CONFERENCE CHAIRS

Martina LUYSBERG
Research Centre Jülich
Ernst Ruska-Centre, Wilhelm-Johnen-Str, D-52425 Jülich, Germany
Mail: m.luysberg@fz-juelich.de

Juan Ramón MORANTE
IREC Catalonia Institute for Energy Research and University of Barcelona
Jardins de les Dones de Negre 1 Sant Adrià del Besòs 08930 Spain
Mail: jrmorante@irec.cat

Henry H. RADAMSON
Mid Sweden University
Holmgatan 10, 85170 Sundsvall, Sweden & Chinese Academy of Sciences, Department of Microelectronics, 100029 Beijing, China
Mail: henry.radamson@miun.se & rad@ime.ac.cn
Monday 30 May, 2022 (13:00 - 13:45)
ERC Individual and Synergy Grants

Christine Courillon
Research Program Agent for “Synthetic Chemistry and Materials”
ERC Executive Agency
Place Rogier, 16
B-1049 Brussels, Belgium

Tuesday 31 May, 2022 (13:45 - 14:45)
Visualising patterning and crystal growth on 2D materials using in situ electron microscopy

Frances M. Ross
Department of Materials Science and Engineering
Massachusetts Institute of Technology
Cambridge, Massachusetts, USA
Wednesday 1 June, 2022 (13:45 - 14:45)
CO2 - Decarbonisation & CO2 as Future Feedstock

Dr. Armin Günther
Director New Technologies & Energy Transition
Air Liquide Global E&C Solutions

Wednesday 1 June, 2022 (18:00 - 18:30)
2022 E-MRS EU-40 Materials Prize Presentation
The Versatility of Perovskite Materials for Optoelectronics

Prof. Michael Saliba
Institute for Photovoltaics (ipv) University of Stuttgart, and Research Center Jülich, Germany

Wednesday 1 June, 2022 (18:30 - 19:00)
2022 MRS Mid-Career Researcher Award Presentation
Designing biomaterials to repair the body and detect diseases earlier

Prof Molly M Stevens
Imperial College London
U.K.

Thursday 2 June, 2022 (13:45 - 14:45)
Accelerating the clean energy transition with materials innovation

Dr Chris Case
Chief Technology Officer
Oxford PV
U.K.
SUMMARY
TIMETABLES
<table>
<thead>
<tr>
<th><strong>MORNING</strong></th>
<th><strong>AFTERNOON</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NANOELECTRONIC MATERIALS AND DEVICES</strong></td>
<td><strong>NANOELECTRONIC MATERIALS AND DEVICES</strong></td>
</tr>
<tr>
<td><strong>A</strong> Advanced carbon materials</td>
<td><strong>A.1:</strong> Highlights</td>
</tr>
<tr>
<td><strong>B</strong> Ultra-doped semiconductors by non-equilibrium processing for electronic, photonic and spintronic applications</td>
<td><strong>B1:</strong> Hyperdoped Ge</td>
</tr>
<tr>
<td><strong>C</strong> Semiconductor Nanostructures Towards Opto-Electronic and Photonic Device Applications VIII</td>
<td><strong>C1:</strong> Synthesis and Optical Properties</td>
</tr>
<tr>
<td><strong>D1</strong> Materials for Nanoelectronics and Nanophotonics</td>
<td><strong>D1.1:</strong> Plasmonics and SERS</td>
</tr>
<tr>
<td><strong>D2</strong> Materials for Nanoelectronics and Nanophotonics</td>
<td><strong>D2.1:</strong> From 2D to 3D Nanomaterials II</td>
</tr>
<tr>
<td><strong>E</strong> Adaptive Materials and Devices for Brain-inspired Electronics</td>
<td><strong>E1:</strong> Oxide-based Devices I</td>
</tr>
<tr>
<td><strong>ENERGY MATERIALS</strong></td>
<td><strong>ENERGY MATERIALS</strong></td>
</tr>
<tr>
<td><strong>F</strong> Advances and Enhanced Functionalities of Anion-controlled New Inorganic Materials - ANIM 4</td>
<td><strong>F.1:</strong> Session 1</td>
</tr>
<tr>
<td><strong>G</strong> Materials for Sustainable Energy Technologies (M-SET)</td>
<td><strong>G.1:</strong> Session 1</td>
</tr>
<tr>
<td><strong>H</strong> 2D materials for Energy Storage: Batteries, super Capacitor, Solar Cells, Thermoelectric</td>
<td><strong>H.1:</strong> Session 1</td>
</tr>
<tr>
<td><strong>I</strong> Sustainable Approaches for Renewable Energy Conversion to Fuels and Chemicals</td>
<td><strong>I.1:</strong> Artificial Photosynthesis</td>
</tr>
<tr>
<td><strong>J</strong> Future electrochemical energy storage materials: from nanoscience to device integration and real environment application</td>
<td><strong>J.1:</strong> Supercapacitor</td>
</tr>
<tr>
<td><strong>K</strong> Thin Film Chalcogenide Photovoltaic Materials</td>
<td><strong>K1:</strong> CIGS: Materials and Devices</td>
</tr>
<tr>
<td><strong>FUNCTIONAL MATERIALS</strong></td>
<td><strong>FUNCTIONAL MATERIALS</strong></td>
</tr>
<tr>
<td><strong>L</strong> Chromogenic materials and devices</td>
<td><strong>L.1:</strong> Session 1</td>
</tr>
<tr>
<td><strong>M</strong> Novel Materials for Radiation Detectors</td>
<td><strong>M.1:</strong> Session 1</td>
</tr>
<tr>
<td><strong>N</strong> Synthesis, Processing and Characterization of Nanoscale Multi Functional Oxide Films VIII</td>
<td><strong>N1:</strong> Growth of Thin Films</td>
</tr>
<tr>
<td><strong>O</strong> Nano-engineered coatings and thin films: from design to applications</td>
<td><strong>O1:</strong> Hard Coatings and Coatings based on Metallic Glasses</td>
</tr>
<tr>
<td><strong>METHODS</strong></td>
<td><strong>METHODS</strong></td>
</tr>
<tr>
<td><strong>P</strong> Cultural Heritage at risk: Perspectives on Technologies, Materials, Modelling and digitalization</td>
<td><strong>Q.1:</strong> Pulsed Laser Deposition and Ablation-based Growth of Materials</td>
</tr>
<tr>
<td><strong>Q</strong> Fundamental and applicative research in laser-material interactions</td>
<td><strong>Q.1:</strong> Pulsed Laser Deposition and Ablation-based Growth of Materials</td>
</tr>
<tr>
<td><strong>S</strong> Polymer and hybrid thin films deposited from the vapor phase for functional (bio-devices)</td>
<td><strong>S.1:</strong> Biomaterials part I</td>
</tr>
<tr>
<td><strong>U</strong> Advanced characterization of organic and hybrid materials</td>
<td><strong>U.1:</strong> Doping Phenomena</td>
</tr>
<tr>
<td><strong>BIO- AND SOFT MATERIALS</strong></td>
<td><strong>BIO- AND SOFT MATERIALS</strong></td>
</tr>
<tr>
<td><strong>V</strong> New trends in advanced lithography and pattern transfer methods</td>
<td><strong>V.1:</strong> Oral Session 1</td>
</tr>
<tr>
<td><strong>W</strong> WIRE: Women in Renewable Energy</td>
<td><strong>W:</strong></td>
</tr>
</tbody>
</table>
## SUMMARY TIMETABLE  TUESDAY MAY 31

### NANOELECTRONIC MATERIALS AND DEVICES

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>A: Advanced carbon materials</td>
</tr>
<tr>
<td></td>
<td>B: Ultra-doped semiconductors by non-equilibrium processing</td>
</tr>
<tr>
<td></td>
<td>for electronic, photonic and spintronic applications</td>
</tr>
<tr>
<td></td>
<td>C: Semiconductor Nanostructures Towards Opto-Electronic and Photonic</td>
</tr>
<tr>
<td></td>
<td>Device Applications VIII</td>
</tr>
<tr>
<td></td>
<td>D1: Materials for Nanoelectronics and Nanophotonics</td>
</tr>
<tr>
<td></td>
<td>D2: Materials for Nanoelectronics and Nanophotonics</td>
</tr>
<tr>
<td></td>
<td>E: Adaptive Materials and Devices for Brain-inspired Electronics</td>
</tr>
</tbody>
</table>

### ENERGY MATERIALS

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>F: Advances and Enhanced Functionalities of Anion-controlled New Inorganic</td>
</tr>
<tr>
<td></td>
<td>Materials - ANIM 4</td>
</tr>
<tr>
<td></td>
<td>G: Materials for Sustainable Energy Technologies (M-SET)</td>
</tr>
<tr>
<td></td>
<td>H: 2D materials for Energy Storage : Batteries, super Capacitor, Solar</td>
</tr>
<tr>
<td></td>
<td>Cells, Thermoelectric</td>
</tr>
<tr>
<td></td>
<td>I: Sustainable Approaches for Renewable Energy Conversion to Fuels and</td>
</tr>
<tr>
<td></td>
<td>Chemicals</td>
</tr>
<tr>
<td></td>
<td>J: Future electrochemical energy storage materials: from nanoscience to</td>
</tr>
<tr>
<td></td>
<td>device integration and real environment application</td>
</tr>
<tr>
<td></td>
<td>K: Thin Film Chalcogenide Photovoltaic Materials</td>
</tr>
</tbody>
</table>

### FUNCTIONAL MATERIALS

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>L: Chromogenic materials and devices</td>
</tr>
<tr>
<td></td>
<td>M: Novel Materials for Radiation Detectors</td>
</tr>
<tr>
<td></td>
<td>N: Synthesis, Processing and Characterization of Nanoscale Multi</td>
</tr>
<tr>
<td></td>
<td>Functional Oxide Films</td>
</tr>
<tr>
<td></td>
<td>O: Nano-engineered coatings and thin films: from design to applications</td>
</tr>
</tbody>
</table>

### METHODS

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>P: Cultural Heritage at risk : Perspectives on Technologies, Materials,</td>
</tr>
<tr>
<td></td>
<td>Modelling and digitalization</td>
</tr>
<tr>
<td></td>
<td>Q: Fundamental and applicative research in laser-material interactions</td>
</tr>
</tbody>
</table>

### BIO- AND SOFT MATERIALS

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>S: Polymer and hybrid thin films deposited from the vapor phase for</td>
</tr>
<tr>
<td></td>
<td>functional (bio-devices)</td>
</tr>
<tr>
<td></td>
<td>U: Advanced characterization of organic and hybrid materials</td>
</tr>
</tbody>
</table>

### SATELLITE EVENTS

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>V: New trends in advanced lithography and pattern transfer methods</td>
</tr>
<tr>
<td></td>
<td>W: WIRE: Women in Renewable Energy</td>
</tr>
</tbody>
</table>

---

**Legend:**
- **A5:** Carbon Dots
- **A6:** Carbon Nanotubes
- **B5:** Transition metal hyperdoped silicon
- **B6:** Chalcogen hyperdoped silicon
- **C6:** Perovskite Nanostructures for Optoelectronics
- **D1.6:** Advanced Electronic Devices
- **D2.5:** Functional Nanomaterials Theory vs. Experiments
- **E6:** Oxide-based Devices II
- **F.4:** Session 4
- **G.6:** Catalysis
- **H.4:** Session 4
- **I.4:** CO2 Reduction I
- **J.3:** Electrolytes for Batteries
- **K.5:** Simulations
- **L.4:** Session 4
- **M.4:** Session 4
- **N.5:** Functional Films
- **O.4:** Nitride and Oxide Functional Coatings
- **P.4:** LIPSS I
- **Q.5:** Spectroscopy 1
- **S.5:** Biomaterials part III
- **S.6:** Mechanism of Deposition / Deposition of Patterns
- **U.6:** Photophysics 2
- **V.3:** Oral Session 2
### SUMMARY TIMETABLE | WEDNESDAY JUNE 1 | MORNING | AFTERNOON
--- | --- | --- | ---
**A** Advanced carbon materials | A7: Physical Properties of Carbon Materials | A8: Bioapplications I | A9: Bioapplications II
**B** Ultra-doped semiconductors by non-equilibrium processing for electronic, photonic and spintronic applications | B9: Future Devices | B10: Doping Nanocrystals | B11: Defect engineering

#### ENERGY MATERIALS

**D** Materials for Nanoelectronics and Nanophotonics | D1.9: Carbon Nanomaterials | D1.10: Hybrid Materials | D1.11: Energy Materials | D1.12: Energy Technologies

#### FUNCTIONAL MATERIALS


#### METHODS

**I** Sustainable Approaches for Renewable Energy Conversion to Fuels and Chemicals | J5: Lithium Ion Batteries | J5: Posters | J: Posters
**J** Future electrochemical energy storage materials: from nanoscience to device integration and real environment application | K8: Kesterites | K9: Posters - CIGSe and Contact Materials | K10: CdTe Alloys | K11: Posters - CIGSe and CdTe

#### BIO- AND SOFT MATERIALS

**K** Thin Film Chalcogenide Photovoltaic Materials | L: Polymers | M.5: Session 5 | M.6: Session 6 | M.7: Posters
**L** Chromogenic materials and devices | N.8: Advanced Oxide Thin Films I | N.9: Advanced Oxide Thin Films II | N.10: High Temperature Superconducting Thin Films | O.7: Optical Coatings | O.8: Poster Session 2

#### SATELLITE EVENTS

**O** Nano-engineered coatings and thin films: from design to applications | O.8: Poster Session 2 | PL: Poster Session 2

### PLERIARY SESSION C

**E-MRS EU-40 MATERIALS PRIZE & MRS MID-CAREER RESEARCH AWARD**

**W** WiRE: Women in Renewable Energy
### SUMMARY TIMETABLE  
**THURSDAY JUNE 2 & FRIDAY JUNE 3**

#### NANOELECTRONIC MATERIALS AND DEVICES

<table>
<thead>
<tr>
<th></th>
<th>MORNING</th>
<th>AFTERNOON</th>
<th>MORNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Ultra-doped semiconductors by non-equilibrium processing for electronic, photonic and spintronic applications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2</td>
<td>Materials for Nanoelectronics and Nanophotonics</td>
<td>A13: Photo(electro) catalysis II</td>
<td>A15: Photo(electro) catalysis III</td>
</tr>
<tr>
<td>D3</td>
<td>Materials for Nanoelectronics and Nanophotonics</td>
<td>A14: Photo(electro) catalysis III</td>
<td>A16: Photo(electro) catalysis IV</td>
</tr>
</tbody>
</table>

#### ENERGY MATERIALS

<table>
<thead>
<tr>
<th></th>
<th>MORNING</th>
<th>AFTERNOON</th>
<th>MORNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Sustainable Approaches for Renewable Energy Conversion to Fuels and Chemicals</td>
<td>J.6: Post Lithium-ion Batteries</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Future electrochemical energy storage materials: from nanoscience to device integration and real environment application</td>
<td>K12: Characterization</td>
<td>K13: New Materials</td>
</tr>
<tr>
<td>K</td>
<td>Thin Film Chalcogenide Photovoltaic Materials</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### FUNCTIONAL MATERIALS

<table>
<thead>
<tr>
<th></th>
<th>MORNING</th>
<th>AFTERNOON</th>
<th>MORNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>Chromogenic materials and devices</td>
<td>M.8: Session 8</td>
<td>M.9: Session 9</td>
</tr>
<tr>
<td>N</td>
<td>Synthesis, Processing and Characterization of Nanoscale Multi Functional Oxide Films VIII</td>
<td>N.12: 2D and Epitaxial Thin Films II</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>Nano-engineered coatings and thin films: from design to applications</td>
<td>O.9: Fundamental Aspects of Thin Film Growth</td>
<td>O.16: Thin Film Growth and Applications</td>
</tr>
</tbody>
</table>

#### METHODS

<table>
<thead>
<tr>
<th></th>
<th>MORNING</th>
<th>AFTERNOON</th>
<th>MORNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Cultural Heritage at risk : Perspectives on Technologies, Materials, Modelling and digitalization</td>
<td>Q.10: Laser-Material Synthesis</td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>Fundamental and applicative research in laser-material interactions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### BIO- AND SOFT MATERIALS

<table>
<thead>
<tr>
<th></th>
<th>MORNING</th>
<th>AFTERNOON</th>
<th>MORNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Polymer and hybrid thin films deposited from the vapor phase for functional (bio-devices)</td>
<td>S.11: Functional Thin Films</td>
<td></td>
</tr>
</tbody>
</table>

#### SATELLITE EVENTS

<table>
<thead>
<tr>
<th></th>
<th>MORNING</th>
<th>AFTERNOON</th>
<th>MORNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>New trends in advanced lithography and pattern transfer methods</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SYMPOSIUM A

Nanoelectronic materials and devices

Symposium Organizers:

Akichika KUMATANI, Tokou University

Hui-Ming CHENG, Institute of Metal Research, CAS

Jean-Charles ARNAULT, CEA NIMBE

Nianjun YANG, University of Siegen

Papers will be published in the journal «Carbon» [Elsevier].
Monday May 30

08:45 Welcome and Introduction to the Symposium

Highlights: N. YANG, J.-C. ARNAULT

09:00 INV Research on 2D Graphdiyne: Review and progress
Yunxi Xu, Yuliang Li*
Institute of Chemistry Chinese Academy of Sciences

09:30 INV Spin Quantum Physics with Carbon Based Materials
Jing Winkopf
3rd Institute of Physics, Centre for Applied Quantum Technologies and IQST, University of Stuttgart, Germany

10:00 INV Graphene Nanostructures 3.0: Quantum Phenomena & Properties
Feng X. (1)(2)
(1) Faculty of Chemistry and Food Chemistry, Technical University Dresden, Germany
(2) Department of Synthetic Materials and Functional Devices, Max Planck Institute of Microstructure Physics, Germany

10:30 Discussion

10:45 Coffee

Engineering of Diamond Films: N. YANG, Y. LU

11:00 INV Nanomechanics of diamond and its deep elastic strain engineering
Prof. Yang Lu
Department of Mechanical Engineering, City University of Hong Kong

11:30 INV CVD diamond film with nanodiamond seeding grown on GaN for effective thermal dissipation
Liwen Sang, and Meyong Liao
International Center for Materials Nanoarchitectonics, National Institute for Materials Science (NIMS), 1-1 Namiki, Tsukuba, Ibaraki 305-0044, Japan

11:45 INV Fabrication of Diamond Nanoneedle Arrays Containing High-Brightness Silicon-Vacancy Centers
Jiaqi Lu, Bing Yang, Xin Jiang
Jiaqi Lu, School of Materials Science and Engineering, University of Science and Technology of China, Bing Yang, Institute of Metal Research, Chinese Academy of Sciences, Xin Jiang, University of Siegen, Institute of Metal Research, Chinese Academy of Sciences,

12:00 INV Tailored Adamanantane derivatives as precursors to Nanodiamonds in mild Pressure and Temperature conditions
Yves H. Geerts, Maxime Bonsir
Laboratory of Polymer Chemistry, Université Libre de Bruxelles, Boulevard du Triomphe, CP 226/1, Brussels, Belgium

12:15 INV Review on the Raman spectroscopy of boron-doped diamond
V. Morte, M. Davydova, M. Alam, A. Taylor, J. Pokorny
FUZ – Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic

12:30 Discussion

12:45 Lunch

13.00 Nanodiamond and Diamond Core Shells: J.-C. ARNAULT, M. LIAO

14:00 INV Efficient etching of diamond by oxygen annealing toward high-Q factor diamond MEMS resonators
Yinling Chen1,2, Huanying Sun1, Liwen Sang1, Satoshi Koizumi1, Yasuo Koid1, Xiaoxi Lu2, Meyong Liao1
1 National Institute for Materials Science, Japan 2 Shinsu University, Japan

14:30 INV Selective combustion of detonation nanodiamonds: a useful approach to evaluate the undesired metallic impurities
Kilian Heny1, Melanie Emo1, Sebastien Dilberto1, Jean-Charles Arnault2, Hughes, A. Girard2, Valery Nesv Zhvskiy3, Brigitte Vigolo1, Marc Dubois4
1 Universite de Lorraine, Instut Jean Lamour, UMR 7198, allee Andre Guitier 54000 Nancy, France 2 NIMBE UMR CEA-CNRS 3685, Paris Saclay University, 91191 Gif sur Yvette, France 3 Institut Max von Laue – Paul Langevin, 71 av. des Martyrs, F-38042 Grenoble, France 4 Universite Clermont Auvergne, CNRS, ICCF UMR 6296, 24 av. Blaise Pascal, F-63178 Aubiere, France

14:45 INV High quality crystalline boron doped diamond growth on spherical monodisperse silica particles
K. Henri (1), I. Stenger (2), J.-S. Merot (3), F. Fossard (3), J.-C. Arnault (1) and H. A. Girard (1)
(1) Universite Paris-Saclay, CEA, CNRS, NIMBE, CEDEX, 91 191 Gif sur Yvette, France (2) Universite Paris-Saclay, UVSQ, CNRS, GEMAC, 78000 Versailles, France (3) Universite Paris-Saclay, ONERA-CNRS, Laboratoire d'Etude des Microstructures, BP 72, 92322, Chalitlon, France

15:00 Colloidal stability of synthetic hydrogenated nanodiamonds in water
L. Saoudi, H.A. Girard, J.C. Arnault
Universite Paris-Saclay, CEA, CNRS, NIMBE, CEDEX, 91 191 Gif sur Yvette, France

15:15 INV Production of solvated electrons from nanostructured diamonds surface under visible light illumination
Arsene Chemin, Peter Knittel, Igal Levine, Thomas Dittrich, Tristan Petit

15:30 Discussion

15:45 Coffee

Graphene-based Materials: A. KUMATANI, H.-M. CHENG

16:00 INV Investigation of Multilayer Graphene Oxide Films Structure by NMR and XRD
Panina, L.V., Etilmova, O.S., Popova, A.N., Lyshchikov, S.Y., Ismagilov, Z.R.
Federal Research Center of Coal and Coal Chemistry SB RAS, Russia

16:15 INV Using multi-probe scanning tunnelling microscopy to selectively manipulate graphene
Cobley, R.J.
Faculty of Science and Engineering, Swansea University, Swansea SA2 8PP UK.

