for Nanomedicine** Naoki Komatsu Graduate School of Human and Environmental Studies, Kyoto University, Kyoto 606-8501, Japan	V.3.7
16:50	**Fluorescent nanodiamonds as a robust temperature sensor inside a single cell** Shingo Sotoma, Yoshie Harada Institute for Protein Research, Osaka University, Japan & Japan Society for the Promotion of Science (JSPS), Japan, Institute for Protein Research, Osaka University, Japan & Institute for Open and Transdisciplinary Research Initiatives, Osaka University, Japan	V.3.8
17:20	**A Biodegradable Multifunctional Graphene Oxide Platform for Targeted Cancer Therapy** Cristina Martín[1], Amalia Ruiz[1], Sandeep Keshavan[2], Giacomo Reina[1], Diane Murera[1], Yuta Nishina[3,4], Bengt Fadeel[2], Alberto Bianco[1] 1. University of Strasbourg, CNRS, Immunology, Immunopathology and Therapeutic Chemistry, UPR 3572, 67000 Strasbourg, France; 2. Institute of Environmental Medicine, Karolinska Institutet, 171 77 Stockholm, Sweden; 3. Graduate School of Natural Science and Technology, Okayama University, Tsushimanaka, Kita-ku, Okayama 700-8530, Japan; 4. Research Core for Interdisciplinary Sciences, Okayama University, Tsushimanaka, Kita-ku, Okayama 700-8530, Japan	V.3.9
17:35	**Atomic force microscopy study of a common polydiacetylene** Levente Juhasz and Roberto D. Ortuso, Kaori Sugihara University of Geneva, Physical Chemistry Dept., 30 Quai Ernest Ansermet, 1205 Geneva, Switzerland	V.3.10
17:50	Concluding Remark: Symposium V Organizer, Prof. Peter SCHARFF	
18:00	Graduate Student Awards Ceremony & Reception 18:00-21:00 (Main Hall)	

Symposium V Program

Thursday, September 19 th, 2019

Session IV: BIO-Nanomaterials and Diagnostics Forum : Chairs: Asst. Prof., Dr. B.Imran Akca, RNDr. Jiri Kratochvil, Asst. Prof.,Dr., Marie Curie Fellow Nanasaheb D.Thorat and Dr.Valerio Voliani

08:30	**Tutorial Lecture: Toward Noninvasive Diagnostic: From Nanostructured Surfaces to the Isolation of Rare Cells** Peilin Chen Research Center for Applied Science, Academia Sinica, Taiwan	V.4.1
09:10	**Optical coherence tomography in assessing tissue properties** Imran Akca, Johannes de Boer Department of Physics and Astronomy, Biophotonics and Medical Imaging Group VU University Amsterdam	V.4.2
09:30	**Light-mediated theranostic for modern cancer treatment** Nanasaheb Thorat and Joanna Bauer Department of Bioengineering, Faculty of Fundamental Problems of Technology, Wroclaw University of Science and Technology, Wybrzeze Wyspiańskiego 27, 50-370 Wrocław	V.4.3
09:50	**Cancer cell treatment through magnetic hyperthermia produced by γ-Fe2O3 and Co1-xFexO4 nanocrystallines** O.M. Lemine Physics Department, College of Sciences, Al Imam Mohammad Ibn Saud Islamic University (IMSIU), P.O.B 90950, Riyadh, Saudi Arabia	V.4.4
10:10	**Bringing again plasmonic nanotheranostics to the forefront of cancers treatments: the ultrasmall-in-nano design** Valerio Voliani Center for Nanotechnology Innovation @NEST, Istituto Italiano di Tecnologia	V.4.5
10:30	Coffee Break. General Photo	