16:30 INV Surface Porosity Adjustments of 3D-printed Graphene-based Aerogels
Zhou, B., Chen, Z., Cheng, Q., Xiao, M., Bae, G., Liang, D., Hasan, T.
(1) Cambridge Graphene Centre, University of Cambridge, Cambridge, CB3 0FA, UK (2) Department of Engineering, University of Cambridge, Cambridge, CB3 0FA, UK

16:45 INV Facile and Economical, Single-Step Single-chemical Method for Conversion of Palm Oil Fuel Ash Waste into Graphene Nanosheets
Muhammad Ayub, Mohd Hazil Dzarfan Othman, Mohd Zamri Mohd Yusup
Advanced Membrane Technology Research Centre (AMTEC), School of Chemical and Energy Engineering, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, Malaysia
17:00 Tuning the oxygen content of reduced graphene oxide: comparing HI and NaBH₄ chemical reduction processes
1. Wei Liu 2. Giorgio Speranza
1. MERLin, School of Chemistry, Edgeworth David Building, Level 2, The University of Sydney, Sydney, NSW 2006, Australia 2. Fondazione Bruno Kessler Sommarive str. 18 39123 Trento Italy

17:15 Adsorption of CO₂ on Graphene-Based Materials Prepared by Physical and Chemical Activation Approaches
Rabita Mohd Firdaus (1, 2) A. Desforges (2) Mélanie Emro (2) A.R. Mohamed (1) B. Vigilo (2)
1 School of Chemical Engineering, Engineering Campus, Universiti Sains Malaysia, 14300 Nilbong Tebal, Seberang Perai Selatan, P. Pinang, Malaysia 2 Université de Lorraine, CNRS, ILL, 54000 Nancy, France

17:30 Discussion

09:00 INV Complete degradation of grassy carbon spheres into nanostructures
Yun Huang, Jie Chen, Jingcheng Zheng, Yuwu Chi
College of Chemistry, Fuzhou University

09:30 Fluorescence photobleaching and recovery kinetics of blue, green, red and white carbon nanodots probed by in situ spectroscopy
(1) Dipartimento di Fisica e Chimica, Università degli Studi di Palermo, Via Archirafi 36, 90123 Palermo, Italy, (2) Department of Chemistry and Pharmacy, Laboratory of Materials Science and Nanotechnology, CR-INSTM, University of Sassari, Via Vienna 2, 07100, Sassari, Italy, (3) CNR-IPCF-Bari Division, c/o Chemistry Department, and (4) Chemistry Department, University of Bari "Aldo Moro", Via E. Orabona 4, 70126 Bari, Italy. * lead presenter

09:45 Phosphorescence from Carbon Dots
L. Stagi, M. Poddighe, C.M. Carbonaro, L. Malfatti and P. Innocenzi
Department of Chemistry and Pharmacy, Laboratory of Materials Science and Nanotechnology, CR-INSTM, University of Sassari, Via Vienna 2, 07100, Sassari, Italy,  Department of Biomedical Sciences, Viale San Pietro 43/B University of Sassari, Sassari 07100, Italy,  Department of Physics, University of Cagliari, sp 8, km 0.700, 09042, Monserrato, Italy,  Department of Biomedical Sciences, Viale San Pietro 43/B University of Sassari, Sassari 07100, Italy,  Department of Biomedical Sciences, Viale San Pietro 43/B University of Sassari, Sassari 07100, Italy.

10:00 Insights into the Synthesis of Red-Emitting Carbon Dots
(1) CNR-IPCF-Bari Division, c/o Chemistry Department, University of Bari, Via E. Orabona 4, 70126 Bari, Italy, (2) Department of Electrical and Information Engineering, Polytechnic of Bari, Via E. Orabona, 4, 70126 Bari, Italy. * lead presenter

10:15 Resorcinol Synthesized Carbon Dots in Open Reactor: Investigation on Fluorescence and Photobleaching Mechanism
(1) Department of Electrical and Information Engineering, Polytechnic of Bari, Via E. Orabona 4, Bari, 70126, Italy (2) Department of Chemistry, University of Bari “Aldo Moro” Via Orabona 4, Bari, 70126, Italy (3) CNR-IPCF Bari Division, c/o Chemistry Department, University of Bari “Aldo Moro”, Via Orabona 4, Bari, 70126, Italy (4) Department of Physics, University of Cagliari, SP8, Monserrato, 09042, Italy (5) Department of Chemical and Geological Sciences, University of Cagliari, SP8, Monserrato, 09042, Italy (6) Institute of Crystallography (IC), CNR, Via Amendola 122, Bari, 70126, Italy

10:30 Discussion

10:45 Coffee

Carbon Nanotubes: A. KUMATANI, H. NISHIHARA

11:00 INV Multi-functional nanoporous carbon based on single-walled graphene walls
Hiromoto Nishihara
Advanced Institute for Materials Research (WPI-AIMR), Tohoku University

11:45 Single-Walled Carbon Nanotubes Networks Embedded within Liquid Crystalline Mesophases of Cellulose Nanocrystals
David Attia 1, Evgenie Yekymov 1, Yula Shnidov 1, Yael Levi-Kalisman 2, Orit Mendelson 3, Ronit Bilton 1,4 and Rachel Yerushalmi-Rozen 1,4
1. Department of Chemical Engineering, Ben-Gurion University of the Negev, 84105 Beer-Sheva, Israel, 2. The Center for Nanoscience and Nanotechnology, and The Institute of Life Sciences, The Hebrew University of Jerusalem, Jerusalem 9190401, Israel, 3. Department of Chemistry, Nuclear Research Center-Negev, Beer-Sheva 84190, Israel, 4. The Ilse Katz Institute for Nanoscience and Technology, Ben-Gurion University of the Negev, 84105 Beer-Sheva, Israel.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Location</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:30</td>
<td>Study of residual hydrogen in carbon films and nanoclusters synthesised by</td>
<td>A P1.22</td>
<td>Siqi Wu, Shiyao Liu, Guohua Zhao*</td>
</tr>
<tr>
<td></td>
<td>Nitrogen doped Carbon Nanowalls as Microporous Layers in PEM Fuel Cells</td>
<td></td>
<td>School of Chemical Science and Engineering, Tongji University</td>
</tr>
<tr>
<td>15:30</td>
<td><strong>Boron-doped Diamond Anode Coupled High-index Co3O4 Cathode for Boosting</strong></td>
<td>A P1.23</td>
<td>Yanan Xie, Zhaoyu Zhou, Lingzhi Sun, Xun Pan, Guohua Zhao*</td>
</tr>
<tr>
<td></td>
<td>Photoelectrochemical Degradation of Dimethyl Phthalates</td>
<td></td>
<td>School of Chemical Science and Engineering, Shanghai Key Lab of Chemical</td>
</tr>
<tr>
<td></td>
<td>Assessment and Sustainability, Tongji University, Shanghai 2000092, China</td>
<td></td>
<td>Assessment and Sustainability, Tongji University, Shanghai 2000092, China</td>
</tr>
<tr>
<td>15:30</td>
<td>Highly efficient and selective electrooxidation of Tetrahydroquinoline and</td>
<td>A P1.24</td>
<td>Yanan Xie, Zhaoyu Zhou, Lingzhi Sun, Xun Pan, Guohua Zhao*</td>
</tr>
<tr>
<td></td>
<td>simultaneous hydrogen production</td>
<td></td>
<td>School of Chemical Science and Engineering, Shanghai Key Lab of Chemical</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assessment and Sustainability, Tongji University, Shanghai 2000092, China</td>
</tr>
<tr>
<td>15:30</td>
<td><strong>MOF-derived Fe-Ni bimetallic site catalysts for efficient electrocatalysis</strong></td>
<td>A P1.25</td>
<td>Jie Sun, Weiqi Gao, Honghan Fei*, Guohua Zhao*</td>
</tr>
<tr>
<td></td>
<td>of NRR</td>
<td></td>
<td>School of Chemical Science and Engineering, Shanghai Key Lab of Chemical</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assessment and Sustainability, Tongji University, Shanghai 2000092, China</td>
</tr>
<tr>
<td>15:30</td>
<td>Coupling of Single-crystal Diamond Resonators with Various Interlayers for</td>
<td>A P1.26</td>
<td>Zitong Zhang*, Liwen Sang, Yasuo Koide, Satoshi Koizumi and Meiyong Liao</td>
</tr>
<tr>
<td></td>
<td>High-performance Magnetic Sensor</td>
<td></td>
<td>National Institute for Materials Science, Japan</td>
</tr>
<tr>
<td></td>
<td>nanotubes decorated with silver nanoparticles</td>
<td></td>
<td>(1) Zernike Institute for Advanced Materials, Universidad Nacional Autónoma de México, Mexico,  (2) Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, Mexico,  (3) Instituto de Ciencias Aplicadas y Tecnología, Universidad Nacional Autónoma de México, Mexico. * lead presenter</td>
</tr>
<tr>
<td>15:30</td>
<td><strong>Nitrogen doped Carbon Nanowalls as Microporous Layers in PEM Fuel Cells</strong></td>
<td>A P1.28</td>
<td>Alexandra M.I. Trefflov, Bogdan I. Blita, 1, Sorin Vizireanu 1, Adriana Andronie 2, Gheorghe Dinescu 1</td>
</tr>
<tr>
<td></td>
<td>1. National Institute for Laser, Plasma and Radiation Physics - INFLPR, Magurele-</td>
<td></td>
<td>București, Romania</td>
</tr>
<tr>
<td></td>
<td>lillo, Romania 2. University of Bucharest, 3 Nano-SAE Research Centre,</td>
<td></td>
<td>Bucharest, Romania</td>
</tr>
<tr>
<td></td>
<td>Bucharest, Romania</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td>Study of residual hydrogen in carbon films and nanoclusters synthesised by</td>
<td>A P1.29</td>
<td>Petr Shvets, Alexey Grunin, Alexander Golkinman</td>
</tr>
<tr>
<td></td>
<td>pulsed laser deposition</td>
<td></td>
<td>REC «Functional Nanomaterials» Immanuel Kant Baltic University</td>
</tr>
</tbody>
</table>

**Wednesday June 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Location</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td><strong>High-Performance Graphene and h-BN Materials for Thermal Management</strong></td>
<td>A 7.1</td>
<td>Hui-Ming Cheng</td>
</tr>
<tr>
<td></td>
<td>1 Shenyang National Laboratory for Materials Sciences, Institute of Metal</td>
<td></td>
<td>Research, Chinese Academy of Sciences, Shenyang 110016, P. R. China 2</td>
</tr>
<tr>
<td></td>
<td>2 Faculty of Materials Science and Engineering / Institute of Technology for</td>
<td></td>
<td>Carbon Neutrality, Shenzhen Institute of Advanced Technology, Chinese Academy</td>
</tr>
<tr>
<td></td>
<td>Carbon Neutrality, Shenzhen Institute of Advanced Technology, Chinese Academy</td>
<td></td>
<td>Sciences, Shenzhen 518055, P. R. China</td>
</tr>
<tr>
<td>09:30</td>
<td><strong>Charge transport physics of a unique class of high-performance rigid-rod</strong></td>
<td>A 7.2</td>
<td>M. Xiao, R. L. Carey, H. Chen, X. Jiao, V. Lemaur, S. Schott, M. Nikolska,</td>
</tr>
<tr>
<td></td>
<td>conjugated polymers</td>
<td></td>
<td>C. Jellitt, A. Sadihania, S. Rogers, S. P. Senanayak, A. Onubjoko, S. Han,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Z. Zhang, M. Abd-Jalebi, Y. Zhang, T. H. Thomas, N. Mahmoudi, L. Lai, E.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Selezneva, X. Ren, M. Nguyen, Q. Wang, I. Jacobs, W. Yue, C. R. McNeill, G.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Liu, D. Beljonne, I. McCulloch, H. Sirringhaus</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Optoelectronics Group, Cavendish Laboratory, JJ Thomson Avenue, Cambridge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CB3 0HE, UK.</td>
</tr>
<tr>
<td>09:45</td>
<td>Direct-write Formation of Integrated Bottom Contacts to Laser-Induced</td>
<td>A 7.3</td>
<td>Richard Murray, Orla O'Neill, Eoghan Vaughan, Daniela Iacopino, Alan Blake,</td>
</tr>
<tr>
<td></td>
<td>Graphene-like Carbon</td>
<td></td>
<td>Colin Lynes, Dan O'Connell, Joe O'Brien and Aidan J. Quinn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tyndall National Institute</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>Quantum sensing with hyperpolarized nuclei</strong></td>
<td>A 7.4</td>
<td>Ashok Ajoy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>University of California, Berkeley</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Bioapplications I : J.-C. ARNAULT, Q. LI</strong></td>
<td>INV</td>
<td>Department of Physics, The Chinese University of Hong Kong</td>
</tr>
<tr>
<td>11:00</td>
<td><strong>Nanothermometry—sensing with nitrogen vacancy centers in diamond</strong></td>
<td>A 8.1</td>
<td>Quan Li</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Department of Physics, The Chinese University of Hong Kong</td>
</tr>
<tr>
<td>11:30</td>
<td><strong>Nanodiamond Complexes</strong></td>
<td>A 8.2</td>
<td>Yingke Wu, Zuyuan Wang, Priyadharshini Balasubramanian, Md Noor A Alam,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fedor Jelezko, Tanja Wei</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr. Y. Wu, M. A. Alam, Prof. Dr. T. Weil Max Planck Institute for Polymer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Research, Ackermannweg 10, 55128 Mainz, Germany, Dr. Z. Wang Institute for</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Measurement and Automation, Division of Sensor Technology and Measurement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Systems, Bundeswehr University Munich, Werner-Heisenberg-Weg 39, 85579</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Neubiberg, Germany, Dr. P. Balasubramanian, Prof. Dr. F. Jelezko Institute</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, 89081 Ulm,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Germany</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yangke Wu, Zuyuan Wang, Priyadharshini Balasubramanian, Md Noor A Alam,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fedor Jelezko, Tanja Wei</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr. Y. Wu, M. A. Alam, Prof. Dr. T. Weil Max Planck Institute for Polymer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Research, Ackermannweg 10, 55128 Mainz, Germany, Dr. Z. Wang Institute for</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Measurement and Automation, Division of Sensor Technology and Measurement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Systems, Bundeswehr University Munich, Werner-Heisenberg-Weg 39, 85579</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Neubiberg, Germany, Dr. P. Balasubramanian, Prof. Dr. F. Jelezko Institute</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, 89081 Ulm,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Germany</td>
</tr>
<tr>
<td>12:00</td>
<td><strong>Design and Application of Nanodiamond Sensors in Biology</strong></td>
<td>A 8.4</td>
<td>Wu, Yiang, J. Ender, C.P. Wei, T. Max Planck Institute for Polymer Research,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mainz, Germany</td>
</tr>
<tr>
<td>12:30</td>
<td>Discussion</td>
<td>INV</td>
<td></td>
</tr>
<tr>
<td>12:45</td>
<td>Lunch and Plenary</td>
<td>INV</td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td><strong>Coffee</strong></td>
<td>INV</td>
<td></td>
</tr>
</tbody>
</table>
Bioapplications II : N. YANG, N. Komatsu

Thursday June 2

09:00 INV Fabrication of Carbon-based Functional Materials with Tuning Structures for High-performance Energy Storage Devices
Juan Yang1*, Siyu Li1, and Jiehan Guiz
1School of Chemical Engineering and Technology, Xi’an Jiaotong University, Xi’an 710049, China. 2College of Chemical Engineering, Beijing University of Chemical Technology, Beijing, 100029, China.

09:30 Processing of CNT/inorganic hybrid electrodes via rapid Joule heating
Uspama, Shegufa T.1, 2, Mikhailchuk, Anastasia (1), Arévalo, Luis (1), Vilatela, Juan J. (1), Green, Micah J. (2), (1) IMDEA Materials Institute, Spain (2) Texas A&M University, USA * lead presenter

09:45 Carbon cloth based flexible electrodes for supercapacitor application
Siyu Yu,* Yiqiu Xiao, Siyong Li, and Shetian Liu*
School of Chemistry and Chemical Engineering, Southwest University, Chongqing 400715, P. R. China

10:00 Copper sulphide-reduced graphene oxide aerogels for rechargeable battery applications
Maria Bernechea1,2,3,4*, Yanhan Li1,2,5, Xiaodong Shen5
1 Instituto de Nanociencia y Materiales de Aragón (INMA) CSIC-Universidad de Zaragoza, Zaragoza, Spain 2 Departamento de Ingeniería Química y Tecnologías del Medio Ambiente, Universidad de Zaragoza, Zaragoza, Spain 3 Networking Biomedical Research Centre of Bioengineering, Biomaterials and Nanomedicine (CIBER-BBN), Madrid, Spain 4 ARAID, Zaragoza, Spain 5 College of Materials Science and Engineering, Nanjing Tech University, Nanjing, China * mbernechea@unizar.es

10:15 Fast Generation of Hydroxyl Radicals by Rerouting the Electron Transfer Pathway via Constructed Chemical Channels during the Photosynthesis of Siegen, Germany. E-mail: nianjun.yang@uni-siegen.de

10:30 Discussion

10:45 Coffee

11:00 INV Carbon Dots Promise New Photoelectrolysts
Zhenhui Kang
1Institute of Functional Nano and Soft Materials (FUNSOM), Soochow University, Suzhou 215123, China. 2Macao Institute of Materials Science and Engineering, Macao University of Science and Technology, Taipa 999078, Macau SAR, China

11:30 Photoinduced charge separation in self-assembled Carbon dot-Plasmonic functional nanohybrids
M. Reale, S. Chandra, G. Buscarino, A. Emanuele, M. Cannas, A. Sciortino, F. Messina, University of Palermo, Italy, University of Aalto, Finland, University of Palermo, Italy, University of Palermo, Italy, University of Palermo, Italy, University of Palermo, Italy,

11:45 A Facile Strategy for Controllable Synthesis of Rhodium Supported on Black Carbon to Boost Hydrogen Evolution Reaction
Yan Guo, Yunwei Wang, Zhenfeng Huang, Xili Tong*, Nianjun Yang
Yan Guo, Yunwei Wang, Xili Tong, State Key Laboratory of Coal Conversion, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, China Yan Guo, University of Chinese Academy of Sciences, Beijing 100049, China Zhenfeng Huang, Key Laboratory for Green Chemical Technology of the Ministry of Education, Tianjin University, School of Chemical Engineering and Technology, Tianjin 300072, China Nianjun Yang, Institute of Materials Engineering, University of Siegen, Siegen 57076, Germany E-mail: nianjun.yang@uni-siegen.de

12:00 Oxygen-rich Graphene Quantum Dots as Platform for Self-Enhanced Electrochemiluminescence
Na Ma, Bing-Bing Shang, Xin-Jian Song, Bao-Ping Qi
Hubei Key Laboratory of Biologic Resources Protection and Utilization, College of Chemistry and Environmental Engineering, Hubei Minzu University, Enshi 445000, China

S. Chandra, G. Buscarino, A. Emanuele, M. Cannas, A. Sciortino, F. Messina, University of Palermo, Italy, University of Aalto, Finland, University of Palermo, Italy, University of Palermo, Italy, University of Palermo, Italy, University of Palermo, Italy,
12:15 Construction of 3D TiO2 with multilevel facet heterojunction for High Efficient Photoelectrocatalytic Oxidation of Bisphenol A
Yi-Jong Hu, Yan-Yen Zhang, and Guohua Zhao
A School of Chemistry Science and Engineering, Shanghai Key Lab of Chemical Assessment and Sustainability, Tongji University, Shanghai, 200092, China
A 11.5

12:30 Discussion

12:45 Lunch and Plenary

15:30 Spatially Resolved Lithium-ion Insertion Process on Graphene and Thin Graphite Films
A. Kumatani, Y. Sato, T. Matsue, W. Norimatsu, M. Motoyama, Y. Iriyama
Tohoku University, Nagoya University
A 13.1

16:45 Nanoscale Electrochemical Imaging on Carbon Nanomolecular Structures
Laser-induced Carbon from wood chips for electrocatalyst of oxygen
A. Martinez-Huitle
Instituto de Quimica, Universidade Federal do Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil
A 12.1

16:45 The Effect of Oxygen Content on Catalytic Activity of Graphene Quantum Dots as Nano-enzyme
Li-Li Qin, Na Ma, Shang Bing-Bing, Bao-Ping Qi
Hubei Key Laboratory of Biologic Resources Protection and Utilization, College of Chemistry and Environmental Engineering, Hubei Minzu University, Enshi 445000, Hubei, China.
A 12.2

16:50 Materials based on carbon dots for photocatalytical and photoelectrocatalytical applications
GUREL, A* (1), SCHAMING, D (1)
Université de Paris IODYS CNRS UMR 7086, France * lead presenter
A 12.3

16:50 Laser-induced Carbon from wood chips for electrocatalyst of oxygen reduction reaction
Hiroya Abe
Frontier Research Institute for Interdisciplinary Sciences, Tohoku University
A 12.4

16:50 Nanoscale Electrochemical Imaging on Carbon Nanomolecular Structures
C. Miura, A. Kumatani, Y. Horiguchi, H ida, T. Matsue, J. Umeda, K. Kondoh
Tohoku University, Osaka University
A 12.5

16:50 Study of the electrochemical hydrogenation of nitrobenzene in Cu and CuPd electrodes
Carvajal, D* (1), Arcas, R (1), Mesa, C (1), Giménez, S (1), Fabregat-Santiago, F (1), Más-Marzà, E (1).
A 12.6

17:00 Discussion

17:45 Discussion

Friday June 3

09:00 Spatially Resolved Lithium-ion Insertion Process on Graphene and Thin Graphite Films
A. Kumatani, Y. Sato, T. Matsue, W. Norimatsu, M. Motoyama, Y. Iriyama
Tohoku University, Nagoya University
A 13.1

09:30 Substrate determined diamond electrochemistry
Xinyue Chen,a Meng Zhu,a Essraa Ahmed,b Paulius Pobedinskas,b Girdharan Krishnamurthy,b Xi Jin,b a Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany b Institute for Materials Research (IMD), Hasselt University and IMOMEC, IMECvzw, 3590 Diepenbeek, Belgium
A 13.2

09:45 Graphene-based materials as electrochemical sensor materials: from experimental to theoretical characterization
Filippo, J. M. (1,2), Nagaraja, T. (3), Das, S.(3), Chauvet, A. (1), Martusincovich, N.*(1) (1)Department of Chemistry, University of Sheffield, UK. (2)Department of Chemistry, University of Manchester, UK. (3)Department of Industrial and Manufacturing Systems Engineering, Kansas State University, US
A 13.3

10:00 Photovoltaic cell for functionalization of a novel PAMs with all-carbon materials
Yiqiong Hu, Yanan Zhang*, and Guohua Zhao*
Huazhong University of Science and Technology, 430074 Wuhan, China. 2 College of Chemistry and Molecular Sciences, Wuhan University, 430072 Wuhan, China. 3 School of Mechanical Science and Engineering, Huazhong University of Science and Technology, 430074 Wuhan, China.
A 13.4

10:15 b-cyclodextrin Functionalization of rGO for development of chemiresistive Lead (II) Sensing
Madhurima Deb, Sumit Saxena, Rajib Bandypadhyayya and Shibhna Shukla
Centre for Research in Nano Technology and Science, Indian Institute of Technology Bombay, Mumbai, MH 400076, India and Nanostructures Engineering and Modeling Laboratory, Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, MH 400076, India, Nanotechnologies and Modeling Laboratory, Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, MH 400076, India and India and Water Innovation Centre: Technology, Research & Education (WICTRE), Indian Institute of Technology Bombay, Mumbai, MH 400076, India, Department of Chemical Engineering, Indian Institute of Technology Bombay, Mumbai, MH 400076, India and Nanostructures Engineering and Modeling Laboratory, Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, MH 400076, India and India and Water Innovation Centre: Technology, Research & Education (WICTRE), Indian Institute of Technology Bombay, Mumbai, MH 400076, India
A 13.5

10:30 Discussion

10:45 Coffee

Carbon Materials : N. YANG, J.-C. ARNAULT

11:00 Advanced Raman microscopy used to characterize amorphous carbons
Cédric Pardanaud, Alexandre Merlen, Josephus Gerardus Buijsters
Laboratoire PIIM, Aix-Marseille Université, CNRS, IM2NP, Universités d’Aix Marseille et de Toulon, CNRS, Dept of Precision and Microsystems Engineering, Delft University of Technology, A 14.1

A 12

A 13
11:15 Non-destructive methodologies based on Raman spectroscopy for monitoring the graphene oxide hydrogenation process
Robert Fonoll-Rubio, Rafael Meyer, Nina M. Carretero, Sebastián Murcia, Amaya Ortega, Beatriz Alonso, Carles Ros, Ignacio Becerril-Romero, Maxim Guc, Victor Izquierdo-Roca
Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs-Barcelona, Spain, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs-Barcelona, Spain, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs-Barcelona, Spain, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs-Barcelona, Spain, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs-Barcelona, Spain, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs-Barcelona, Spain, Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs-Barcelona, Spain

11:30 Diamond-Like Carbon and thin graphitic layers based large-scale electrodes elaborated by a full laser process.
R. Meyer 1, F. Stock 1, F. Antoni 1, F.Z. Lahboub 1, S. Hajar-Garreau 2.
1 ICube, D-ESSP, 23 rue du Loess, 67037 Strasbourg - France  2 IS2M, 15 rue Jean Starcky 68057 Mulhouse - France

11:45 Scattering and confinement in bilayer graphene topological nanostructures
L. Serra, N. Benchtaber, D. Sánchez
1 Institute for Interdisciplinary Physics and Complex Systems IFISC (CSIC-UIB), E-07122 Palma, Spain  2 Department of Physics, University of the Balearic Islands, E-07122 Palma, Spain

12:00 A novel path towards hydrophilic fullerene C60: oxygen plasma processing of fullerene powder
Del Sole, R.\(^\text{1}\), Fracassi, F.\(^\text{1}\), Palumbo, F.\(^\text{1}\), Milella, A.\(^\text{1}\)
\(^{1}\) Dipartimento di Chimica, Università degli Studi di Bari, Italy  \(^{2}\) Istituto di Nanotecnologia, CNR, Italy  * lead presenter

12:15 Flexographic Printing of Graphene-Enhanced Ink on an Unmodified Commercial Press at 100 m.min\(^{-1}\)
Macadam, N.\(^\text{1}\), Ng, L.W.T.\(^\text{1}\), Hu, G.\(^\text{1}\), Shi, H. H.\(^\text{(4, 5)}\), Wang, W.\(^\text{(4, 5)}\), Zhu, X.\(^\text{(1)}\), Ogbeide, O.\(^\text{(1)}\), Liu, S.\(^\text{(1)}\), Yang, Z.\(^\text{(1, 6)}\), Howe, R.C.T.\(^\text{(1)}\), Jones, C.\(^\text{(7)}\), Huang, Y.Y.S.\(^\text{(4, 5)}\), Hasan, T.\(^\text{(1)}\)
\(^{1}\) Cambridge Graphene Centre, University of Cambridge, UK,  \(^{2}\) School of Materials Science & Engineering, Nanyang Technological University, Singapore,  \(^{3}\) Department of Electronic Engineering, The Chinese University of Hong Kong, Hong Kong,  \(^{4}\) Department of Engineering, University of Cambridge, UK,  \(^{5}\) The Nanoscience Centre, University of Cambridge, UK,  \(^{6}\) College of Information Science and Electronic Engineering, Zhejiang University, China,  \(^{7}\) Novalia Ltd, UK

12:30 Discussion and Closing
SYMPOSIUM B

Ultra-doped semiconductors
by non-equilibrium processing for electronic,
photonic and spintronic applications

Symposium Organizers:

Deren YANG, Zhejiang University

Eric GARCIA HEMME, Universidad Complutense de Madrid

Meng-Ju [Renee] SHER, Wesleyan University

Shengqiang ZHOU, Helmholtz-Zentrum Dresden-Rossendorf

The papers will be published as a special issue
at Semiconductor Science and Technology (IOP)
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:45</td>
<td>Welcome and Introduction to the Symposium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:00</td>
<td>Hyperdoped Ge : Shengqiang Zhou</td>
<td>Sub-bandgap photoresponse at room temperature on extrinsic supersaturated Ge</td>
<td>B 1.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1) School of Engineering and Applied Sciences, Harvard University, Cambridge, Massachusetts 02138, USA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Department of Structure of Matter, Thermal Physics and Electronics, Universidad Complutense de Madrid, Plaza Ciencias 1, 28040 Madrid, Spain</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) Department of Electronic Materials Engineering, Research School of Physics and Engineering, Australian National University, Canberra, ACT 0200, Australia</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Dipartimento di Fisica e Astronomia, Universita di Padova and CNR-MM, Via Marzolo 8, I-35131 Padova, Italy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5) Department of Physics, Wesleyan University, Middletown, Connecticut 06459, USA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6) Department of Mechanical Science &amp; Engineering, University of Illinois at Urbana-Champaign</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7) Robert Bosch LLC, Cambridge, Massachusetts 02138, USA</td>
<td></td>
</tr>
<tr>
<td>09:30</td>
<td>Recovery of Boron Activation and Epitaxial down in Heavily B-doped Ge Epilayers by In-situ CVD Doping</td>
<td>Wan-Hsuan Hsieh, Chun-Yi Cheng, Yi-Chun Liu, Chung-En Tsai, and C. W. Liu</td>
<td>B 1.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Graduate Institute of Electronics Engineering, National Taiwan University, Taipei, Taiwan</td>
<td></td>
</tr>
<tr>
<td>09:45</td>
<td>Charge-transport properties of hyperdoped n-type Ge</td>
<td>Hyperdoping germanium by Ion Implantation and Pulse Laser Recrystallization</td>
<td>B 1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1) Opto, EMFTF, Fac. CC. Fisicas, Univ. Complutense de Madrid, 28040 Madrid, Spain</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Helmholtz-Zentrum Dresden-Rossendorf, Institute of Beam Physics and Materials Research, Bautzner Landstrasse 400, 01328 Dresden, Germany</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) Technische Universitat Dresden, 01062 Dresden, Germany</td>
<td></td>
</tr>
<tr>
<td>10:00</td>
<td>Hyperdoping germanium by Ion Implantation and Pulse Laser Recrystallization</td>
<td>Optical detection of light helicity using a chiral photodetector based on GaAs</td>
<td>B 1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Université de Toulouse, INSA-CNRS UPS LPCNO, 135 Avenue Rangueil 31077, Toulouse, France</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 A Faca de Fisica Tecnica y Materia Condensada Universidad Autonoma Metropolitana Azcapotzalco Av. San Pablo 180, Col. Reynosa-Tamualipas, 02000 Cuidad de Mexico, Mexico</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Ioffe Physical-Technical Institute 194021, St. Petersburg, Russia</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>Discussion</td>
<td></td>
<td>B 1.5</td>
</tr>
<tr>
<td>10:45</td>
<td>Coffee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td>Highly doped GeSn for plasmonic applications</td>
<td>GeSn : Slawomir Prucnal</td>
<td>B 2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inga A. Fischer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Experimental Physics and Functional Materials, BTU Cottbus-Senftenberg, 03046 Cottbus, Germany</td>
<td></td>
</tr>
<tr>
<td>11:30</td>
<td>The Influence of Femtosecond and Nanosecond Laser Radiation on Strain</td>
<td>Hyperdoped GeSn Epilayers</td>
<td>B 2.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Institute of Technical Physics, Faculty of Materials Science and Applied Chemistry, Riga Technical University, Riga, LV-1048, Latvia 21st Institute of Photonics and Nanotechnology, Vilnius University, Saulieto Av. 3, Vilnius</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Institute of Hydrogen Energy Technologies, Lithuanian Energy Institute, Brestlauks 3, Kaunas 44403, Lithuania</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4Center for Physical Sciences and Technology, Department of Laser Technologies, Savanoriu ave. 231, Vilnius, LT-02300, Lithuania</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5Institute of Semiconductor Engineering (IHT), University of Stuttgart, Stuttgart, 70569, Germany</td>
<td></td>
</tr>
<tr>
<td>11:45</td>
<td>Substitution of 10% Sn incorporation in Ge by sputter deposition and pulsed laser melting</td>
<td>Enrico Di Russo(1,2,3), Francesco Sgrabaossi(1,2), Pierpaolo Ranieri(1,3), Samba Ndiaye(4), Sebastien Duguay(4), Lorenzo Rigutti(4), Jean-Luc Roviere(5), Vittorio Morandi(6), Davide De Salvadore(1,2), Enrico Napolioloni(1,2,6)</td>
<td>B 2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1) Dipartimento di Fisica e Astronomia, Università degli Studi di Padova, via Marzolo 8, 35131 Padova, Italy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) INFN-LNL, via dell’Universita 2, 35020, Legnano, Padova, Italy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) CNR-IMM, Via Gobetti 101, Bologna, 40129, Italy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Normandie Univ., INSUROUEN, CNRS, Groupe de Physique des Matériaux, 76000 Rouen, France</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5) Univ. Grenoble Alpes, CEA, IRIG-MEM, 38600 Grenoble, France</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6) CNR-IMM, Via S. Sofia 64, 95123 Catania, Italy</td>
<td></td>
</tr>
<tr>
<td>12:00</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:15</td>
<td>Lunch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:45</td>
<td>Hyperdoping and group IV alloy formation using pulsed laser melting</td>
<td>Femtosecond laser hyperdoping silicon photodetector</td>
<td>B 3.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Qiang Wu</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nankai University, China</td>
<td></td>
</tr>
<tr>
<td>14:30</td>
<td>Carrier recombination in black silicon fabricated by high repetition rate fs-laser</td>
<td>Optical hyperdoping and alloying : Eric Garcia Hemme</td>
<td>B 3.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jeffrey M. Warrender, Philippe K. Chow, Senali Dissanayake, Qi Lim, Gordon Gryzbowski, Bruce Claffin, Meng-Ju Shet, Jim Williams</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U.S. Army DEVCOM Center-Benet Laboratories, Watervliet NY, 12189, Columbia University Nano Initiative, New York, NY 10027, Department of Physics, Wesleyan University, Middletown CT, 06459, Research School of Physics, Australian National University, Canberra, ACT 2601, Australia, U.S. Air Force Research Lab, Wright-Patterson AFB, Dayton OH, 45431</td>
<td></td>
</tr>
<tr>
<td>14:45</td>
<td>Unravelling the optical properties of femtosecond laser hyperdoped silicon by analytical modeling of absorbance</td>
<td>Femtosecond laser hyperdoping silicon photodetector</td>
<td>B 3.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sören Schäfer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stefan Kontermann (1), Patrick McKearney (1), Doris Mutschall (2), Simon Paulus (1), Stefan Kontermann (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1) Hochschule Rhein-Main HSRM, Am Brückweg 26, 65428 Rüsselsheim, Germany</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) InfraTec GmbH, Gösstr. Str. 61-63, 01217 Dresden, Germany</td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:15</td>
<td>Coffee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td>High mobility magnetic semiconductors based on pnictides</td>
<td>Advanced characterization techniques : Renee Sher</td>
<td>B 4.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hailing Wang, Qiqi Wei, Jialin Ma, Jianhua Zhao</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, Chinese Academy of Sciences, Beijing 100083, China</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. College of Materials Science and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing 100049, China</td>
<td></td>
</tr>
</tbody>
</table>
16:15 Atom Probe Tomography Applied to Hyperdoped Silicon
Austin J. Akey[1], David C. Bell[1,2]
[1] Center for Nanoscale Systems, Harvard University, Cambridge MA USA

16:30 Electron spin resonance characterization of silicon hyper-doped with Te125
A. Miele 1, F. Monó1, M. Wang2, S. Zhou2, and M. Fanciulli1
1. Department of Materials Science, University of Milano – Bicocca, Via Roberto Cozzi 55, 20125 Milan, Italy
2. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Bautzner Landstrasse 400, 01328 Dresden, Germany

16:45 Discussion

Tuesday, May 31

09:00 The role of Ag precipitates in Infrared Absorption Reduction of Ag-Hyperdoped Silicon
Jiawei Fu, Xiaodong Qiu, Li Cheng, Xuegong Yu*, Deren Yang
State Key Lab of Silicon Materials and School of Materials Science & Engineering, Zhejiang University, Hangzhou 310027, People’s Republic of China.

09:45 Carrier lifetimes in Gold-Hyperdoped Silicon – Influence of Dopant Incorporation Methods and Concentration Profiles
Sashini Senalli Dissanayake1, Nikki O. Pallat1, Billy Yue1, Philippe K. Chow2, Shao Qi Lim3, Yining Liu4, Rhoen Flutak4, Jack Mathews4, Jim S Williams5
(1) Department of Physics, Wesleyan University, Middletown, CT 06459 USA.
(2) U.S. Army Combat Capabilities Development Command - Armament Center, Watervliet, NY, 12189 USA.
(3) Department of Electronic Materials Engineering, Research School of Physics and Engineering, Australian National University, Canberra, Australian Capital Territory, 0200, Australia.
(4) A Department of Physics, University of Dayton, Dayton, Ohio 45469, USA

10:00 An 18.6%-efficient titanium-hyperdoped silicon film tandem solar cell
H.W. Yang, X. Deng, Y.J. Chen, Z.Q. Shi, C. Wen, and W.B. Yang
State Key Laboratory of Environment-friendly Energy Materials, School of Science, Southwest University of Science and Technology, Mianyang 621010, China

10:15 Inferring the recrystallization regimes of silicon supersaturated with titanium after Pulsed Laser Melting through Transmittance
Dpto. Estructura de la Materia, Física Térmica y Electrónica, Universidad Complutense de Madrid, Fac. de CC. Físicas. Plaza de Ciencias 1, E-28040 Madrid, Spain

11:00 Active Sites of Te in Hyperdoped Si by Hard X-ray Photoelectron Kikuchi Diffraction
M. Hoesch1, M. Wang2, S. Zhou2, O. Fedchenko3, Ch. Schlüter1, D. Potscchein1,3, K. Medjanik4, S. Babenkov4, A. Ciobanu1, A. Winkelmann5, H.J. Elmers4 and G. Schönhense4
1) DESY Photon Science, Hamburg, Germany, 2 Helmholtz-Zentrum Dresden-Rossendorf, Germany, 3 TU Bergakademie Freiberg, Freiberg, Germany, 4 JGU, Institut für Physik, Mainz, Germany, 5 Academic Centre for Materials and Nanotechnology, AGH University of Science and Technology, Krakow, Poland

11:15 Microscopic mechanisms driving the removal of electrical deactivation defects in Se ultra-doped silicon: an ab initio study
Alberto Debernardi
CNR-MM, Unit of Agrate Brianza, via C. Olivetti 2, 20864 Agrate Brianza (MB), Italy

11:30 Temperature-dependent charge carrier dynamics of tellurium-hyperdoped silicon
KM Ashikur Rahman, S. Senalli Dissanayake, Shao Qi Lim, Philippe Chow, Jeffrey Warrender, Jim S Williams, Meng-Ju Sher
Department of Physics, Wesleyan University, Middletown, CT, United States
Department of Physics, Wesleyan University, Middletown, CT, United States
Department of Physics, Wesleyan University, Middletown, CT, United States
Research School of Physics, The Australian National University, Canberra, ACT, Australia-U.S. Army CCDC-Armament Center, Benet Labs Directorate, Watervliet, NY, United States-U.S. Army CCDC-Armament Center, Benet Labs Directorate, Watervliet, NY, United States-Research School of Physics, The Australian National University, Canberra, ACT-Australia-Department of Physics, Wesleyan University, Middletown, CT, United States
Efficient electronic transport calculations via Rode's iterative algorithm
16:00 Mid-infrared plasmonics in heavily doped GaAs fabricated by ion implantation
16:00 Highly mismatched alloys as a new platform for mid-IR plasmonics
16:00 Fabrication of nitrogen hyperdoped silicon by non-equilibrium pulsed excimer laser processing
16:00 Contact resistance of hyperdoped Si with deep-level impurities
16:00 Phase evolution of Te-hyperdoped Si upon furnace annealing
16:00 Transport mechanisms in hyperdoped silicon solar cells
16:00 MOVPE growth of cubic GaN on GaAs (110) substrate?
16:00 Optical and spin properties of low-dimensional nanostructures and organic/inorganic heterostructures
16:00 Advances in amorphous and polycrystalline tin oxide thin films and their applications in electronic devices
16:00 Magneto-optical probing of the magnetic and phase structures in InFeAs layers
16:00 Cation substitution effects on the structural and optoelectronic properties of inorganic halide perovskites
16:00 Highly mismatched alloys as a new platform for mid-IR plasmonics
16:00 Electronic transport properties of Si supersaturated with Ti and processed by rapid thermal annealing or pulsed laser melting
16:00 Transmission measurements in highly mismatched alloys
16:00 Contact resistance of hyperdoped Si with deep-level impurities
16:00 Phase evolution of Te-hyperdoped Si upon furnace annealing
16:00 Transport mechanisms in hyperdoped silicon solar cells
16:00 MOVPE growth of cubic GaN on GaAs (110) substrate?
16:00 Optical and spin properties of low-dimensional nanostructures and organic/inorganic heterostructures
16:00 Advances in amorphous and polycrystalline tin oxide thin films and their applications in electronic devices
16:00 Magneto-optical probing of the magnetic and phase structures in InFeAs layers
16:00 Cation substitution effects on the structural and optoelectronic properties of inorganic halide perovskites
16:00 Highly mismatched alloys as a new platform for mid-IR plasmonics
16:00 Electronic transport properties of Si supersaturated with Ti and processed by rapid thermal annealing or pulsed laser melting
16:00 Transmission measurements in highly mismatched alloys
16:00 Contact resistance of hyperdoped Si with deep-level impurities
16:00 Phase evolution of Te-hyperdoped Si upon furnace annealing
16:00 Transport mechanisms in hyperdoped silicon solar cells
16:00 MOVPE growth of cubic GaN on GaAs (110) substrate?
16:00 Optical and spin properties of low-dimensional nanostructures and organic/inorganic heterostructures
16:00 Advances in amorphous and polycrystalline tin oxide thin films and their applications in electronic devices
16:00 Magneto-optical probing of the magnetic and phase structures in InFeAs layers
16:00 Cation substitution effects on the structural and optoelectronic properties of inorganic halide perovskites
16:00 Highly mismatched alloys as a new platform for mid-IR plasmonics
16:00 Electronic transport properties of Si supersaturated with Ti and processed by rapid thermal annealing or pulsed laser melting
16:00 Transmission measurements in highly mismatched alloys
16:00 Contact resistance of hyperdoped Si with deep-level impurities
16:00 Phase evolution of Te-hyperdoped Si upon furnace annealing
16:00 Transport mechanisms in hyperdoped silicon solar cells
16:00 MOVPE growth of cubic GaN on GaAs (110) substrate?
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:30</td>
<td>8.15</td>
<td>Silicon based IR absorber with hyperbolic metamaterial formed by selective laser annealing</td>
<td>A.I. Mukhammad* (1), V.O. Nalivaiko (1), G.D. Ivlev (1), O.Yu. Nalivaiko (2) &amp; P.I. Gaiduk (1) (1) Belarusian State University, Minsk, Belarus, (2) JSC «Integral», Minsk, Belarus</td>
</tr>
<tr>
<td>16:30</td>
<td>8.16</td>
<td>Fabrication and optical properties of Eu doped β-Ga2O3 nanoformations</td>
<td>Dumitrut Urdita1,2, Igor Evtovien1,3, Iuliana Caraman3, Vasilev Sprincean1, Nicolae Spalatu4 (1) Moldova State University, A. Mateevici, 60, MD-2009, Chisinau, Republic of Moldova. 2 Technical University of Moldova, Stefan cel Mare si Sfint bd., 168, MD-2004, Chisinau, Republic of Moldova. 3 University of European Political and Economical Studies &quot;Constantin Stere&quot;, Stefan cel Mare si Sfint bd., 200, MD-2004, Chisinau, Moldova. 4 Tallinn University of Technology, Department of Material and Environmental Technology, Ehitajate tee, 5, EE-19086 Tallinn, Estonia</td>
</tr>
<tr>
<td>16:30</td>
<td>8.17</td>
<td>Laser-induced nanostructuring in SiGe(Sn) alloy layers for Si/SiC heteroepitaxy</td>
<td>P.I. Gaiduk Department of Physical Electronic and Nanotechnology, Belarusian State University, Nezavisimosti 4, Minsk, 220030, Belarus</td>
</tr>
<tr>
<td>09:00</td>
<td>8.19</td>
<td>Ultra-highly Doped Si and SiGe for Future Nanosheet CMOS Devices</td>
<td>Rouger Loo 1, Clement Porret 1, Erik Rosseel 1, Andriy Hikavyy 1, Gianluca Rengo 1,2,3, Ramzi Khazaka 4, Brendan Marozas 4, Wonjong Kim 4, André Vantomme 2, and Robert Langer 1 (1) imec vzw, Kapeldreef 75, 3001 Leuven, Belgium, 2 Quantum Solid State Physics, KU Leuven, Celestijnenlaan 2000, 3001 Leuven, Belgium, 3 Fonds Wetenschappelijk Onderzoek (FWO) - Vlaanderen, Egmontstraat 5, 1000 Brussels, Belgium, 4 ASM Belgium NV, Kapeldreef 75, 3001 Leuven, Belgium</td>
</tr>
<tr>
<td>09:30</td>
<td>8.20</td>
<td>Ultra-doped superconducting Si:B layers</td>
<td>Léonard Desvignes* (1), Francesca Chiodi (1), Gérardine Hallais (1), Gilles Patriarche (1), Dominique Débarre (1), François Lefluch (2) (1) Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, C2N Palaiseau, 91120 Palaiseau, France (2) Université Grenoble Alpes, CEA-PHELIQS/LTEGS, F-38000 Grenoble, France</td>
</tr>
<tr>
<td>10:00</td>
<td>8.21</td>
<td>Proximity-Induced superconductivity in all-silicon superconductor/norma-metal junctions</td>
<td>Ohsad Adami, Leonard Desvignes, François LEFLOCH, Dominique DEBARRE and Francesca CHIODI (1) Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Sud, Université Paris-Saclay, 91120 Palaiseau, France (2) Quantumtronics group, SPEC, CEA, CNRS, Université Paris-Saclay, CEA Saclay, 91191 Gil-sur-Yvette, France</td>
</tr>
<tr>
<td>10:30</td>
<td>8.22</td>
<td>Study of thermal relaxation mechanisms in CVD monocrystalline boron-doped diamond films by noise thermometry</td>
<td>Kolobatova, A.1(1), Tilova, N. 1(2), Baeva E.1(1,2), Semenov, A.2, Goltsman, G.1(2), Eon, D.3, Bustarret, E.3, Khrapai, V.1(4) (1) National Research University Higher School of Economics, Russia, (2) Moscow Pedagogical State University, Russia, (3) Univ. Grenoble Alpes, CNRS, Institut Néel, France, (4) Institute Solid State Physics RAS, Russia “lead presenter”</td>
</tr>
<tr>
<td>10:45</td>
<td>8.23</td>
<td>Coffee</td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td>8.24</td>
<td>Doping nanocrystals : Giang Wu</td>
<td>XiaoDong Pi State Key Laboratory of Silicon Materials and School of Materials Science and Engineering, Zhejiang University, Hangzhou, 310027, China, Hangzhou Innovation Center, Zhejiang University, Hangzhou, 311200, China</td>
</tr>
<tr>
<td>11:30</td>
<td>8.25</td>
<td>Plasmonic properties of highly phosphorus-doped Si nanocrystals obtained in SiO2/SiO2 multilayers</td>
<td>Ali A. Gaba (1,2), A. Valdenaire (1), X. Devaux (1), M. Stoffel (1), A. Bouché (1), J.M. Poumirol (3), C. Bonafos (3), S. Guehardia (4), Talbot (4), M. Vergnat (1) &amp; H. Rinnert* (1) (1) Université de Lorraine, CNRS, Institut Jean Lamour, F-54000 Nancy, France (2) National Institute of Laser Enhanced Sciences, Cairo University, Giza 12613, Egypt (3) CEMES-CNRS, Université de Toulouse, Toulouse, France (4) Normandie Univ., UNIROUEN, INSA Rouen, CNRS, Groupe de Physique des Matériaux, 76000 Rouen, France</td>
</tr>
</tbody>
</table>
11:45  High Phosphorous Doping of Silicon Nanocrystals Embedded in SiO2: location and concentration of dopant at the atomic scale
1-Normandie Univ, UNIROUEN, INSA Rouen, CNRS, Groupe de Physique des Matériaux, 76000 Rouen, France 2-ICube Laboratory, Université de Strasbourg and CNRS, B.P. 20, 67037 Strasbourg cedex, France 3-Université de Lorraine, UMR CNRS 7198, Institut Jean Lamour, BP 70239, 54506 Vandœuvre-les-Nancy, France 4-School of Physical Science and Technology, Ningbo University, Ningbo, 315221, China 5-School of Electronic Science and Engineering, National Laboratory of Solid State Microstructures, Collaborative Innovation Center of Advanced Microstructures, Jiangsu Provincial Key Laboratory of Advanced Photonic and Electronic Materials, Nanjing University, Nanjing 210000, China