11:00	**Nano-objects for (bio)applications** Jiří Kratochvíl[1,2]*, Ondřej Kylián[2], David Kahoun[1], Ján Štěrba[1], Vítězslav Straňák[1] 1. Faculty of Science, University of South Bohemia in Ceske Budejovice, Branisovska 1760, 37005, Ceske Budejovice, Czech Republic, *jkratochvil@prf.jcu.cz, kratji@seznam.cz; 2. Faculty of Mathematics and Physics, Charles University, V Holesovickach 2, 18200, Prague, Czech Republic, *jiri.kratochvil@mff.cuni.cz, kratji@seznam.cz	V.4.6
11:20	**Multitask nanostructures for liver and brain therapy** Radosław Mrówczyński*[1], Artur Jędrzak[1,2], Bartosz F.Grześkowiak[1], Damian Maziukiewicz[1], Kosma Szutkowski[1], Małgorzata Grabowska[3], Dariusz Wawrzyniak[3], Jan Barciszewski[4], Stefan Jurga[1], Katarzyna Rolle[3,5] 1. NanoBioMedical Centre, Adam Mickiewicz University, Wszechnicy Piastowskiej 3, PL-61614 Poznan, Poland; 2. Poznan University of Technology, Faculty of Chemical Technology, Berdychowo 4, PL-61131 Poznan, Poland; 3. Department of Molecular Neurooncology, Institute of Bioorganic Chemistry Polish Academy of Science, Poznan, Poland; 4. Department of Epigenetics, Institute of Bioorganic Chemistry Polish Academy of Science, Poznan, Poland; 5. Centre for Advanced Technologies, Poznan, Poland	V.4.7
11:40	**Multifunctional Mesoporous Fe3O4 nanoparticle loaded with doxorubicin and polyphenolic drug for cancer treatment** Ahmaduddin Khan, Jayakumar R, Niroj Kumar Sahu* Centre for Nanotechnology Research, VIT, Vellore- 632014 (TN), India	V.4.8
12:10	**Novel Surface Strategies to Combat Biomaterial-Associated Infections** Martijn Riool and Sebastian A.J. Zaat Amsterdam UMC, location AMC, The Netherlands	V.4.9
12:30	Lunch Break	
13:30	**Smart coatings for tailor-made multistage antibacterial action** Vitezslav Stranak[1], Jiri Kratochvil[1,2], David Kahoun[1], Jaroslava Lieskovska[1], Jan Sterba[1], Petr Sezemsky[1], Ondrej Kylian[2] 1. Faculty of Science, University of South, Bohemia in České Budějovice, 37005, České Budějovice, Czech Republic; 2. Faculty of Mathematics and Physics, Department of Macromolecular Physics, Charles University, Prague, 182 00, Czech Republic	V.4.10
13:45	**Plasmonic Nanosponges** Dong Wang, Peter Schaaf Group Materials for Electrical Engineering and Electronics Institute of Materials Science and Engineering Institute of Micro-and Nanotechnology TU Ilmenau	V.4.11
14:10	**Translational nanomedicine and nanobiomaterials: Basics and relationships** Thomas J. Webster Chemical Engineering, Northeastern University, Boston, MA 02115	V.4.12