12:00  Discussion

12:15  Lunch and Plenary

15:00  Dissolution of dopant-vacancy clusters in semiconductors
Defect engineering : Jacob Krich
Slawomir Prucnal
Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf Bautzner Landstrasse 400, D-01328 Dresden, Germany

15:30  Room Temperature Ferromagnetism in doped and pure Zinc oxide and Gallium nitride Films
Santanu Ghosh1, Preetam Singh1, PushpSen Satyarthi1, Pankaj Srivastava1 and Shengqiang Zhou2
1 NanosTech Laboratory, Department of Physics, Indian Institute of Technology Delhi, New Delhi-110016, India 2 Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Bautzner Landstr. 400, 01328 Dresden, Germany

15:45  Strain induced high hole activation in p-AlGaN and its application in high performance UVC-LED
Ye Yuan1, Shangfeng Liu1,2 and Xinqiang Wang1,2
1 Songshan Lake Materials Laboratory, Dongguan Guangdong 523808, P. R. China 2. State Key Laboratory of Artificial Microstructure and Mesoscopic Physics School of Physics, Nano-Optoelectronics Frontier Center of Ministry of Education, Peking University, Beijing 100871, P. R. China

16:00  Charting properties in the compositional and configurational space of spinel nitride solid solutions via machine learning
Pablo Sánchez-Palencia (a,b), Said Hamad (c), Pablo Palacios (a,d), Ricardo Grau-Crespo (e), Keith T. Butler (f)
(a) Instituto de Energía Solar, ETSI Telecomunicación, Universidad Politécnica de Madrid, Av. Complutense 30, 28040 Madrid, Spain, (b) Departamento de Tecnología Fotónica y Bioingeniería, ETSI Telecomunicación, Universidad Politécnica de Madrid, Av. Complutense 30, 28040 Madrid, Spain, (c) Department of Physical, Chemical and Natural Systems, Universidad Pablo de Olavide, 41013 Seville, Spain, (d) Departamento de Física aplicada a las Ingenierías Aeronáutica y Naval, ETSI Aeronáutica y del Espacio, Universidad Politécnica de Madrid, Pz. Cardenal Cisneros 3, 28040 Madrid, Spain, (e) Departamento de Ingeniería de Materiales, Universidad de Zaragoza, Paseo de la Universidad, 50009 Zaragoza, Spain, (f) Department of Chemistry, University of Reading, Reading RG6 6DX, United Kingdom.

16:15  Ferromagnetic hybrid nanowires for zero-field topological superconductivity
Yu Liu, Saulius Valtekinas, Sara Martí-Sánchez, Charles M. Marcus, Jordi Arbiol, Kathryn A. Moler, Peter Krogsdtrup
Yu Liu, Saulius Valtekinas, Charles M. Marcus, Peter Krogsdtrup: Center for Quantum Devices, Niels Bohr Institute, University of Copenhagen, 2100 Copenhagen, Denmark. Sara Martí-Sánchez, Jordi Arbiol: Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Campus UAB, Bellaterra, 08193 Barcelona, Catalonia, Spain. Kathryn A. Moler: Department of Physics, Stanford University, Stanford, California 94305, USA.

16:30  Discussion and Closing

17:00  Discussion: symposium B for future EMRS?

18:00  E-MRS EU-40 Materials Prize & MRS Mid-Career Researcher Award Presentations
SYMPOSIUM C

Semiconductor nanostructures towards opto-electronic and photonic device applications – VIII

Symposium Organizers:

Anna FONTCUBERTA I MORRAL,
Laboratory of Semiconductor Materials Institute of Materials, IMX

Iwan MOREELS, Ghent University

Jean-Francois DAYEN, Université de Strasbourg

Sergio BROVELLI, University of Milano-Bicocca
08:45 Welcome and Introduction to the Symposium

09:00 Halide Perovskite Nanocrystals: Synthesis and Optical Properties | Sergio Brovelli
Liberato Manna
Department of Nanochemistry, Istituto Italiano di Tecnologia, via Morego 30, 16163 Genova, Italy

09:30 Synthesis and characterization of phosphonate based 1D halide perovskites | Prabhanjan Pradhan, Subrat Rout and Biplab K Patra (Corresponding Author)
Email: prabhanjan.p n.immt.res.in Email: biplab@immt.res.in (Corresponding Author)
Materials Chemistry Department, CSIR-Institute of Minerals and Materials Technology, Bhubaneswar, 751013, India

09:45 2D hybrid perovskite for light sensing | Rosanna Mastrina, Karl Jonas Risinaes, Agnes Bacon, Ioannis Leonidis, Hoi Tung Lam, Tsz Hin Edmund Chan, Luisa De Marco, Laura Polimeno, Annalisa Coriano, Steven Heepistle, Monica Felicia Cricau, and Saverio Russo

10:00 Development of CdSe/CdS core/shell nanocrystals with near-unity fluorescence efficiency | Alina Myslovska, Ali Hossain Khan, and Iwan Moreels
Department of Chemistry, Ghent University, 9000 Ghent, Ghent, Belgium

10:15 Strongly Anharmonic Octahedral Tilting in 2D Hybrid Halide Perovskites | Menahem, Matan*(1), Dai, Zhennang(2), Aharon, Sigalit(1), Sharma, Ritulaj(1), Asher, Mao(1), Daskin-Pozer, Yael(1), Korobko, Roman(1), Hopp, Andrew M.(2), Yaffe, Omer(1)
(1) Weizmann Institute of Science, Israel (2) University of Pennsylvania, Philadelphia, Pennsylvania * lead presenter

10:30 Discussion

10:45 Nanoparticles synthesis and growth | Francesco Carulli

11:00 Ultrahigh sensitive optical conductive polymer nanowires with quantum nanodots synthesized by a pulsed laser irradiation | Masahiro Goto, Michiko Sasaki
National Institute for Materials Science

11:15 Experimental and computational study of Silicon Clathrates nano-cages occupation impact on the semiconductor properties | Pollandt, R.(1), Stoeffler, D.(2), Roques, S.(1), Iasou, A.(1), Fix, T.(1) (1) CNRS et Université de Strasbourg, Laboratoire iCube, 67037 Strasbourg, France (2) CNRS et Université de Strasbourg, Laboratoire iCube, 67037 Strasbourg, France (2)CNRS and University of Strasbourg, Laboratoire iCube, 67037 Strasbourg, France (1)CNRS et Université de Strasbourg, Laboratoire iCube, 67037 Strasbourg, France

11:30 Nanoparticles of ZnMeO (Me: Mn, Co, Cr) generated by pulsed laser ablation in liquids and ultrasound wave-assisted | Stolyanchuk I. D., Dan’kin O. O., Kuzyk O. V., Holskiy V. B., Metsan Kh. O., Hrytsivk T. V., Krypak A. O.
Department of Physics, Drohobyck Ivan Franko State Pedagogical University, 241 Franko str., 82100 Drohobych, Ukraine.

11:45 Controlled-Growth of Gold Nanoparticles on Janus-Type Cu2-xSxCuInS2 Heteronanopods via Photocatalytic Deposition | Fenghuan Zhao,1 Chenghui Xia,2 Celso de Melo Donega,2 Jean-Pierre Delville,3 Marie-Helene Deville,1 1.Univ. Bordeaux, CNRS, Bordeaux INP, IMCMB, UMR 5026, Pessac F-33600, France 2. Debye Institute for Nanomaterials Science, Utrecht University, 3508 TA Utrecht, Netherlands 3. Univ. Bordeaux, CNRS, LOMA, UMR 5798, Talence F-33405, France

12:00 Discussion

12:15 Lunch

13:15 Finding the weakest link: surface electrochemistry of nanomaterials | A. Houtepen
TU Delft, The Netherlands

14:00 Core-shell nanowires based on TiO2 and CuO with enhanced optoelectronic properties | Yael(1), Diskin-Posner, Yael(1), Korobko, Roman(1), Rapp, Andrew M.(2), Menahem, Matan*(1), Dai, Zhenbang(2), Aharon, Sigalit(1), Sharma, Ritulaj(1), Asher, Mao(1), Daskin-Pozer, Yael(1), Korobko, Roman(1), Hopp, Andrew M.(2), Yaffe, Omer(1)
(1) Weizmann Institute of Science, Israel (2) University of Pennsylvania, Philadelphia, Pennsylvania * lead presenter

14:15 Probing TMD defects with atomic scale probe microscopy | Edward Dunn, Professor Robert Young, Doctor Samuel Jarvis
Lancaster University Physics Department, Lancaster University Physics Department, Lancaster University Physics Department

14:30 Supported Indium Phosphide Quantum Dots for Visible-Light Photo-Redox Catalysis | Kalhour Bakhouche 1.2.*, Fabio Ferrari 1, Nadia Katir 2. Abdelkrim El Kadib 2, Celine Navral 1, Fabien Delpech 1
1. LPCNO, Université de Toulouse, CNRS, INSA, UPS, 135 Avenue de Rangueil, 31077 Toulouse, France 2. Euromed Research Center, Engineering Division, Euro-Mediterranean University of Féz (UMEF), Route de Mexnes, Rond-point de Bensouda, 30070 Fes, Morocco

14:45 Synthesis and optical study of nanowires: Valerio Pinchetti

15:00 Discussion

15:15 Showcasing the advantage of nanowire configuration for functional characterization of new materials | Miriana Dimitrievska (1), Simon EscoBar Steinvaln (1), Elia Z. Stutz (1), I.G. Paul (1), Jean-Baptiste Leran (2), and Anna Fontcuberta i Morral (1,2)
(1) National Institute of Material Physics, 405A Atomistilor Street, 077125, Magurele, Romania (2) Institut des Sciences de l’Informatique et de Mathématiques de l’Université de Bordeaux, 351 cours de la Libération, 33405 Talence, France

15:30 Optical properties and defect studies in nanostructures: Iwan Moreels

15:45 Silicon nanowires for photovoltaic applications | Mohamed BEN RABHA, Wissem DIMASSI, Belgassem BOUKTIF
LaNSER, CRITEN

16:00 Core-shell nanowires based on TiO2 and CuO with enhanced optoelectronic properties | Andrea Costas (1)*, Nicoleta Preda (1), Monica Enculescu (1), Andrei Kuncser (1)
(1) National Institute of Material Physics, 405A Atomistilor Street, 077125, Magurele, Romania

16:30 Discussion

16:45 By design light matter interaction in nanocrystal array, a step toward active nanoophotonics | Audrey Chu, Charile Gréboval, Tung Hieu Dong, Adrien Khalili, Angela Vasaneli, Gregory Vincent, Emmanuel Lhuillier a. Sorbonne Université, CNRS, Institut des NanoSciences de Paris, INSP, F-75005 Paris, France. b. Laboratoire de physique de l’Ecole Normale Supérieure, ENS, Université PSL, CNRS, Sorbonne Université, Université de Paris, 75005 Paris, France c. ONERA - The French Aerospace Lab, 6, chemin de la Vaux aux Granges, BP 80100, F-91123 Palaiseau, France.
11:00 Simultaneously formation of g-C3N4/TiO2 binary films on Ti surface as perspective material for renewable energy
Frankyevich Institute for Problems of Materials Science of NASU, Krzhizhanovsky St. 3, 03142 Kiev, Ukraine

Issoufou IBRAHIM ZAMKOYE (1,2), Johann BOUCLE (1,2), Bruno LUCAS (1,2), Sylvain VEDRAINE (1,2).
(1) Univ. Limoges, XLIM, UMR 7252, F-87000 Limoges, France (2) CNRS, XLIM, UMR 7252, F-87000 Limoges, France.

11:30 Inkjet printing lead-free ASnX3 (A =FA, MA, X = Br, I) perovskites for next generation solar cells
1) MIND-INSUL, Department of Electronics and Biomedical Engineering, Universitat de Barcelona, Martí i Franquès 1, 08028 Barcelona (Spain) 2) SAULÉ Technology Center, Wroclaw Technology Park, 11 Dun ska Str. Sigma building 54-427 Wroclaw, Poland

11:45 Enhanced light trapping by surface decoration with subwavelength dielectric arrays
Ashish Prajapati (1) Gil Shalev (1, 2) 1. School of Electrical and Computer Engineering, Ben-Gurion University of the Negev, Israel. 2. The Ilse-Katz Institute for Nanoscience Science and Technology, Ben-Gurion University of the Negev, POB 653, Beer-Shea 8410501, Israel

12:00 Discussion

12:15 Lunch and Plenary

15:00 Nanocrystals, mesocrystals, supercrystals: a toolbox for materials with collective optoelectronic effects
Marcus Scheele
Universität Tübingen, Institute of Physical and Theoretical Chemistry, Germany

15:30 Enhanced GaAsSb/GaAsN type-II superlattice solar cell performance by accurate composition control
Instituto de Optoelectronic Systems and Microtechnology (ISOM), Universidad Politécnica de Madrid, University Research Institute on Electron Microscopy & Materials, (IMEYMAT), Universidad de Cádiz, Instituto de Energía Solar (IES), Universidad Politécnica de Madrid, Instituto de Micro y Nanotecnología IMN-CNMM, CSIC

16:00 Single photon emitters arrays by capillary assembly of colloidal semiconductor CdSe/CdS nanocrystals
M. Barelli, C. Vidal, S. Fionito, V. Aglieri, A. Myslovsk, R. Sapienza, I. Moreels and F. Di Stasio, M. Barelli, S. Fionito, V. Aglieri, F. Di Stasio - Istituto Italiano di Tecnologia (Italy) C. Vidal, R. Sapienza - Imperial College (UK) A. Myslovsk, I. Moreels - Ghent University (Belgium)

16:15 Discussion

16:30 Discussio
Nanocrystals doping : Jean-Francois Dayen

09:00 
**Heterovalent doped quantum dots and heterostructures to metal under large lattice mismatch**
Jialuo Zhang1*
1. Beijing Key Laboratory of Construction Tailorable Advanced Functional Materials and Green Applications, School of chemistry and chemical engineering, Beijing Institute of Technology, Beijing, 100081, China

09:30 
**Correlation between localization of dopants and optoelectronic properties of Si-nanocrystals formed in P-doped SiO2/SiO2 layers**
(1) Université de Lorraine, CNRS, Institut Jean Lamour, F-54000 Nancy-France
(2) National Institute of Laser Enhanced Sciences, Cairo University, Giza 12631, Egypt
(3) Skolkovo Institute of Science and Technology, Bolshoy Boulevard 30, bld. 1, 121205 Moscow, Russia (4) Normandie Université, UNIROUEN, INSIA Rouen, CNRS, Groupe de Physique des Matériaux, 76000 Rouen-France

09:45 
**Al, Ga or In-Doped Zinc Oxide Plasmonic Nanoparticles prepared by solvothermal synthesis for IR & optoelectronic applications**
Alexandre DA SILVA, Cédric VANCAÉYZEELE, Pierre-Henri AUBERT, Frédéric VIDAL, Laurenti DUPONT
LPPH, CY Cergy-Paris University , LPPH, CY Cergy-Paris University , LPPH, CY Cergy-Paris University . Optics department, IMT Atlantique

10:00 
**Explanation of the detected sigmoidal feature in the temperature-dependent photoluminescence measurements of InAs quantum dots**
Rihani Jawher(a), Mehrez Ouezzat(b), Vincent Sallet(c), Jean-Christophe Harmand(d), and Rachid Chitourou(a)
(a): Laboratoire de Photovoltaique de Semi-conducteurs et de Nanostructures, Centre de Recherche des Sciences et Technologie de l’Energie, BP 95, Hammam-Lif 202, Tunisia. (b): Laboratoire de Nanomatériaux, Nanotechnologie et Energie (L2NÉ), Faculté des Sciences de Tunis, Université de Tunis El Manar, 2092 Tunis, Tunisia. (c): Groupe d’Etude de la Matière Condensée (GEMAC), CNRS, Université St Quentin en Yvelines, Université Paris-Saclay, 45 avenue des Etats-Unis, 78035 Versailles, France. (d): Laboratoire de Photonic et de Nanostructures, CNRS Route de Nozay 91 460, Marcoussis, France.

10:15 
**Reabsorption-free plastic scintillators based on engineered doped nanocrystals**
Francesco Carulli, Francesca Cova, Luca Gironi, Franco Meiardi, Anna Vedda, Sergio Brovelli
Francesco Carulli, Francesca Cova, Franco Meiardi, Anna Vedda, Sergio Brovelli, Dipartimento di Scienza dei Materiali, Università degli Studi di Milano-Bicocca, 20125 Milano, Italy. Luca Gironi, Dipartimento di Fisica, Università degli Studi di Milano-Bicocca, 20125 Milano, Italy.

10:30 
**Discussion**

10:45 
**Nanomaterial for optoelectronic devices III : Sergio Brovelli**

11:15 
**pMoOx-nMoS2 Heterojunction Assembly for Tunable and Efficient Optoelectronic Devices**
Rajesh Kumar Ulaganathan, Ganesh Ghimire, Denys I. Mikado, and Stela Canulessu
Technical University of Denmark

11:30 
**Emission mechanism analysis of Green InGaGaNS light-emitting diodes with the Si-doped graded short-period superlattice (GSL)**
Santosha SaedNaahaa1, DongKun LEE1, Kim Geun-Hyeong2, Jin Soo Kim2, Jong Su Kim1*
1 Department of Physics, Yeungnam University, Gyeongsan 38541, Korea.
2Department of Physics, Kyungwon University, Gumi 13557, Korea.
3Division of Advanced Materials Engineering and Research Center of Advanced Materials Development, Chonbuk National University, Jeonju 561-756, South Korea.

Wednesday June 1

11:45 
**Silicon QD decorated Silicon nitride Films : Optical emission and photo conductivity**
Sanatir Ghosh, Harsh Gupta, Pariksha Malik and Panik Siavastava
Nanostech Laboratory, Department of Physics, Indian Institute of Technology Delhi, New Delhi-110016, India

12:00 
**Discussion**

12:15 
**Lunch and Plenary**
Preparation, characterization and optical properties of β-Ga2O3 nanoformations on Ga2Se3 substrate for nanoelectronics

Yaeceleva Spirnoan1, Liviu Leonete2, Shilvi Gurke2, Oleg Lupan3,4, Sandra Hansen4, Rainer Adelung5, Tudor Braniște5, Mihăil Caraman1
1Faculty of Physics and Engineering, Moldova State University, 60 Alexei Mateevici Str., MD-2009, Chisinau, Republic of Moldova, 2Faculty of Physics, Alexandru Ioan Cuza University of Iasi, Bulevardul Carol I Nr. 11, RO-700506 Iasi, Romania, 3Centre for Nanotechnology and Nanosensors, Department of Microelectronics and Biomedical Engineering, Technical University of Moldova, 168, Stefan cel Mare Ave., MD-2004, Chisinau, Republic of Moldova, 4Functional Nanomaterials, Institute of Engineering, Institute for Materials Science, Kiel University, Kaiserstrasse 2, D-24143, Kiel, Germany, 5National Center for Materials Study and Testing, Technical University of Moldova, Stefan cel Mare Ave. 168, MD-2004 Chisinau, Moldova.

Changing the electronic structure of single-crystal Ge by various methods

D.A. Tashmukhamedova, B.E. Umirzakov, M.B. Yusupzhanova, S.T. Abraeva
Tashkent state technical university, Tashkent, Uzbekistan, 100095

Supramolecular nanostuctures based on S-Heptazine for photocatalytic reactions

Dennis Schröder*, Felix Wenzel, Klaus Kroger and Hans.-Werner Schmidt
Macromolecular Chemistry I and Bavarian Polymer Institute, University of Bayreuth, 95440 Bayreuth, Germany

Synthesis and characterization of lead-free cesium titanium bromide perovskites

Girja Sankar Mahapatra, Aijit Kumar K and Bibop K Patra*(Corresponding Author)
Email- girijsmahapatra@gmail.com Email- bkpatra@immt.res.in (Corresponding Author)
Materials Chemistry Department, CSIR-Institute of Minerals and Materials Technology, Bhuvaneshwar, 751013, India.

Growth modes and chemical phase separation in GaP1-xNx layers grown by metal oxide plasmonic nanocrystals for infrared modulation

K. Ben Saddik*(1), R. Volkov(2), J. Lähnemann(3), J. Grandal(4), N. Borgandt(2), B. J. García(1,5), S. Fernandez-Garrido(1,5)
(1) Electronics and Semiconductors Group (ElySe), Applied Physics Department, Universidad Autónoma de Madrid, 28049 Madrid, Spain, (2) Department of Electron Microscopy Lab, National Research University of Electronic Technology MIET, 124498 Zelenograd, Russia, (3) Paul-Drude-Institut für Festkörperelektronik, Föhringer Ring 1, D-80333 Munich, Germany, (4) ISOM, Universidad Politécnica de Madrid, Avda. Complutense 30, 28040 Madrid, Spain, (5) Instituto Nicolas Cabrera, Universidad Autónoma de Madrid, 28049 Madrid, Spain, * lead presenter

Structural and optical properties of sol-gel glasses with copper selenide nanoparticles: SANS study and DDA simulation

V.S. Gurin, A.A. Alexeenko, A.V. Rulkaukas, Yu.E. Gorshkova, S.E. Kichanov, D.P. Kozlenci
Research Institute for Physical Chemical Problems, Minsk, Belarus, Gomel State Technical University, Gomel, Belarus, Joint Institute for Nuclear Research, Dubna, Russia

Metal oxide plasmonic nanocrystals for infrared modulation

Jonathan Chrunc(1), Alexandre Khaldi(1), Cédric Vancaeyzeele(2), Pierre-Henri Aubert(2), Frédéric Vidal(2), Laurent Dupont(1), Jonathan Chrun(1), Alexandre Khaldi(1), Cédric Vancaeyzeele(2), Pierre-Henri Aubert(2), Frédéric Vidal(2), Laurent Dupont(1)
(1) Physics department, Institut Mines-Télécom Atlantique, 29280 Plouzané, France, (2) Laboratoire de Physicochimie des Polymères et des Interfaces, CY Université, 95440 Bayreuth, Germany, (3) Instituto Nicolás Cabrera, Universidad Autónoma de Madrid, 28049 Madrid, Spain, * lead presenter

Enhancement of photoelectrochemical properties of hematite thin films by loading iron oxide co-catalyst

Andrea Costas(1), Nicola Preda(1), Andrei Kuncser(1), Nicoleta Apostol(1), Carmen Curutiu(1), Ioan Cuza(1), Ioana Marinescu(1)
1) St Petersburg Academic University, 194021, Saint Petersburg, Russia, (2) St Petersburg Electrotechnical University «LETI», 197367, Saint Petersburg, Russia, *lead presenter

Synthesis and characterization of the ternary nitride semiconductor ZnN2:3/3 theoretical prediction, combinatorial screening, and

Anastasie Zhuk,1 Andréa Kistov,2 Simon C. Boehme,1,3 Noémi Olt,1 Fabio La Manna,1 Michael Steifel,1 Michael V. Kovalenko,1,3 Sebastian Siofl,4
1) Empa ? Swiss Federal Laboratories for Materials Science and Technology, 8600 Dübendorf, Switzerland, 2) Nano and Molecular Systems Research Unit, University of Oulu, 90014 Oulu, Finland, 3) Laboratory of Inorganic Chemistry, Department of Chemistry and Applied Bioscience, ETH Zürich, 8093 Zürich, Switzerland

Metal oxide core-shell nanowires decorated with silver nanoparticles prepared by a straightforward dry approach

Andreia Costas(1), Nicolea Preda(1), Andrei Kuncser(1), Nicoleta Apolostol(1), Carmen Curutiu(2) and Ionut Enculescu(1)
1) National Institute of Material Physics, 405A Atomistilor Street, 077125, Magurele, Romania, (2) University of Bucharest, Faculty of Biology, Microbiology and Immunology Department, Allee Portocalierii 1-3, 060101, Bucharest, Romania

Enhancement of photoelectrochemical properties of hematite thin films by loading iron oxide co-catalyst

Fatemeh Parveh, Amin Yourdkhani and Reza Poursalehi
Materials Engineering Department, Tarbiat Modares University, Tehran, Iran.

Crystal structure and band zones of Si nanosized phases created at various depths of the surface region of SiO2

B.E.Umirzakov, G.K. Alayarova, A.K.Tashatov
B.E.Umirzakov

Determination of kinetic characteristics Thermal Desorption of K Atoms and ions during the Adsorption of NaCl and RbCl Molecules

G.T. Rakhmanov
National University of Uzbekistan named after Mirzo Ulugbek, Tashkent, Uzbekistan

Comparison of performance of inkjet-printed and spin-coated SnO2/NiO heterojunctions

S. González-Torres(1), G. Mathiazhagan(1), J. L. Freire(1), G. Vescio(1), S. Gimenez(1), J.D. Forero(1), G. Vescio(2, 1), A. Cirea(2, 1), B. Garrido(1, 1)
1) MIND-IN2UB, Department of Electronics and Biomedical Engineering, Universidad de Barcelona, Martí i Franques 1, E-08028, Barcelona, Spain, 2) Institute of Nanoscience and Nanotechnology (IN2UB), Universitat de Barcelona, Av. Joan XXIII S/N, E-08028, Barcelona, Spain.

Study of Small Molecule Charge Transport Layers in Solution-Based Ambient Air Processed Perovskite Light Emitting Diodes

G. Mathiazhagan* (1, 2), S. González-Torres (1, 2), S. Gimenez (1, 2), J.D. Forero (1, 2), G. Vescio (2, 1), A. Cirea (2, 1), B. Garrido (1, 1)
1) MIND, Department of Electronics and Biomedical Engineering, Universitat de Barcelona, Martí i Franques 1, E-08028, Barcelona, Spain, 2) Institute of Nanoscience and Nanotechnology (IN2UB), Universitat de Barcelona, Av. Joan XXIII S/N, E-08028, Barcelona, Spain.

Comparison of performance of inkjet-printed and spin-coated SnO2/NiO heterojunctions

S. González-Torres(1), G. Mathiazhagan(1), J. L. Freire(1), G. Vescio(1), S. Gimenez(1), J.D. Forero(1), G. Vescio(2, 1), A. Cirea(2, 1), B. Garrido(1, 1)
1) MIND-IN2UB, Department of Electronics and Biomedical Engineering, Universidad de Barcelona, Martí i Franques 1, 08028 Barcelona (Spain), 2) Avantama AG, Laubisruetistrasse 50, Sälela 8712, Switzerland

Formation of radial a-Si:H p-n-p solar cells on silicon nanowires arrays toward flexible photovoltaics

Vyacheslavova E.A.1(1), Uvarov A.V.(1), Baranov A.I.(1), Makimova A.A.(1), Cudovskikh A.S.(1, 2)
1) St Petersburg Academic University, 194021, Saint Petersburg, Russia, (2) St Petersburg Electrotechnical University «LETI», 197367, Saint Petersburg, Russia.

Synthesis and characterization of the ternary nitride semiconductor ZnN2:3 theoretical prediction, combinatorial screening, and

Siarhei Zhuk,1 Andrey A. Kistov,2 Simon C. Boehme,1,3 Noémi Olt,1 Fabio La Manna,1 Michael Steifel,1 Michael V. Kovalenko,1,3 Sebastian Siofl,4
1) Empa ? Swiss Federal Laboratories for Materials Science and Technology, 8600 Dübendorf, Switzerland, 2) Nano and Molecular Systems Research Unit, University of Oulu, 90014 Oulu, Finland, 3) Laboratory of Inorganic Chemistry, Department of Chemistry and Applied Bioscience, ETH Zürich, 8093 Zürich, Switzerland

Metal oxide core-shell nanowires decorated with silver nanoparticles prepared by a straightforward dry approach

Andrea Costas(1), Nicoleta Preda(1), Andrei Kuncser(1), Nicoleta Apostol(1), Carmen Curutiu(2) and Ionut Enculescu(1)
(1) National Institute of Material Physics, 405A Atomistilor Street, 077125, Magurele, Romania, (2) University of Bucharest, Faculty of Biology, Microbiology and Immunology Department, Allee Portocalierii 1-3, 060101, Bucharest, Romania

Enhancement of photoelectrochemical properties of hematite thin films by loading iron oxide co-catalyst

Fatemeh Parveh, Amin Yourdkhani and Reza Poursalehi
Materials Engineering Department, Tarbiat Modares University, Tehran, Iran.

Abstract.
11:45 Response of n-channel strained-Si MODFETs as sub-THz direct detectors

J. Delgado Notario, J. Calvo-Gallego, Y. M. Meziani, K. Fobelets, M. Ferrando Bataller, J. E. Velázquez-Pérez
CENTERA Laboratories, Institute of High Pressure Physics, Warsaw, Poland, NanoLab, University of Salamanca, 37008 Salamanca, Spain, NanoLab, University of Salamanca, 37008 Salamanca, Spain, Department of Electrical and Electronic Engineering, Imperial College, London SW7 2AZ, UK, Telecommunication Engineering School, Universitat Politècnica de València, 46022 Valencia, Spain, NanoLab, University of Salamanca, 37008 Salamanca, Spain.
SYMPOSIUM D1

Materials for nanoelectronics and nanophotonics

Symposium Organizers:

Andreas SEIFERT, CIC nanoGUNE

Graziella MALANDRINO, Università degli Studi di Catania

Shashank MISHRA, Université Claude Bernard Lyon 1, CNRS

Yogendra MISHRA (Main organizer), University of Southern Denmark
Monday May 30

08:00 Welcome and Introduction to the Symposium

08:15 D1 01.1 **Engineering gold-based nanomaterials for plasmon mediated remote Raman sensor and for improving in- and out-coupling with light**
names Ternary [1], Pelaez-Fernandez Mario [2], Winterauer Dominik [3], Menezes-Jesus-Yesi[1], Arevalo Raul [2,4], Batten Tim[3], Humbert Bernard [1], Bayle Maxime [1], Duval Jean-Luc [1]

08:45 D1 01.1 **Economical, Facile Paper-based SERS Sensing Platform established by Inorganic Substrates**

09:15 D1 01.2 **Interaction Study between Luminous Gold Nanoclusters and Lipid Membranes: Framework for Biological Applications**

09:30 D1 01.3 **Plasmonic properties of nanocavities in patterned aluminum on suspended graphene**

09:45 D1 01.4 **Ultrasmall Au nanoclusters displaying coherent photophysical behaviour**

10:00 D1 01.5 **A symmetry-based kinematic theory for designing chiral Au nanoparticles**

10:30 D1 01.6 **SERS Sensing : yogendra Kumar Mishra, Duval Jean-Luc, David Janas**

10:45 D1 02.1 **Self-assembly of Gold Nanoparticles on Porphyrin Monolayers Anchored on Inorganic Substrates**

11:00 Combination of plasmonic and dielectric properties by multivariate analysis for enhanced sensing

11:15 Metal-Free Cellulose-Based Platforms for Biomolecule Detection via Fluorescence and Surface Enhanced Raman Spectroscopy

11:45 Engineering the structure and SERS enhancement factor of Au nanoparticle double layer by a sandwiched graphene flake

12:15 Discussion

12:30 Lunch

13:00 Solution approaches for the fabrication of all-inorganic halide perovskites: from diketonate precursors to CsPbBr3 and CsCaF3

13:15 Quantum dot surface functionalization and characterization for temperature sensing

13:30 Quantum dot surface functionalization and characterization for temperature sensing

13:45 Quantum dot surface functionalization and characterization for temperature sensing

14:00 Combination of plasmonic and dielectric properties by multivariate analysis for enhanced sensing

14:15 Metal-Free Cellulose-Based Platforms for Biomolecule Detection via Fluorescence and Surface Enhanced Raman Spectroscopy

14:45 Engineering the structure and SERS enhancement factor of Au nanoparticle double layer by a sandwiched graphene flake

15:15 Discussion

15:30 Lunch

15:45 Solution approaches for the fabrication of all-inorganic halide perovskites: from diketonate precursors to CsPbBr3 and CsCaF3

16:00 Quantum dot surface functionalization and characterization for temperature sensing
14:45 Discussion

14:00 First-Principles Simulations of Vacancies and Grain Boundaries in MoS2-Au

13:45 Large-Scale Electronic Structure Simulations of Semiconductor Materials, Interfaces and Gate Stacks with LCAO Hybrid DFT

13:30 Study of the impact of the use of bow-tie antennas on the response of Graphene-FETs Terahertz detectors

13:00 INV Charge transport mechanisms in inkjet-printed thin-film transistors based on two-dimensional materials

11:30 Discussion

2D Materials and Devices : Sreetosh Goswami, Yogendra Kumar Mishra, Dawid Janas

D1 06.4

D1 05.1

D1 05.2

D1 05.3

D1 05.4

D1 05.5

D1 05.6

D1 08.1

D1 08.2

D1 08.3

D1 08.4

D1 08.5

D1 08.6

D1 08.7

D1 08.8
15:15 Versatile biogenic electrolyte for highly performing and self-stable light-emitting electrochemical cells
Cavinato, L.M.* (1), Millán, G. (2), Dr. Fresta, E. (1), Dr. Fernández-Cestau, J. (1)
Prof. Dr. Lalinde, E. (2), Prof. Dr. Berenguer, J.R. (2), Prof. Dr. Costa, R.D. (1) *
lead presenter
(1) Chair of Biogenic Functional Materials - Technical University of Munich,
Schulgasse 22, 94315 Straubing, Germany  (2) Departamento de Química-Centro
de Investigación en Síntesis Química (CISQ) - Universidad de La Rioja, Madre de
Dios 53, 26006 Logroño, Spain

15:30 A novel heterostructure architecture for photodetection and photo-enhanced electron emission applications
Harikrishnan G.*(1), Arijit Kayal (1), K. Bandopadhyay (2), K. Kolodziejak (2), Dorota A. Pawlak (2.3), Joy Mitra (1)
(1) Indian Institute of Science Education and Research, Thiruvananthapuram,
India,  (2) ENSemble3 Centre of Excellence, Warsaw, Poland,  (3) Lukasiewicz –
Institute of Microelectronics and Photonics, Warsaw, Poland

15:45 Ionic Liquid Functionalized Gel-polymer electrolytes for lithium battery applications
Debalina Deb
CSIR Research Associate, The Solid State and Structural Chemistry Unit – SSCU,
IISc, Bengaluru

16:00 Microrelenses of AlN for solar cells covering
Redko R.1,2, Milenin G.1, Zayac M.1, Boko V.1, Lytvyn P.1, Redko S.1
I.V. Lashkaryov Institute of Semiconductor Physics of the National Academy of
Sciences of Ukraine, 2State University of Telecommunications

16:15 THE PHYSICAL ASPECTS OF COMPLEXING PROPERTIES OF 1D-, 2D-COORDINATION POLYMERS BASED ON ARENDIYL-BISPHERPHOSPHINIC ACIDS
O.O. Bondarenko, R.M. Balabai, I.V. Bilynskyi
Kryvyi Rih State Pedagogical University

16:45 Evidence for the band edge exciton of CuInS2 Nanocrystals enables record efficient large-area Luminescent Solar Concentrators
Anand, Abhinav * a, L. Zaffalon, Matteo a, Gariano, Graziella b, Camellini, Andrea c, Gaidini, Marina b, Brescia, Rosaria d, Capitani, Chiara b, Brunetti, Francesco b, Pinchetti, Valerio a, Zavali-Rossi, Margherita c, Meiardi, Francesco * a, A. Crooker, Scott e, Brovelli, Sergio * a
a: Dipartimento di Scienza dei Materiali Università degli studi di Milano-Bicocca
Via Roberto Cozzi 55, IT-20125 Milano, Italy  b: Glass to Power SpA Via Fortunato Zeni 8, IT-38068 Rovereto, Italy  c: Dipartimento di Energia Politecnico di Milano
Via Ponzio 34/3, IT-20133 Milano, Italy  d: Istituto Italiano di Tecnologia Via Morego 30, IT-16163 Genova, Italy  e: National High Magnetic Field Laboratory Los Alamos
National Laboratory Los Alamos, NM 87545, USA

17:00 Discussion and Closing
SYMPOSIUM D2

Materials for nanoelectronics and nanophotonics

Symposium Organizers:

Andreas SEIFERT, CIC nanoGUNE

Graziella MALANDRINO, Università degli Studi di Catania

Shashank MISHRA, Université Claude Bernard Lyon 1, CNRS

Yogendra MISHRA [Main organizer], University of Southern Denmark
Monday May 30

From 08:45 Welcome and Introduction to the Symposium

09:00 New Functional 3D Network Structures by Effective Assembly of 1D and 2D Nanomaterials
F. Schütt1, F. Rasch1, L. Saure1, A. S. Nia2, X. Feng2, R. Adelung1
1 Institute for Materials Science, Kiel University, 24118, Kiel, Germany
2 Department of Chemistry and Food Chemistry, Center for Advancing Electronics Dresden (cfaed), Technische Universität Dresden, 01062 Dresden, Germany

09:30 Group IV-V based lamellar thin films: a route toward novel 2D materials
A. Valdenaire*(1), M. Stoffel (1), X. Devaux (1), E. André (2), C. Cartier (2), A. Bouché (1), M. Vergnat (1), H. Rinnert (1)
(1) Université de Lorraine, CNRS, UMR F-54000 Nancy, France; (2) Université de Lorraine, CNRS, LCPME, F-54000 Nancy, France

09:45 Controlling the Coverage, Morphology, Optical Properties and SERS activity of self-assembled AuNP Monoparticles on Si in 2D and 3D
Bartschmid, T.* (1), Bouret, G.R. (2) * lead presenter
(1) and (2) Department of Chemistry and Physics of Materials, University of Salzburg, Jakob-Haringer Strasse 2A, A-5020 Salzburg, Austria

10:00 Measurement of spatial homogeneity in 2D transition metal dichalcogenides – e VAMAS inter-laboratory comparison
Yameng Cao* (1), Sebastian Wood (1), Fernando A Castro (1), (1) National Physical Laboratory, United Kingdom * lead presenter

10:15 Physical vapour deposition of atomically-thin crystals of the helimagnetic material NiBr2
Ivona Košić*(1), Elfrén Navarro-Moratala(1), Antoni Vicent Montagudo Julia(2)
(1) Instituto de Ciencia Molecular, Universitat de València, Calle Catedrático José Beltrán Martínez 2, 46980, Paterna, Spain.