14:40	**Perspectives of novel biomaterials: In celebration of 14 years of the International Journal of Nanomedicine** Thomas J. Webster Chemical Engineering, Northeastern University, Boston, MA 02115	V.4.13
15:00	**Surface charge controlled cell proliferation on electrospun polyvinylidene fluoride (PVDF) for bone regeneration** Szewczyk P.K., Metwally S., Karbowniczek J.E., Marzec M.M., Stodolak-Zych E., Gruszczyński A., Bernasik A., Stachewicz U. International Centre of Electron Microscopy for Materials Science, Faculty of Metals Engineering and Industrial Computer Science, Academic Centre for Materials and Nanotechnology, Department of Biomaterials and Composite Materials, Faculty of Materials Science and Ceramics, Faculty of Physics and Applied Computer Science	V.4.14
15:15	**Mineralized polylactide carriers of platelet rich plasma for cancellous bone regeneration** Monika Budnicka[1], Judyta Dulnik[2], Agnieszka Gadomska-Gajadhur[1] 1. Chair of Polymer Chemistry and Technology, Warsaw University of Technology; 2. Laboratory of Polymers and Biomaterials, Institute of Fundamental Technological Research, Polish Academy of Science	V.4.15
15:30	Coffee Break	
16:00	**Design of a novel microfeatured poly (glycerol sebacate) methacrylate (PGSM) scaffolds for corneal regeneration** Iris Cristina Becerril Rodriguez, Ilida Ortega Asencio, Frederik Claeyssens The University of Sheffield, United Kingdom	V.4.16
16:20	**Targeting Cell Signaling by Functionalized Nanoparticles: A Critical Overview** Mariia Lunova, Barbora Smolková, Mariia Uzhytchak, Milan Jirsa, Šárka Kubinová, Alexandr Dejneka, Oleg Lunov Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic, Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic, Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic, Institute for Clinical & Experimental Medicine (IKEM), Prague, Czech Republic, Institute of Experimental Medicine of the Czech Academy of Sciences, Prague, Czech Republic, Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic, Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic	V.4.17
16:35	**The Thermally Activated Aerosol Assisted Chemical Vapour Deposition of Polymers** Yasmin A. Mehanna, Rebekah L. Upton and Colin R. Crick Materials Innovation Factory, Department of Chemistry, University of Liverpool, Liverpool, UK	V.4.18

16:50	**Advanced investigation of the fundamental properties and bioactive functionality of nanostructured titanium dioxide** Kobasa I.M.[1], Vorobets M.M.[1], Vorobets G.I.[2] 1. Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, m.vorobets@chnu.edu.ua; 2. Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua	V.4.19
17:10	**Ultra-porous nanocellulose foams with tailored wetting properties** Carlo Antonini, Tingting Wu, Tanja Zimmermann, Abderrahmane Kherbeche, Marie-Jean Thoraval. Gustav Nyström and Thomas Geiger Cellulose and Wood Materials, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf, Switzerland - Department of Materials Science, University of Milano - Bicocca, Milano, Italy - State Key Laboratory for Strength and Vibration of Mechanical Structures, Shaanxi Key Laboratory of Environment and Control for Flight Vehicle, International Center for Applied Mechanics, School of Aerospace, Xi&#8217,an Jiaotong University, Xi&#8217,an 710049, P. R. China	V.4.20

Satellite Events

Thesis competition

16-17 September 2019, Warsw, Poland, 12:45-13:45

EVENT location: room 208 | Main Building

We will be running a competition for current doctoral students in which we will ask them to present their doctoral research in no longer than three minutes using no more than three overhead slides.

Sessions will run during lunch breaks, and all E-MRS delegates are invited to attend. There will be a small judging committee who will decide on which presentations are the best, based on the clarity of presentation, the quality of the science, and the level of technical understanding that the presenter demonstrates. Presentations should include details of the motivation for the research, the results achieved so far, the potential impact of the work, and what conclusions have been drawn to date.

Detailed programme will be available during the conference.