10:45 Discussion

11:00 New Luminescent 1D and 2D d10 Coinage Metal Chalcogenolate Coordination Polymers
Saly Hawila, 1 Florian Masseyseau, 2 Romain Gautier, 2 Gilles Ledoux, 3 Adel Mesbah, 1 Aude Demessence
1 Univ Lyon, Université Lyon 1, Institut de Recherches sur la Catalyse et l’Environnement de Lyon, IRCCELYON, UMR5256, CNRS, 2 Avenue Albert Einstein, 69626 Villeurbanne Cedex, France; 2 Université de Nantes, CNRS, Institut des Matériaux Jean Rouxel, IMN, F-44000 Nantes, France; 3 Univ Lyon, Université Claude Bernard Lyon 1, CNRS, Institut Lumière Matière, 69626 Villeurbanne, France

11:30 On the origin of slow decay photoluminescence decay in CdS quantum dots obtained using Langmuir-Blodgett technique
Svtl, K.A. and Zhuravlev, K.S.
Rzhonan Institute of Semiconductor Physics, Novosibirsk 630090, Russian Federation

11:45 Fabrication of branch-like bridges based on Ge-on-Si(110) and observation of strong resonant light emission
Takahiro Inoue, Yuuya Wagaatsuma, Leo Ikegaya, Kentarou Sawano

12:00 Fast-Response Single-Nanowire Photodetector Based on ZnO/WS2 Core/Shell Heterostructures
Edgars Butanovs, Alexei Kuzmin, Sergei Piskunov, Boris Poliyakov
Institute of Solid State Physics, University of Latvia, Kengarage Street 8, LV-1063 Riga, Latvia

12:15 Discussion

12:45 Lunch and Plenary

14:00 Surface Modification of TiO2 Thin Films for Functional Applications
Salih Veziroglu, Franz Faupel, Oral Cenk Aktas
Chair for Multicomponent Materials, Institute of Materials Science, Kiel University (CAU), 24143 Kiel, Germany

14:30 Optimization of sensors developed for magnetic and temperature fields and based on the nanoscale heterostructures
K.K. Abgaryan, A.V. Leonov, D.L. Reviznikov

15:00 Magnetic nanoparticles decorated ZnO tetrapods as advanced photocatalysts
(1) Faculty of Photonics, ITMO University, Russia; (2) Smart Materials, NanoSYD, Mads Clausen Institute, University of Southern Denmark, Denmark; (3) NanoSYD Centre, Mads Clausen Institute, University of Southern Denmark, Denmark, lead presenter

15:30 Multicomponent nanocrystal-based hydrogels and aerogels with distinct optical, electronic and electrochemical properties
N. C. Bigall
Leibniz Universität Hannover, Institute of Physical Chemistry and Electrochemistry and Cluster of Excellence PhoenixD (Photonics, Optics, and Engineering, Innovation Across Disciplines), Hannover, Germany

16:00 The effect of the concentration of NaOH on the synthesis and applicability of CeO2 nanoparticles
Töff, Zs. R. *(1), R7zvarei?, L.N. (2), Feraru, A. (1,3), Baia, L. (1,3) & Magyari, K. (1,4)
(1) Nanostructured Materials and Bio-Nano-Interfaces Center, Interdisciplinary Research Institute on Bio-Nano-Sciences, Babe?-Bolyai University, Arany János Str. 11, RO-400027 Cluj-Napoca, Romania; (2) Faculty of Chemistry and Chemical Engineering, Babe?-Bolyai University, Arany János Str. 11, RO-400028 Cluj-Napoca, Romania; (3) Faculty of Physics, Babe?-Bolyai University, M. Kog?niceanu Str. 1, RO-400048 Cluj-Napoca, Romania; (4) Department of Applied and Environmental Chemistry, Faculty of Science and Informatics, University of Szeged, Remich Béla Sr. 1, HU-6720 Szeged, Hungary, *zseke.ttoh@ubbcluj.ro

16:15 Assemblies of Polymer-coated Nanocrystals
Irène Morales, Franziska Lükemann, Christoph Wiesemann, Nadja C. Bigall
Institut für Physikalische Chemie und Elektrochemie, Leibniz Universität Hannover

16:30 Luminescence-based wide range pH sensor using the biocompatible material, Fluorapatite
T K Krishnapriya 1, R Anjana 1, Ayswarya Deetip 2, P S Baby Chakrapani 2,3, A S Asha 2,3 and M K Jayaraj 4
1 Department of Physics, Cochin University of Science and Technology, Kochi 682022, India; 2 Department of Biotechnology, Cochin University of Science and Technology, Kochi 682022, India; 3 Centre of Excellence in Advanced Materials, Cochin University of Science and Technology, Kochi 682022, India; 4 University of Calicut, Malappuram 673635, India

16:45 Light emitting tensile strained germanium microstructures fabricated via liquid phase epitaxy
Department of Electrical and Electronics Engineering, TED University, Department of Micro and Nanotechnology, Middle East Technical University, Department of Micro and Nanotechnology, Middle East Technical University, Department of Electrical and Electronics Engineering, Middle East Technical University

Note: D2-2 and D2-3 indicate different sections or parts of the program.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td><strong>The Photonic Materials Cloud - Designing, Comparing, and Testing Photonics Materials Online</strong></td>
<td><strong>INV</strong>&lt;br&gt;Jost Adam&lt;br&gt;Computational Materials Group, Centre for Photonics Engineering, Mads Clausen Institute, University of Southern Denmark, Campusvej 55, DK-5230 Odense, Denmark</td>
</tr>
<tr>
<td>09:30</td>
<td><strong>Electronic structure of CaF2</strong></td>
<td><strong>D2 2</strong>&lt;br&gt;Jaqi Chen, Zhaofu Zhang, Yuzheng Guo, John Robertson&lt;br&gt;Department of Engineering, University of Cambridge, Cambridge CB3 0FA, UK, College of Engineering, Swansea University, Swansea, SA1 8EN, United Kingdom</td>
</tr>
<tr>
<td>09:45</td>
<td><strong>ZnSnN2 nanometric layers prepared by magnetron sputtering: theory vs experiment</strong></td>
<td><strong>D2 2</strong>&lt;br&gt;Narolschi, Ig.(1), Klyukanov, A.A.(1), Rotaru, C.(1,2), Ghiletechi, Gh.(1), Bercu, E.(1), Vatavu, S.(1,2)&lt;br&gt;(1) Physics of Semiconductors and Devices Lab, Faculty of Physics and Engineering, Moldova State University, 60 A. Mateevici str., MD 2009, Chisinau, Moldova, (2) CaRISMA Research Center, Faculty of Physics and Engineering, Moldova State University, 60 A. Mateevici str., MD 2009, Chisinau, Moldova</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>Strong coupling effect on hot-carrier generation in nanoparticle-molecule assemblies</strong></td>
<td><strong>D2 2</strong>&lt;br&gt;Rania Zaier, Maria Bancerek, Katarzyna Kluczyk-Korch, Tomasz J. Antosiewicz&lt;br&gt;Faculty of Physics, University of Warsaw, Pasteura 5, PL-02-093 Warsaw, Poland</td>
</tr>
<tr>
<td>10:15</td>
<td><strong>Chiral-plasmonic materials for refractive index sensitivity</strong></td>
<td><strong>D2 2</strong>&lt;br&gt;Sergio Gómez-Graña, Isabel Pastoriza-Santos and Jorge Pérez-Juste&lt;br&gt;CINBIO, Departamento de Química Física, Universidad de Vigo 36310 Vigo (Spain)</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Electronic properties of beta-Ga2O3 Nanotube (or Nanowire) Arrays</strong></td>
<td><strong>D2 2</strong>&lt;br&gt;Prof. Balabai, R.M. (1), PhD student Naumenko, M.V.*(1)&lt;br&gt;(1) Kryvyi Rih State Pedagogical University, Ukraine</td>
</tr>
<tr>
<td>10:35</td>
<td><strong>Discussion</strong></td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td><strong>Room temperature H2S gas sensor using one-step CVD grown MoS2 and 2H - MoS2/T@ 2H - MoS2 heterostructure</strong></td>
<td><strong>D2 2</strong>&lt;br&gt;Swathy B Saseendran, Anamika Ashok, Asha A.S. Nanomaterials for Emerging Solid State Technology (NEST) Research laboratory, Department of Physics, Cochin University of Science and Technology, Kochi 682022, Kerala, India, Nanomaterials for Emerging Solid State Technology (NEST) Research laboratory, Department of Physics, Cochin University of Science and Technology, Kochi 682022, Kerala, India, Nanomaterials for Emerging Solid State Technology (NEST) Research laboratory, Department of Physics, Cochin University of Science and Technology, Kochi 682022, Kerala, India, Nanomaterials for Emerging Solid State Technology (NEST) Research laboratory, Department of Physics, Cochin University of Science and Technology, Kochi 682022, Kerala, India.</td>
</tr>
<tr>
<td>11:15</td>
<td><strong>Fabrication and characterization of combined thick-film nanostructures for sensors application</strong></td>
<td><strong>D2 2</strong>&lt;br&gt;Klym Halyna&lt;br&gt;Liv Polytechnic National University, Liv, Ukraine</td>
</tr>
<tr>
<td>11:30</td>
<td><strong>Effect on radiative emission mechanism of surface modification of ZnO nanorods through Au nanoparticle decoration</strong></td>
<td><strong>D2 2</strong>&lt;br&gt;Bruno, L. (1,2), Strano, V. (1,2), Suderri, M. (3), Franzo, G.(2), Priolo, F.(1,2) &amp; Mirabella, S.(1,2)&lt;br&gt;(1) Dipartimento di Fisica e Astronomia “Ettore Majorana”, Università di Catania, via S. Sofia 64, 95123 Catania, Italy, (2) CNR-IMM, via S. Sofia 64, 95123 Catania, Italy, (3) CNR-IMM, VIII Strada 5, 95121 Catania, Italy.</td>
</tr>
</tbody>
</table>
D2 2.9.1
Luminescent nanomaterials 1: Shashank Mishra

09:00 INV
Upconversion nanoparticles for photocatalysis light harvesting
Bhagyesh Purohit, Yannick Guyot, David Amanis, Marie-France Joubert, Benoit Mahier, Shashank Mishra, Christophe Dujardin, Gilles Ledoux
Université Lyon, Université Claude Bernard Lyon 1, CNRS, Institut Lumière Matière, F-69622, Lyon, France, Univ Lyon, Université Claude Bernard Lyon 1, CNRS, Institut de Recherches sur l'Environnement et la Catalyse de Lyon, F-69622, Lyon, France

09:30 INV
Luminescent Er Doped Y2O3 Nanoparticles for Biological Applications
Regina M. Chiocchio 1,3,4, Maria L. Amoroso2, Federica Pappalardo1, Pascale Evé-Hernandez 4, Annalinda Contino2, Giuseppe Maccarrone 2, Riccardo Reitano1, Giorgia Franzoni1,3, Valerie Marchi4, Paolo Musumeci1, Maria J. Lo Faro1,3
1) Dipartimento di Fisica e Astronomia “Ettore Majorana”, Università degli Studi di Catania, Via S. Sofia 64, 95123 Catania, Italy. 2) Dipartimento Di Scienze Chimiche, Università Degli Studi Di Catania, Via Andrea Doria 6, 95125, Catania, Italy. 3) Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerche (CNR-IMM) Via S. Sofia 64, 95123 Catania, Italy. 4) Istituto dei Sistemi Chimici di Rennes, CNRS UMR 6226, Université Rennes 1, 35042 Rennes Cedex, France.

09:45 INV
Multifunctional identification markers based on Gd2O3:Tm3, Er3, Nd3 particles
Vasiliy A. Medvedev, Ilya E. Kolesnikov, Pavel K. Olsin, Mikhail D. Mikhailov, Alina A. Marschina, Daria V. Mannorova
Saint Petersburg State University, Saint Petersburg, 199034, Russia, Ecole Polytechnique Fédérale de Lausanne, Lausanne, 1015, Switzerland, Peter the Great St.Petersburg Polytechnic University, Saint Petersburg, 194064, Russia

10:00 INV
BaF2:Eu thin films for photovoltaic applications: fabrication through a simple MOVC approach and conversion properties
Francesca Lo Presti1, Anna Lucia Pellegrino1, Adolfo Speghini2, and Graziella Malandrino1
1) Dipartimento di Scienze Chimiche, Università di Catania e INSTM UdR Catania V.le A. Doria 6, 95125 Catania, Italy, E-mail: gmalandrino@unicat.it; 2) Nanomaterials Research Group, Dipartimento di Biotechnologia, Università di Verona e INSTM UdR Verona, Strada le Grazie 15, 37134 Verona, Italy.

10:15 Luminescence of Europium doped 2D-MoO3 nanocrystals
E. Nieto-Pinero, A. Caño, F. Chacon, R. Serna
Laser Processing Group, Instituto de Optica, IO, CSIC, Serrano 121, 28006 Madrid, Spain

10:30 Discussion

10:45 Luminescent nanomaterials II: Gilles Ledoux

11:00 Luminescence of Ba3Mg2(2-x)F4 ceramics synthesized in a radiation field
Zhurubsevbaev A. 1, Strekoza A. 1, Lisitsynay2 L.A. 1, The L. N. Gumilyov Eurasian National University sunaman@mail.ru, a.strekoza@nurorda.kz 2, Tomsk State University of Architecture and Building. Tomsk, Russia lisitsynay@mail.ru

11:15 Identification of visible photoluminescence emissions from a single excited state of self-assembled quantum dots
Rihani Javeher-a, Meherzi Ouestati-b, Hosni Aljani-b, and Radhwen Chotourou-a
Laboratoire de Photovoltaïque de Semiconducteurs et de Nanostuctures, Centre de Recherche des Sciences et Technologie de l’Energie, BP 95, Hammam-Lif 2050, Tunisia, 1) Laboratoire de Nanomatériaux, Nanotechnologie et Energie (L3NE), Faculté des Sciences de Tunis, Université de Tunis El Manar, 2092 Tunis, Tunisia.

11:30 Study of microstructure, optical behaviors of Rare earth doped Ba0.85Ce0.12Eu2O3:0.05Zr0.02O4:Nb0.04O2:3 ceramics (RE = Ce3+ and 1) Zeneb Raddaoui 2/ Marwa Bourguiba 3/ Pascal Marchet 4/ Jemai Dhahri 5/ Moez Chafia
1) - Laboratory of Condensed Matter and Nanosciences, Faculty of Sciences of Monastir, University of Monastir, Avenue of the environment, 5019 Monastir, Tunisia. - Institute for Research on Ceramics, University of Limoges, UMR 7315, 87068 Limoges, France. 2) Laboratory of Applied Mechanics and systems, School Polytechnic of Tunisia, University of Carthage, La Marsa, Tunisia. - Faculty of Sciences Tunis, University of Tunis El Manar, Tunis 2092. 3) Institute for Research on Ceramics, University of Limoges, UMR 7315, 87068 Limoges, France. 4) Laboratory of Condensed Matter and Nanosciences, Faculty of Sciences of Monastir, University of Monastir, Avenue of the environment, 5019 Monastir, Tunisia. 5) Laboratory of Applied Mechanics and systems, School Polytechnic of Tunisia, University of Carthage, La Marsa, Tunisia.

11:45 Ratiometric luminescent thermometry in Nd3+/Yb3+ co-doped oxide materials for in vivo applications
Italia V. BARBOSA1,2, Geraldine DANTELLE1, Alain IBANEZ1, Laura J. Q. MAIA2 1Université Grenoble Alpes - Institut Néel, CNRS, Grenoble, France, 2 Universidade Federal de Goiás – Instituto de Física, Goiânia, Goiás, Brazil

12:00 Strong Er3+ radiative emission enhancement by quasi-BIC modes coupling in all-dielectric slot nanonenna arrays
Kalinic, B.1, Cesca, T.1, Balasa, I.3, Jaccaci, A.2, Sapienza, R.2, Mattei, G.1 (1) Department of Physics and Astronomy, University of Padova, Padova, Italy, (2) The Blackett Laboratory, Department of Physics, Imperial College, London, United Kingdom

12:15 Correlative study between nanoscale structure and optical properties of highly Erbium-doped silicon oxide thin films
E. Tabo1, S.Guehairia1, C. Castro1, P. Pareig1, F. Gourbilleau2, J. Cardin2, C. Carrada3 1 Normandie Univ, UNIROUEN, INSA Rouen, CNRS, Groupe de Physique des Matériaux, 76000 Rouen, France 2 CIMAP, Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, CIMAP, 14000, Caen, France 3 CEMES-CNRS, Université de Toulouse, 29 rue Jeanne Marvig, 31055 Toulouse, France

12:30 Lunch and Plenary

12:45 Discusion

15:00 Low temperature detection of nitric oxide by CuO nanoparticles synthesized by pulsed laser ablation
Censabella M. 1,2, Iacopo V. 1,2,3, Scandurra A. 1,2, Moulae K. (4), Neri G. (4), Ruffino F. (1,2,3), Mirabella S. 1,2,3 (1) Dipartimento di Fisica e Astronomia “Ettore Majorana”, Università di Catania, via S. Sofia 64, 95123 Catania, Italy. (2) CNR-IMM (Catania Università), via S. Sofia 64, 95123 Catania, Italy. (3) Department of Physics, University of Catania, Viale Andrea Doria 6, 95125, Catania, Italy. (4) Université de Toulouse, 29 rue Jeanne Marvig, 31055 Toulouse, France

15:15 Turning the Gas Sensing Properties of rGO with In2O3 Nanoparticles
Bruno S. de Lima 1, 2, Amanda A. Komorozino 1, 2, Amadou L. Ndialy 2, Maria Inês B. Bernard 1, Jérome Brunet 2, and Valmor R. Mastelaro 1 1 Sao Carlos Institute of Physics, University of Sao Paulo, Sao Carlos 565-905, SP, Brazil. 2 Clermont Auvergne University, F-63000 Clermont-Ferrand, France, F-63000 Clermont-Ferrand, France

15:30 Aluminum borate powders and composite coatings as rare earth-free phosphors
Cathalan, J.1(2), Salaün, M.2, Ibanez, A.2, Potdevin, A.1, Chadeyron, G.1, Gautier-Lunare, I.(2). 1) Université Clermont Auvergne, Clermont AUVERGNE INP, CNRS, Institut Pascal, Université Clermont Auvergne, F-63000 Clermont-Ferrand, France 2 Université Grenoble Alpes, Grenoble INP, Institut Néel, F-38000 Grenoble, France
15:45 Study of post-deposition anneal for optimized ALD Al2O3/etched GaN interfacial properties
P. Fernandes Pais Pinto Rocha* (1)(2), L. Vauche (1), E. Martinez (1), W. Vandezande (1), N. Rochat (1), T. Spella (1), S. Boubiena (2), B. Salem (2), V. Souza (1)
(1) CEA, LETI, MINATEC Campus, F-38054 Grenoble, France and Univ. Grenoble Alpes, F-38000 Grenoble, France (2) Univ. Grenoble Alpes, CNRS, CEA/LETI

16:00 Discussion

Thursday June 2

09:00 Optical transistor and optical memory realization with photoferroelectrics
A. Makhot(1), R. Gumeniuk(2), J.-F. Dayen(1), P. Dunne(1), U. Burkhardt(3), M. Viret(4), B. Doudin(1), B. Kundys(1)*
(1) Université de Strasbourg, CNRS, Institut de Physique et Chimie des Matériaux de Strasbourg, 74001 Strasbourg, France.  (2) Institut für Experimentelle Physik, TU Bergakademie, Leipziger Str. 23, Freiberg 09596, Germany.  (3) Max Planck Institut für Chemische Physik fester Stoffe, Nöthnitzer Str. 40, 01187 Dresden, Germany.  4. SPEC, CEA, CNRS, Université Paris-Saclay, Gif-sur-Yvette 91191, France.

D2-2 12.1

09:30 Nanoscale studies of electronic and photoinduced effects in ferroelectric thin films heterostructures
Xavier Henning, Laurianne Wendling, Mircea Rastei, Aziz Dinha, Silviu Colis
Institut de Physique et Chimie des Matériaux de Strasbourg  CNRS  Université de Strasbourg  23 rue du Loess  F-67034 Strasbourg France

D2-2 12.2

09:45 Nanoscale measurements of High Dielectric Constants for piezoelectric materials by Scanning Microwave Microscopy
K. Kaja*(1), D. Richert (1), J. Morán (1), A. Delvallée (1), D. Allaf (1), B. Gautier (2)
(3) & F. Piquemal (1).
(1) Laboratoire national de métrologie et d’essais, France (2) Institut des Nanotechnologies de Lyon, France (3) Institut National des Sciences Appliquées de Lyon, France

D2-2 12.3

10:00 Piezoelectric nanostructured α-Quartz films on Silicon: from material to new devices
Claire Jolly* (1), David Sánchez-Fuentes (1), Dilek Cakiroglu (1), A. Gomez (1), Raisar Rafhar (1,2), Laura Picas (2), A.Carretero-Genevrier. (1) * lead presenter
(1) Institut d’Electronique et des Systemes (IES), CNRS, Université de Montpellier, 860 Rue de Saint Priest 34095 Montpellier, France  (2) Institut de Recherche en Infectiologie de Montpellier (IRIM), CNRS UMR 9004–Université de Montpellier, 34293 Montpellier, France

D2-2 12.4

10:15 Giant Piezoelectric Response in Non-stoichiometric Epitaxial BaTiO3
Subhajit Pal,*Sandeep Vura*, ?Debadarshini Samantaray, Amulya Dwivedi, Rama Satya Sandilya, Vishnu Kumar, Vijayyendra Shastri, Saurabh Chandorkar, Srinivasan Raghvan, and Pavan Nukala*
Centre for Nanoscience and Engineering, Indian Institute of Science, Bangalore 560012, India

D2-2 12.5

10:30 Discussion

10:45 Dielectric, piezo- and ferroelectric nanomaterials II : Bohdan Kundys

11:00 Inverse design from synthetic conditions and precursors for dielectric properties of BaTiO3 assisted by machine-learning
Min-Jeong Gorg(1)*, Dong-Hwa Seo(1), Young Seog Yoon(2), Hyun-woo Oh(2), Suyoung Cho(1), Seong Hyeok Choi(3), Moonhee Choi(3), Sung Beom Cho(3)
(1) School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology, South Korea (2) ICT-enabled Intelligent Manufacturing Research Section, Electronics and Telecommunications Research Institute, South Korea (3) Korea Institute of Ceramic Engineering & Technology, South Korea * lead presenter

D2-2 13.1

11:15 Excellent excitonic properties and non-zero valley splitting in 2D antiferromagnetic MPX3 crystals
Milosz Rybak, Paulo E. Faria Junior, Tomasz Wozniak, Pilewcz, Scharoch, Jaroslav Fabian, Jens Kunstmann and Magdalena Birowska
Department of Semiconductor Materials Engineering, Faculty of Fundamental Problems of Technology, Wrocław University of Science and Technology Wybrzeże Wyspiańskiego 27, 50-370 Wrocław, Poland

D2-2 13.2

11:30 The Effects of Characteristics of Raw Materials and Synthetic Conditions on Properties of BaTiO3: A Structural Equation Model
Young Seog Yoon(1)*, Suyoung Cho(1), Hyun-woo Oh(1), Min-Jeong Gorg(2), Dong-Hwa Seo(2), Hyeon Jin Jung(3)
(1) ICT-enabled Intelligent Manufacturing Research Section, Electronics and Telecommunications Research Institute, South Korea (2) School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology, South Korea (3) Korea Institute of Ceramic Engineering & Technology, South Korea * lead presenter

D2-2 13.3
MOVPE growth of cubic GaN on GaAs (110) substrate
I. Daldoul a*, S. Othmani a, A. Mballo b, P. Vuong b, J.P. Salvestrini b,c, N. Chaaben a
a Laboratoire de Recherche sur les Hétéro-Epithaxies et Applications, Faculté des Sciences de Monastir, 5019, Université de Monastir, Tunisie b International Research Lab Georgia Tech – CNRS (IRL 2958), Georgia Tech Lorraine, 2 rue Marconi, 57070, Metz, France c School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, 30332, USA Corresponding author. E-mail address: imendaldoul9@gmail.com (I.Daldoul).

Study of manganese incorporation in Zn2TiO4 produced by solid-state reaction method
L. Borkowska1, T. Stara1, I. Vorona1, V. Nosenko1, O. Gudymenko1, V. Kladko1, K. Kozoriz1, C. Labbé2, J. Cardin2, J.-L. Doualan2 and T. Kryshtab3
1 V. Lashkaryov Institute of Semiconductor Physics of the NAS of Ukraine, 45 Prospect Nasavy, 03029 Kyiv, Ukraine, 2CIMAP, CEA-CNRS-ENSICAEN, Normandie Université, 6 Blvd Maréchal Juin, Caen, France, 3Instituto Politécnico Nacional ? ESFM, Av. IPN, Ed.9 U.P.A.L.M., 07738 Mexico D.F., Mexico

Discussion

Lunch and Plenary

Nanostructured films
Yogendra Kumar Mishra, Graziella Malandrino

Comparative study of WSe2 thin films synthesized via pre-deposited WO3 and W precursor material selenization
Kevon Kadiwala, Edgars Butanovs, Andrejs Ogurcovs, Martins Zubkins, Boris Polyakov
Institute of Solid State Physics, University of Latvia, Kengaraga street 8, Riga, Latvia, LV-1063

Facile synthesis of ultra-thin nanocomposite films
G. Cristian Vásquez, Sascha Ehret, Martin Dulle, Margarita Kruteva, Stephan Haushild, Beate Förster, Stephan Förster
Jülich Centre for Neutron Science (JNCS-1), Forschungszentrum Jülich

Coabalt metal via ALD using new zinc alkyls as reduction inducing agents: A promising approach for metal ALD
David Zanders, Seán T. Barry, Anjana Devi
Inorganic Materials Chemistry, Ruhr University Bochum, Universitätsstraße 150, Bochum, Germany 44780, 4Department of Chemistry, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario K1S 5B6, Canada Department of Chemistry, Inorganic Materials Chemistry, Ruhr University Bochum, Universitätsstraße 150, Bochum, Germany 44780

Tunable Photoluminescence Enhancement with Plasmonic Nanoparticles on Thin Film Vanadium Dioxide
Stephen Cunningham, Calin Hrelescu, Gwenael Atcheson, Plamen Stamenov, A. Louise Bradley
School of Physics and AMBER, Trinity College Dublin

Optimization of sensors developed for magnetic and temperature fields and based on the nanoscale heterostructures
K.K. Abgaryan, A.V. Leonov, D.L. Reviznikov

Discussion and Closing
SYMPOSIUM E

Adaptive materials and devices for brain-inspired electronics

Symposium Organizers:

Adnan MEHONIC, University College London
Erika COVI, NaMLab gGmbH
Giuliana DI MARTINO, University of Cambridge
Ignasi FINA, Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)
Veeresh DESHPANDE, Helmholtz-Zentrum Berlin für Materialien und Energie

Selected contributions will be published in a focused issue of Neuromorphic Computing and Engineering (IOP).
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td>Welcome and Introduction to the Symposium</td>
</tr>
<tr>
<td>09:15</td>
<td><strong>INV</strong> Metal-oxide memristors for sensory applications</td>
</tr>
<tr>
<td>09:45</td>
<td>In materia reservoir computing with self-organizing nanowire networks</td>
</tr>
<tr>
<td>10:00</td>
<td>Multimodal transistors with constant transconductance as analog ReLU</td>
</tr>
<tr>
<td>10:30</td>
<td>Coffee</td>
</tr>
<tr>
<td>10:45</td>
<td>Analysis of the distribution and retention of the quantum conductance states in Cu/SiO2/W devices</td>
</tr>
<tr>
<td>11:00</td>
<td>Active crossbar using amorphous oxide semiconductor technology towards artificial neural networks hardware</td>
</tr>
<tr>
<td>11:15</td>
<td>1/f noise spectroscopy and noise tailoring of resistive switching devices</td>
</tr>
<tr>
<td>11:30</td>
<td>Dendritic Computation: A case for its replication and a framework to work within.</td>
</tr>
<tr>
<td>11:45</td>
<td>Direct Comparison of the SET Kinetics of Memristive Cells in Filamentary and Area-Mode</td>
</tr>
<tr>
<td>12:00</td>
<td>Discussion</td>
</tr>
<tr>
<td>12:15</td>
<td>Lunch</td>
</tr>
</tbody>
</table>

**Organic and Halides 1 : Veeresh Deshpande**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:45</td>
<td><strong>INV</strong> Organic neuromorphic electronics and biohybrid systems</td>
</tr>
<tr>
<td>14:15</td>
<td>Reconfigurable Memristors for Neuromorphic Computing</td>
</tr>
<tr>
<td>14:45</td>
<td>Stability of quantized-conductance plateaus in memristors: toward understanding the mechanisms of resistive switching</td>
</tr>
<tr>
<td>15:15</td>
<td>Organic and Halides 2 : Rohit John</td>
</tr>
<tr>
<td>15:45</td>
<td>Mobile memristive nanosheets: fabricating chloride-resistive devices for neuromorphic applications</td>
</tr>
<tr>
<td>16:15</td>
<td>Discussion</td>
</tr>
<tr>
<td>16:30</td>
<td>Coffee</td>
</tr>
<tr>
<td>16:45</td>
<td>Numerical exploration of spiking neuron circuits in organic PTOF technology</td>
</tr>
<tr>
<td>17:00</td>
<td>Memristive synapse coupling biological neuronal populations in real-time</td>
</tr>
</tbody>
</table>

**Organic and Halides 3 : Rohit John**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:15</td>
<td>Nanostructured Perovskite based Resistive RAM for Future Storage and Computing</td>
</tr>
<tr>
<td>15:45</td>
<td>Frequency domain response of memristors, synapses and neurons</td>
</tr>
<tr>
<td>16:15</td>
<td>Halide perovskite memristors as flexible and reconfigurable physical unclonable functions</td>
</tr>
</tbody>
</table>

**Organic and Halides 4 : Rohit John**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:15</td>
<td>Superionic Conductors and Its Application in Low Voltage Synaptic Transistors</td>
</tr>
<tr>
<td>15:15</td>
<td>Organic and Halides 3 : Rohit John</td>
</tr>
<tr>
<td>15:45</td>
<td>Stability of quantized-conductance plateaus in memristors: toward understanding the mechanisms of resistive switching</td>
</tr>
<tr>
<td>16:15</td>
<td>Discussion</td>
</tr>
<tr>
<td>16:30</td>
<td>Coffee</td>
</tr>
<tr>
<td>16:45</td>
<td>Numerical exploration of spiking neuron circuits in organic PTOF technology</td>
</tr>
<tr>
<td>17:00</td>
<td>Memristive synapse coupling biological neuronal populations in real-time</td>
</tr>
</tbody>
</table>

**Organic and Halides 5 : Rohit John**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:15</td>
<td>Reconfigurable Memristors for Neuromorphic Computing</td>
</tr>
<tr>
<td>14:45</td>
<td>Stability of quantized-conductance plateaus in memristors: toward understanding the mechanisms of resistive switching</td>
</tr>
<tr>
<td>15:15</td>
<td>Organic and Halides 2 : Rohit John</td>
</tr>
<tr>
<td>15:45</td>
<td>Mobile memristive nanosheets: fabricating chloride-resistive devices for neuromorphic applications</td>
</tr>
<tr>
<td>16:15</td>
<td>Discussion</td>
</tr>
<tr>
<td>16:30</td>
<td>Coffee</td>
</tr>
<tr>
<td>16:45</td>
<td>Numerical exploration of spiking neuron circuits in organic PTOF technology</td>
</tr>
<tr>
<td>17:00</td>
<td>Memristive synapse coupling biological neuronal populations in real-time</td>
</tr>
</tbody>
</table>

**Organic and Halides 6 : Rohit John**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:15</td>
<td>Reconfigurable Memristors for Neuromorphic Computing</td>
</tr>
<tr>
<td>14:45</td>
<td>Stability of quantized-conductance plateaus in memristors: toward understanding the mechanisms of resistive switching</td>
</tr>
<tr>
<td>15:15</td>
<td>Organic and Halides 2 : Rohit John</td>
</tr>
<tr>
<td>15:45</td>
<td>Mobile memristive nanosheets: fabricating chloride-resistive devices for neuromorphic applications</td>
</tr>
<tr>
<td>16:15</td>
<td>Discussion</td>
</tr>
<tr>
<td>16:30</td>
<td>Coffee</td>
</tr>
<tr>
<td>16:45</td>
<td>Numerical exploration of spiking neuron circuits in organic PTOF technology</td>
</tr>
<tr>
<td>17:00</td>
<td>Memristive synapse coupling biological neuronal populations in real-time</td>
</tr>
</tbody>
</table>
Prospects and challenges of area-dependent memristive devices for neuromorphic computing
Regina Dittmann
Peter-Grünberg-Institute (PGI-7), Research Center Jülich and JARA-FIT, 52428 Jülich, Germany

Hafnium-oxide-based Thin Films for Neuromorphic Resistive Switching
Markus Hellenbrand, Hongyi Dou, Ming Xiao, Aiping Chen, Haiyan Wang, Quanxi Jia, Judith Driscoll
Department of Materials Science and Metallurgy, University of Cambridge, UK, School of Materials Engineering, Purdue University, USA, Los Alamos National Laboratory, USA, Department of Materials Design and Innovation, University at Buffalo, USA

Ionic conductor materials for high-performance resistive switching memory devices Ming Xiao, Markus Hellenbrand, Zhuotong Sun, Judith L. MacManus-Driscoll
Department of Materials Science & Metallurgy, University of Cambridge, CB3 0FS, United Kingdom

Origin of switchable polarization inside binary oxides
Ali Jalil(a), Giuliana Di Martino(a)
(a) Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, UK

In-memory computing based on phase-change memory
Abu Sebastian
IBM Research - Zurich

Exploring a memristor-based Chua circuit design including non-volatile tunable properties
M. Escudero *1), L. Pancioni2), M. Forti2), A. Tesi3), F. Corinto4), S. Spiga1) and S. Brivio1) (1) CNR-IMM, Univ. of Agrtale Brianza, Agrtale Brianza, 20864, Italy (2) Università degli Studi di Siena, Siena, 53100, Italy (3) Università degli Studi di Firenze, Florence, 50121, Italy (4) Politecnico di Torino, Turin, 10129, Italy

Formingless resistive switching memory crosspoint arrays for in-memory machine learning
Saverio Ricci, Piergiulio Mannocci, Matteo Farronato, Shahin Hashemkhani, Daniele Ielmini
Politecnico di Milano, Politecnico di Milano, Politecnico di Milano, Politecnico di Milano, Politecnico di Milano,

Towards non-volatile memristors based on ferroelectric polarization optical switching Huan Tan, Florencio Sánchez, Ignasi Fina
Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Campus UAB, Bellaterra, Catalonia 08193, Spain

Optoelectronic synaptic plasticity emulated in a ZnO-based artificial synapse for neuromorphic image sensing application
Subin P S, Midhun P S, Aldrin Antony, K J Saji, M K Jayaraj
Subin P S - Centre of Excellence in Advanced Materials, Cochin University of Science and Technology, Kochi - 682 022, Kerala, India., Midhun P S - Department of Physics, Cochin University of Science and Technology, Kochi - 682 022, Kerala, India., Aldrin Antony - Centre of Excellence in Advanced Materials, Cochin University of Science and Technology, Kochi - 682 022, Kerala, India. Department of Physics, Cochin University of Science and Technology, Kochi - 682 022, Kerala, India., K J Saji - International School of Photonics, Cochin University of Science and Technology, Kochi - 682 022, Kerala, India. Centre of Excellence in Advanced Materials, Cochin University of Science and Technology, Kochi - 682 022, Kerala, India. Inter University Centre for Nanomaterials and Devices, Cochin University of Science and Technology, Kochi - 682 022, Kerala, India., M K Jayaraj - University of Calcut, Thnjipalvm - 673 635, Kerala, India.

Multi-mem response of topotactic redox
La. 1/25r1/2Mn1/2Co1/258722xx perovskite
W. Román Acevedo (1), M. H. Aguirre (2), C. Ferreyra (1), M. J. Sánchez (3), M. Rengifo (1), C. A. M. van den Bosch (4), A. Aguadero (4), B. Noheda (5), D. Rivi (1) (1) Instituto de Nanociencia y Nanotecnologia (INN), CONICET-CNEA, Argentina, (2) Instituto de Nanociencia y Materiales de Aragón (INMA-CSIC) and Opto, de Fisica de la Materia Condensada and Laboratorio de Microscopias Avanzadas, Universidad de Zaragoza, Spain, (3) Centro Atómico Bariloche and Instituto Balseiro Física de la Materia Condensada and Laboratorio de Microscopias Avanzadas, Universidad de Zaragoza, Spain, (3) Centro Atómico Bariloche and Instituto Balseiro Física de la Materia Condensada and Laboratorio de Microscopias Avanzadas, Universidad de Zaragoza, Spain, (4) Department of Materials, Imperial College London, United Kingdom, (5) Groningen Cognitive Systems and Materials Center (CogniGron) and Zernike Institute for Advanced Materials, University of Groningen (RuG), The Netherlands

In-memory computing based on phase-change memory
Abu Sebastian
IBM Research - Zurich

Filamentary-based TeOx/HfO2 memristive synapses
T. Sciecon1), Y. Popoff1), D. Falcone1), R. Guido1), A. La Porta1), F. Horst1), B. J. Offerin2) and V. Bragaglia
1) IBM Research GmbH-Zurich Research Laboratory, CH-8803 Rüschlikon, Switzerland

Exploring a memristor-based Chua circuit design including non-volatile tunable properties
M. Escudero *1), L. Pancioni2), M. Forti2), A. Tesi3), F. Corinto4), S. Spiga1) and S. Brivio1) (1) CNR-IMM, Univ. of Agrtale Brianza, Agrtale Brianza, 20864, Italy (2) Università degli Studi di Siena, Siena, 53100, Italy (3) Università degli Studi di Firenze, Florence, 50121, Italy (4) Politecnico di Torino, Turin, 10129, Italy

Formingless resistive switching memory crosspoint arrays for in-memory machine learning
Saverio Ricci, Piergiulio Mannocci, Matteo Farronato, Shahin Hashemkhani, Daniele Ielmini
Politecnico di Milano, Politecnico di Milano, Politecnico di Milano, Politecnico di Milano, Politecnico di Milano,

In-memory computing based on phase-change memory
Abu Sebastian
IBM Research - Zurich

Filamentary-based TeOx/HfO2 memristive synapses
T. Sciecon1), Y. Popoff1), D. Falcone1), R. Guido1), A. La Porta1), F. Horst1), B. J. Offerin2) and V. Bragaglia
1) IBM Research GmbH-Zurich Research Laboratory, CH-8803 Rüschlikon, Switzerland

Exploring a memristor-based Chua circuit design including non-volatile tunable properties
M. Escudero *1), L. Pancioni2), M. Forti2), A. Tesi3), F. Corinto4), S. Spiga1) and S. Brivio1) (1) CNR-IMM, Univ. of Agrtale Brianza, Agrtale Brianza, 20864, Italy (2) Università degli Studi di Siena, Siena, 53100, Italy (3) Università degli Studi di Firenze, Florence, 50121, Italy (4) Politecnico di Torino, Turin, 10129, Italy

Formingless resistive switching memory crosspoint arrays for in-memory machine learning
Saverio Ricci, Piergiulio Mannocci, Matteo Farronato, Shahin Hashemkhani, Daniele Ielmini
Politecnico di Milano, Politecnico di Milano, Politecnico di Milano, Politecnico di Milano, Politecnico di Milano,

In-memory computing based on phase-change memory
Abu Sebastian
IBM Research - Zurich

Filamentary-based TeOx/HfO2 memristive synapses
T. Sciecon1), Y. Popoff1), D. Falcone1), R. Guido1), A. La Porta1), F. Horst1), B. J. Offerin2) and V. Bragaglia
1) IBM Research GmbH-Zurich Research Laboratory, CH-8803 Rüschlikon, Switzerland

Exploring a memristor-based Chua circuit design including non-volatile tunable properties
M. Escudero *1), L. Pancioni2), M. Forti2), A. Tesi3), F. Corinto4), S. Spiga1) and S. Brivio1) (1) CNR-IMM, Univ. of Agrtale Brianza, Agrtale Brianza, 20864, Italy (2) Università degli Studi di Siena, Siena, 53100, Italy (3) Università degli Studi di Firenze, Florence, 50121, Italy (4) Politecnico di Torino, Turin, 10129, Italy

Formingless resistive switching memory crosspoint arrays for in-memory machine learning
Saverio Ricci, Piergiulio Mannocci, Matteo Farronato, Shahin Hashemkhani, Daniele Ielmini
Politecnico di Milano, Politecnico di Milano, Politecnico di Milano, Politecnico di Milano, Politecnico di Milano,
Wednesday June 1

09:00 NV Neuroemorphic properties of nanowire networks
Ruomin Zhu, Alon Loeffler, Sam Lilak, Christopher Durham, Joel Hochstetter, Adam Stieg, James Grimzewski, Zdenka Kuncic
University of Sydney, University of California at Los Angeles, University of California at Los Angeles, University of Cambridge, University of California at Los Angeles, University of Sydney
NanoSystems Institute and University of California at Los Angeles, University of California at Los Angeles, University of Sydney

09:30 Volatile Memristor based on MoS2 for memory and neuromorphic computing
Matteo Farronato, Margherita Melegari, Saverio Ricci, Shahin Hashemkhani, Alessandro Bricali, Daniele Ielmini
Matteo Farronato, Margherita Melegari, Saverio Ricci, Shahin Hashemkhani, Daniele Ielmini Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB), Politecnico di Milano and IUNET, piazza L. da Vinci 32, 20133, Milano, Italy
Alessandro Bricali Weebit Nano, Hod Hasharon, Israel

09:45 Fabrication and Characterization of Lateral TMDC Memristors
Z. Geng, C. Zhang, S. Park, C. Ziebold, S. Sharma, F. Schwierz, K. Rossnagel†, and M. Ziegler
Mikro- und nanoelektronische Systeme, Fakultät für Elektrotechnik und Informationstechnik, Technische Universität Ilmenau, 98693 Ilmenau, Germany
1 Institute of Experimental and Applied Physics, Kiel University, 24098 Kiel, Germany, and Ruhrficht Haensel Laboratory, Deutsches Elektronen-Synchrotron DESY, 22607 Hamburg, Germany

10:00 Discussion

10:15 Coffee

10:45 In-situ optical tracking of memristive switching in MoS2
Joanne Symonowicz(a), Giuliana Di Martino(a)
(a) Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, UK

11:00 Electroforming-free nonvolatile MoS2 memristors with synaptic functionalities
Litty Thomas Manamel, Jad Jaafar
School of Physics, Indian Institute of Science Education and Research (IISER) Thiruvananthapuram, Kerala, India.