Exhibitors

| 1 | Goodfellow Cambridge Ltd.
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| 3 | SYGNIS Bio Technologies
| 4 | Hiden Analytical
| 5 | Zolix Instruments Co., LTD
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| 7 | CS Clean Solutions AG
| 8 | SwissLitho & Heidelberg Instruments
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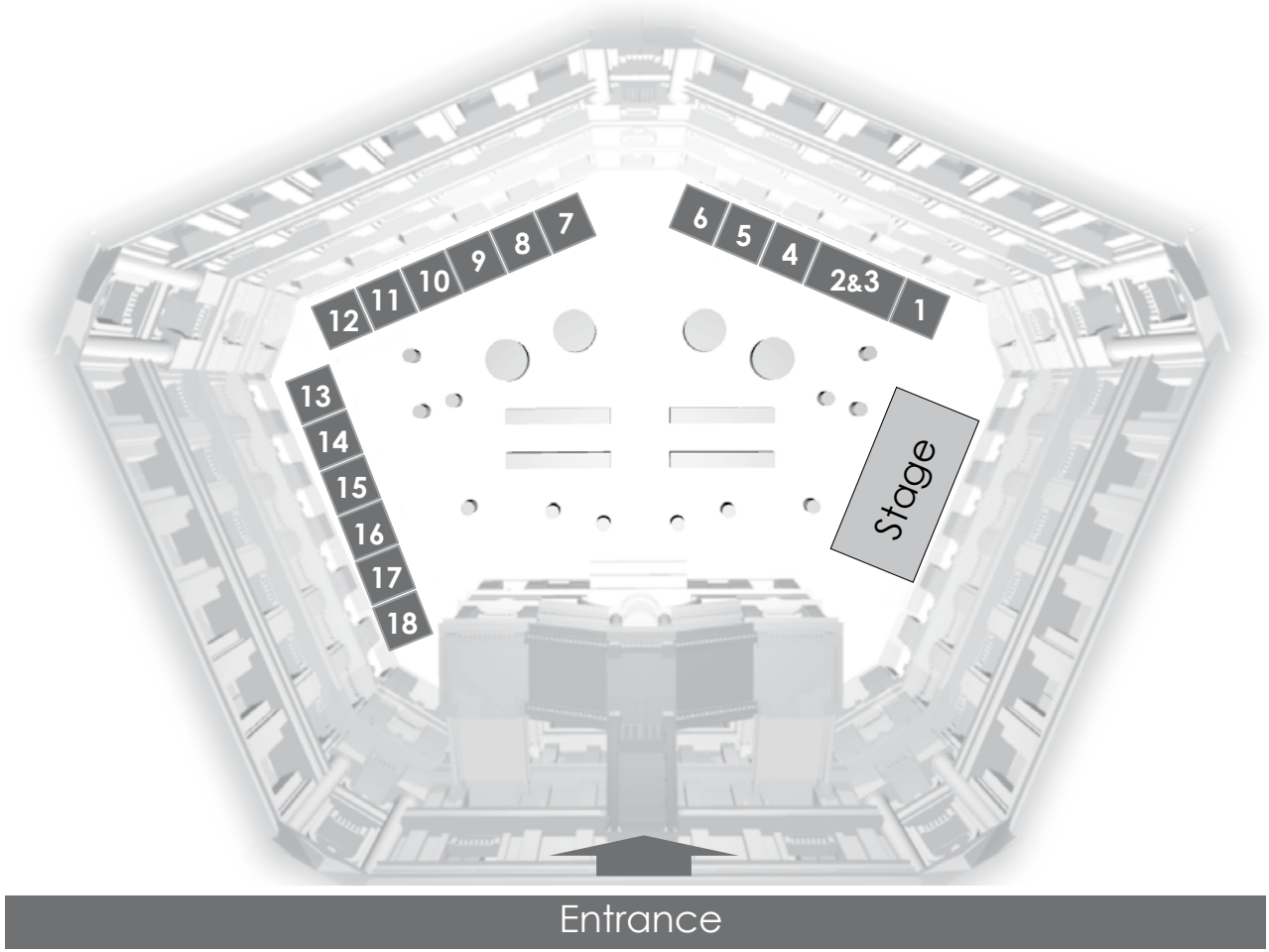
| 10 | NanoMagnetics Instruments Ltd.
| 11 | Okay Energy Equipment Co., Ltd
| 12 | IOP Publishing
| 13 | SPECS Surface Nano Analysis GmbH
| 14 | Nextron Corporation
| 15 | KAUST - King Abdullah University of Science and Technology
| 16 | CBRTP
| 17 | Linseis
| 18 | TOPTICA Photonics

Exhibition Plan

16-18 September 2019, 09:00-17:15

Location: Main Hall | Main Building



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3

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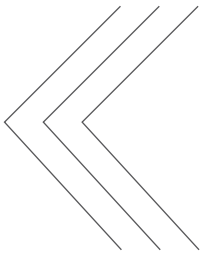

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redoxme AB

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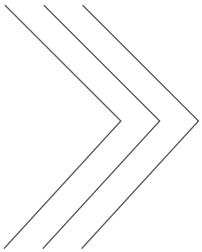

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