11:15 Study of switching and relaxation dynamics in Ag/SlOx/Pt volatile memristors
Minmyo Dutta, Stefano Brivio, Mario Àlia, Sabina Spiga
CNR-IMM, Unit of Agrate Brianza, via C. Olivetti 2, 20864 Agrate Brianza (MB), Italy

11:30 Charge transport in dopant network processing units
Taglietti, F.*(1), Moro, F.(1), van de Ven, B.(2), van der Wiel, W.G.(2), Fanciulli, M.(1)
1 Thivuavanthuram, Kerala, India. 2 Institute of Experimental and Applied Physics, Kiel University, 24098 Kiel, Germany, and Ruhrficht Haensel Laboratory, Deutsches Elektronen-Synchrotron DESY, 22607 Hamburg, Germany

11:45 Accurate modeling of the reset process of bipolar resistive switching devices
Mr Nikolaos Barmpatsalos Dr Enrique Miranda Dr Adnan Mehonic Dr Wing Ng
Profs Anthony Kenyon University College London (UCL) Universitat Autònoma de Barcelona (UAB)

12:00 Discussion

12:15 Lunch

13:45 Plenary Talk

14:45 Coffee

Theory and Simulations : Adnan Mehonic

15:15 NV Bayesian Nanoelectronics
Damien Querlioz
Université Paris-Saclay, CNRS

15:45 Nonideality-Aware Training to Make Memristive Neural Networks Accurate, Robust and Energy-Efficient
Dvoydas Joksas, Erwei Wang, Nikolaos Barmpatsalos, Wing H. Ng, Anthony J. Kenyon, George A. Constantimides, Adnan Mehonic
University College London, Imperial College London, Xiulix, University College London, University College London, Imperial College London, University College London

16:00 Improving the convergence of memristor-based neural networks
W. Quiñonez (1,2), W. Rómán Acevedo (1,2), M. J. Sánchez (2,3), D. Rubi (1,2)
(1) Centro Atómico Constituyentes, San Martín, Argentina, (2) Instituto de Nanociencia y Nanotecnología (INN), CONICET-CNEA, Argentina, (3) Centro Atómico Bariloche and Institute Balteiro (UNCU), Bariloche, Argentina

16:15 Discussion

16:30 Coffee

Theory and Simulations 2 : Adnan Mehonic

16:45 Multi-Layer Redox-Based Memristive Structures and Cross Bar Arrays for Neuromorphic Computing
B. Speetzi1*, S. Park1,2, T. Ivanov1,2, S. Knaeu2, J. Doell2, M. Ziegler1,2
1 Micro- and Nanoelectronic Systems, Department of Electrical Engineering and Information Technology, Technical University Ilmenau, Ilmenau, Germany
2 Institute of Micro and Nanotechnologies MacroNano, Department of Electrical Engineering and Information Technology, Technical University Ilmenau, Ilmenau, Germany

17:00 Modelling resistive switching in nanogranular films
Miguel Lopez-Suarez, Claudio Metis, Luciano Colombio, and Walter Tarantino
Università degli Studi di Cagliari

17:15 Modified training for increased robustness in memristor-based neural networks
Víctor Zamora, Dvoydas Joksas, Adnan Mehonic
GFM, Departamento de Física de Materiales, Universidad Complutense de Madrid, 28040 Madrid, Spain, Department of Electronic and Electrical Engineering, University College London, Roberts Building, Torrington Place, London WC1E 7JE, UK, Department of Electronic and Electrical Engineering, University College London, Roberts Building, Torrington Place, London WC1E 7JE, UK

17:30 Atomistic Insights into Electrochemical Metallization
Jad Jaafar
Imperial College London

17:45 Discussion

18:00 E-MRS EU-40 Materials Prize & MRS Mid-Career Researcher Award Presentations
Thursday June 2

Ferroelectric Systems : Ignasi Fina

09:00
Av Ferroelectric HfO-based devices for Brain-inspired Electronics  
Dr.-Ing. Stefan Sileszack  
NalLab gGmbH

09:30
Flexible HfO2-based Ferroelectric Memristor on Mica  
I. Margolin, A. Chouprik, E. Korostylev, V. Miktcheev and D. Negrov  
Moscow Institute of Physics and Technology, Russia

09:45
Fabrication process for sub-8 nm HfZrO2-based ferroelectric tunnel junctions with enhanced properties  
Greta Segantini,1,3 Benoit Manchon2,1, Pedro Rojo Rome01, Ingrid Carleo Infante2, Nicolas Baboux2, Shrutik Nirantar3, Matthieu Bugnet4, Simon Jeannot5, Damien Dutertre6, Sharath Srinivas3, Bertrand Vilquin1  
1 Univ Lyon, École Centrale Lyon, INSa Lyon, UCB, CPE Lyon, CNRS, INL, UMR5270, 69130 Ecully, France, 2 Univ Lyon, INSa Lyon, Ecole Centrale Lyon, UCB, CPE Lyon, CNRS, INL, UMR5270, 69130 Ecully, France, 3 Functional Materials and Microsystems Research Group and Micro Nano Research Facility, RMIT University, Australia, 4 Univ Lyon, CNRS, INSa Lyon, UCB, MATEIS, UMR 5510, 69621 Villeurbanne, France, 5 STM-Microelectronics, 850 Rue Jean Monnet, 38950 Crolles, France

10:00
Discussion

10:15
Coffee

Ferroelectric Systems 2 : Erika Covi

10:45
Metal-HfO.5Zr.5O2-Metal FTJ devices and their electrical programming for neuromorphic applications  
Keerthana Shajil Nair, Marco Holzer, Catherine Dubourdieu, Veeresh Deshpande  
1 Helmholtz-Zentrum Berlin für Materialien und Energie, Hahn-Meitner-Platz 1, 14109 Berlin, Germany, 2 Freie Universität Berlin, Physical Chemistry, Arnimallee 22, 14195 Berlin Germany

11:00
Ferroelectric switching dynamics and multi-state memory performance in epitaxial HfO.5Zr.5O2 films  
Tingfeng Song, Florencio Sánchez, Ignasi Fina  
Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Campus UAB, Bellaterra 08195, Barcelona, Spain

11:15
The role of oxygen vacancies on the stability and polarization of ferroelectric zirconia  
Veniero Lenzì, José P. B. Silva, Luis Marques  
Centre of Physics of Universities of Minho and Porto, Campus de Gualtar, 4710-057 Braga, Portugal

11:30
Disentangling electronic and thermal contributions to the observed light-induced resistance switching in BaTiO3 ferroelectric tunnel junctions  
Xiao Long, Huan Tan, Florencio Sánchez, Ignasi Fina, Josep Fontcuberta  
Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Campus UAB, Bellaterra 08193, Barcelona, Spain

11:45
Coexistence of polarization and ionic electromigration effects in the memristive response of ferroelectric oxides  
C. Ferreyra (1,2), M. Rengifo (1,2), M.J. Sánchez (1,3), A. S. Everhardt (4), B. Noheda (4), D. Rubi (1,2)  
(1) Instituto de Nanociencia y Nanotecnología (INN), CONICET-Cnea, Argentina, (2) Centro Atómico Constituyentes, Av. Gran Pazo 1499 (1650), San Martín, Buenos Aires, Argentina, (3) Centro Atómico Bariloche y Instituto Balseiro (Universidad Nacional de Cuyo), 8400 San Carlos de Bariloche, Río Negro, Argentina, (4) Zernike Institute for Advanced Materials, University of Groningen, 9747 AG Groningen, The Netherlands

12:00
Discussion

12:15
Lunch

13:45
Plenary Talk

15:00
Coffee

Mott Transitions and Volatile Switching Devices : Ignasi Fina

15:15
Dynamics of the voltage-triggered insulator-to-metal transition  
Javier del Valle1, Adrien Bercher1, Nicolas M. Vargas2, Rodolfo Rocco3, Pavel Salev2, Claribel Dominguez-Ordonez1, Jennifer G. Fowlie1, Pavel Lapa2, Yoav Kalcheim4, Colline Adda2, Minhan Lee2, Stefania Kuzmenko1, Marcelo Rozenberg5, Ivan Schuller2, Jean-Marc Triscone1  
1Université de Geneve, 2University of California, San Diego, 3Université Paris-Saclay 4Technion-Israel Institute of Technology

15:45
Effect of Physical Properties on Collective Behavior of Coupled Vanadium Dioxide Oscillators for Neuromorphic Computing Application  
Stefania Carapezzi, Ada Todri-Sanial  
Microelectronics Department, LIRMM, University of Montpellier, CNRS, Montpellier, France

16:00
Stochastic firing with exponential escape rate in Mott neurons  
Rodolfo Rocco, Javier del Valle, Henry Navarro, Pavel Salev, Ivan K. Schuller, Marcelo Rozenberg  
Université Paris-Saclay, University of Geneva University of California-San Diego, University of California-San Diego, University of California-San Diego, University of California-San Diego, Université Paris-Saclay

16:15
Discussion

16:30
Coffee

Mott Transitions and Volatile Switching Devices 2 : Veeresh Deshpande

16:45
Thermal strain engineering in V2O3 for Mott Insulator-based memory applications  
(1) Univ. Grenoble Alpes, CEA, LETI, F-38000 Grenoble, France,(2) Université de Nantes, CNRS, Institut des Matériaux Jean Rouxel, IMN, F-44000 Nantes, France,(3) Univ. Grenoble Alpes, CNRS, CEA-LETTI Minatec, LTM, 38054 Grenoble, France

17:00
Electric Mott Transition: application to neuromorphic devices  
J. Tranchant*, E. Janod, B. Corråde, M.-P. Besland, L. Cario “lead presenter”  
Institut des Matériaux Jean Rouxel (IMN), Université de Nantes, CNRS, 2 rue de la Houssinière, F-44322 Nantes Cedex 3, France

17:15
Multimodal synchronization in stochastic Mott oscillators  
E. Qiu1,2,*, P. Salev2, L. Fratino3, R. Rocco3, H. Navarro2, C. Adda2, J. Li4, M-H. Lee4, Y. Kalcheim5, M. Rozenberg3, and Ivan K. Schuller2  
1 Department of Electrical and Computer Engineering, University of California, San Diego, 9203, USA, 2 Department of Physics, Center for Advanced Nanoscience, University of California, San Diego, 9203, USA, 3 Laboratoire de Physique des Solides, CNRS, Université Paris-Saclay, 91405 Orsay Cedex, France, 4 Materials Science and Engineering Program, University of California, San Diego, 92093, USA, 5 Faculty of Materials Science and Engineering, Technion - Israel Institute of Technology, 32000 Haifa, Israel

17:30
Discussion

17:45
Closing remarks
SYMPOSIUM F

Advances and enhanced functionalities of anion-controlled new inorganic materials-ANIM 4

Symposium Organizers:

Alain DEMOURGUES, University of Bordeaux, CNRS, ICMCB

Katsuro HAYASHI, Department of Applied Chemistry, Graduate School of Engineering, Kyushu University

Michael HAYWARD, University of Oxford

Sossina HAILE, Dept. of Materials Science and Engineering, Dept. of Chemistry, Applied Physics Program; Northwestern University
Welcome and Introduction to the Symposium

Topochemical synthesis : Michael Hayward

Dehydration of electrochemically protonated oxides
Hiroshi Kageyama
Kyoto University

Topochemical Copper Deintercalation from Intergrowth Manganese Oxysulphide, Possible Competition of Cation and Anion Redox
Shunsuke Sasaki (1 and 2), Souvik Giri (1), Simon Cassidy (1), Sunita Dev (3), Maria Batuk (4), Daphne Vandemeulebroucke (4), Claire Grey (3), Joke Hadermann (4), Simon Clarke (1)

Topochemical fluorination of intermetallics as new route for iron-based Metastable rare earth oxysulfides synthesised by sulfur topochemical

Low temperature synthesis of alkaline earth oxynitridosilicate phosphors using metal carbodiimides
Yuki Masubuchi, Naoki Sada, Hiroshi Shibuya, Miko Higuchi
Hokkaido University

In situ and ex situ electron microscopy revealing diverse structural transformations of LaxSr2-xMnO4-δ upon gas reduction
Yuehi Shimakawa, Yoshitaka Kosugi, Masato Goto
Kyoto University

Hybrid electronics in GaV4O8 and comparison with its chalcogenide friends

Metastable rare earth oxysulfides synthesised by sulfur topochemical deintercalation
L.-B. Mvélé, S. Sasaki, M.T Caldes, C. Guillot Deudon, E. Gautron, I. Braems, E. deintercalation

Topotactic fluorination of intermetallics as new route for iron-based superconductivity
Jean-Baptiste Vaney1, Baptiste Vignolle1, Etienne Gaudin1, Etienne Durand1, Simon J Clarke
University of Oxford

Discussion

Electronic materials : Michael Hayward

Tuning the chemical and physical properties of mixed-anion compounds
Simon J Clarke
University of Oxford

Giant entropy changes in charge-transition oxides
Yuichi Shimakawa, Yoshitaka Kosugi, Masato Goto
Kyoto University

Hybrid electronics in GaV4O8 and comparison with its chalcogenide friends

Metastable rare earth oxysulfides synthesised by sulfur topochemical deintercalation
L.-B. Mvélé, S. Sasaki, M.T Caldes, C. Guillot Deudon, E. Gautron, I. Braems, E. deintercalation

Topotactic fluorination of intermetallics as new route for iron-based superconductivity
Jean-Baptiste Vaney1, Baptiste Vignolle1, Etienne Gaudin1, Etienne Durand1, Simon J Clarke
University of Oxford

Discussion

Lunch and Plenary
17:15 Fe and Co-based oxynitrides as electrodes for high temperature fuel cells / electrolysis applications
Jacinthe Gamon,* Jean-Marc Bassat,* Alain Demourgues,* Joke Hadermann,* Maria Batuk,** Mathieu Dutille,* Sébastien Fourcade,* Etienne Durand,* Christine Labrugère,* Elise Bonnet,*
*Institut de Chimie de la Matière Condensée de Bordeaux (ICMCB), Université de Bordeaux, Bordeaux INP, CNRS, UMR 5026, 87 Avenue du Dr Albert Schweitzer, 33600 Pessac, France **EMAT, University of Antwerp, Groenenborgerlaan 171, B-2020 Antwerp, Belgium. ***PLACamat, UMS6269, CNRS-Université de Bordeaux, 87 Avenue Docteur Albert Schweitzer, 33600 Pessac, France
F PI.3

17:15 Low temperature topochemical manipulation of Ru-containing perovskite oxides
Zhlin Liang, Michael A. Hayward
Department of Chemistry, University of Oxford, Inorganic Chemistry Laboratory, Oxford OX1 3QZ, UK
F PI.4

17:15 Structure and magnetism of soft chemically synthesized Sr2MnO2Li2Se2
Souvik Giri and Simon Clarke
Inorganic chemistry laboratory, Department of Chemistry, University of Oxford, Oxford OX1 3QR, UK
F PI.5

17:15 Understanding of the role of anions in alkali-rich antiperovskites towards enhanced ionic conductivity
Shenghao Gao, Susumu Fujii, Thibault Broux, Cédric Tassel, Tong Zhu, Hiroki Ubukata, Kentaro Yamamoto, Kotaro Fuji, Masatomo Yashima, Yoshisharu Uchimoto, Akhide Kuwabara, Hiroshi Kageyama
Kyoto University, Shenghao Gao, Thibault Broux, Cédric Tassel, Hiroki Ubukata, Kentaro Yamamoto, Tong Zhu, Yoshisharu Uchimoto, Hiroshi Kageyama Japan Fine Ceramics Center: Susumu Fujii, Akhide Kuwabara Tokyo Institute of Technology: Kotaro Fuji, Masatomo Yashima
F PI.6

17:15 Discovering Efficient Biomass Valorisation Electrocatalsysts Via Anion Control In Phosphate Based Materials
Kevin LEMOINE, Nikolay KORNIENKO, Yoshishikui INAGUMA Gakushuin University, Tokyo, Japan, Université de Montréal, Montréal, Canada
F PI.7

17:15 Photochromism and Photoconductivity in RE oxyhydride thin films
Chaykina, D.(1), Nafezarefi, N.(1), Colombi, G.(1), Cornelius, S.(1,2), Dann, B.(1)
Delft University of Technology, The Netherlands
F PI.8

17:15 Manipulation of the anionic and cationic sub-lattices of pyrochlores.
Edouard Boivin [1], Frédérique Pourpoint [1], Sébastien Szitlez [1], Pascal Roussel [1].
[1] Univ. Lille, CNRS, Centrale Lille, ENSCL, Univ. Artois, UMR 8181-UCCS-Unité de Catalyse et Chimie du Solide, F-59000 Lille, France
F PI.9

17:15 Combining (PO4)3- and O2- (oxo)-anions into a new class of layered tungsten bronzes, with fine redox control
H. Nimoh (1, 2), G. Colombi, C. Chaykina, B. Boshuizen, M. Bus, H. Schreuders, T. J. Savenije, B. Dann
Delft University of Technology, The Netherlands
F PI.10

17:15 Eco-friendly synthesis of CaFe2O4 for electrical energy storage
H. Coulinho Gomes1, S. Soreto Teixeira1, Jofé F. Nunes2, Cristiane C.M. Salgueiro2, A.F.L. Almeida3. F.A. Freire3 and M.P.F. Graco1*
1 INN-Physics department, University of Aveiro, 3810-193 Aveiro-Portugal 2 Department of Veterinary Medicine, State University of Ceará, Fortaleza, Ceará, Brazil 3 Department of Mechanical Engineering, Federal University of Ceará - Brazil
F PI.11

18:00 E-MRS EU-40 Materials Prize & MRS Mid-Career Researcher Award Presentations
Thursday June 2

09:00 Thin film engineering of mixed anion perovskites
T. Hasegawa(1), T. Katayama(2), A. Chikamatsu(3) and Y. Hirose(1)*
(1) 1University of Tokyo, Japan (2) Hokkaido University, Japan (3) Ochanomizu University, Japan
F V.1

09:30 Photochromism of rare-earth oxyhydroxides studied by Positron Annihilation
Ziyi Wu, Tom de Krom, Giorgio Colombi2, Diana Chaykina2, Henk Schut1, Marcel Dickmann3, Werner Egger3, Christoph Hugenschmidt4, Eikes Brück5, Bernard Dam2, Stephan W.H. Eijt1
1 Department of Radiation Science and Technology, Faculty of Applied Sciences, Delft University of Technology, Delft, The Netherlands, 2 Materials for Energy Conversion and Storage, Department of Chemical Engineering, Faculty of Applied Sciences, Delft University of Technology, Delft, The Netherlands, 3 Institut für angewandte Physik und Messtechnik, Bundeswehr Universität München, Germany, 4 Physics Department and Heinz Maier-Leibnitz Zentrum (MLZ), TU München, Germany
F V.2

09:45 Tuning the composition of tantalu oxynitride thin films thanks to reactive sputtering techniques for photocatalytic applications
A. Diop 1, B. A. Bouzou 1, F. Zoubian 1, C. Tavot-Gueho 1, J. Cellier 1, G. Monier 3, G. Robert-Groutet 3, E. Thomas 1, L. Thomas 2
1 Université Clermont Auvergne, CNRS, Institut de Chimie de Clermont -Ferrand, F-63000 Clermont-Ferrand 2 Université Paris Sciences et Lettres, Laboratoire Procédés Matériaux Energie Solaire (PROMES), Tecnosud-Rambata de la Thermodynamique, 66100 Perpignan cedex, France 3 Université Clermont Auvergne, Clermont Auvergne CNRS, Institut Pascal, F-63000 Clermont-Ferrand, France
F V.3

10:00 Influence of crystal structure and defects on photochromic neodymium oxyhydride thin films
(1)Materials for Energy Conversion and Storage, Department of Chemical Engineering, Delft University of Technology, The Netherlands
(2)Fraunhofer Institute of Organic Electronics, Electron Beam and Plasma Technology (FEP), Germany
F V.4

10:15 Discussion

10:30 Novel nitrogen-based solids by means of synthetic and theoretical approaches
Dr. Richard Dronskowski
Chair of Solid-State and Quantum Chemistry, RWTH Aachen University
F VI.1

11:00 BiA0C8C2 (A = Ba, Sr, Ca) with Double and Triple Fluorite Layers for Visible-light Water Splitting
Chengchao Zhong, Daichi Kato, Kanta Ogawa, Cédric Tassel, Fujio Iizumi, Hajime Suzuki, Shogo Kataguchi, Takashi Saito, Akinori Saeki, Ryu Abe,* Hiroshi Kageyama*
Chengchao Zhong, Daichi Kato, Kanta Ogawa, Cédric Tassel, Fujio Iizumi, Hajime Suzuki, Shogo Kataguchi, Takashi Saito, Akinori Saeki, Ryu Abe,* Hiroshi Kageyama*
Chengchao Zhong (Graduate School of Engineering, Kyoto University, Kyoto, Japan), Daichi Kato (Graduate School of Engineering, Kyoto University, Kyoto, Japan), Kanta Ogawa (Graduate School of Engineering, Kyoto University, Kyoto, Japan), Cédric Tassel (Graduate School of Engineering, Kyoto University, Kyoto, Japan), Fujio Iizumi (Graduate School of Engineering, Kyushu University, Fukuoka, Japan), Hajime Suzuki (Graduate School of Engineering, Kyushu University, Fukuoka, Japan), Shogo Kataguchi (ISIP, Japan Synchrotron Radiation Research Institute, Hyogo, Japan), Takashi Saito (High Energy Accelerator Research Organization (KEK), Ibaraki, Japan), Akinori Saeki (Graduate School of Engineering, Osaka University, Osaka, Japan), Ryu Abe (Graduate School of Engineering, Kyushu University, Fukuoka, Japan), Hiroshi Kageyama (Graduate School of Engineering, Kyushu University, Fukuoka, Japan)
F VI.2

11:15 Competition between the α- and the layered LaOInS2 structure types upon cationic and anionic substitution: impact on the photocatalytic activity
Maxime Braun (1), Sébastien Szitlez (1), Eduoard Boivin (1), Laurent Cario (2), Pascal Roussel (1), Houria Kabbour (1)
(1)INN-Physics department, University of Aveiro, 3810-193 Aveiro-Portugal 2 Université Perpignan Via Domitia, Laboratoire Procédés Matériaux Energie Solaire (PROMES), Tecnosud-Rambata de la Thermodynamique, 66100 Perpignan cedex, France 3 Université Clermont Auvergne, Clermont Auvergne CNRS, Institut Pascal, F-63000 Clermont-Ferrand, France
F VI.3
16:30 Bismuth Oxyfluoride Compounds as Emerging Photocatalytic Materials: from powders to thin films
Pierre BONNET (1), Sara IBRAHIM (1), Angélique BOUSQUET (1), Mohamed SARAKHA (1), Jushan CHENG (2), Wenali HUANG (2), Dandan CUI (2), Ying SUN (2), Lei WANG (2), Cong WANG (2), Audrey BONDELLE (3) and Céline MAGIS (3)
(1) Université Clermont Auvergne, Institut de Chimie de Clermont-Ferrand (ICCF), 24 Avenue Blaise Pascal, 63178 Aubière Cedex, France (2) Center for Condensed Matter and Materials Physics, Department of Physics, Beihang University, Beijing (3) IFP Energies Nouvelles (IFPEN), Solaize, France

17:00 An innovative route to nanometric transition metal nitrides and carbides
Franck Tessier 1, Guillaume Dubois 1, Kévin Guy 1,2, Fabien Grasset 1,3, Stéphane Costier 1, Helena Kaper 2, Caroline Tardivat 2, Naoki Ohashi 3,4, Tetsuo Uchikoshi 3,4, David Lechevallier 3
1 Univ. Rennes, CNRS, Institut des Sciences Chimiques de Rennes – UMR 6226, 35000 Rennes, France 2 Ceramic Synthesis and Functionalization Laboratory, UMR 3080, SGR Provence-CNRS, 84306 Cavaillon, France 3 CNRS - Saint-Gobain – NIMS - IRL, 36269 Laboratoire pour l'Innovation des Matériaux et Structures (LINK), National Institute for Materials Science, Tsukuba 305-0044, Japan 4 Research Center for Functional Materials, National Institute for Materials Sciences, Tsukuba, Japan

15:45 Polar oxysulfides for water splitting photocatalysis
Sandy Al Bacha (1,2), Sébastien Salzeck (1), Emma E. McCabe (2) and Houria Kabbour (1)
(1) Université Lille, CNRS, Centrale Lille, ENSCIL, Université Ariaos, UMR B181, UCCS, Unité de Catalyse et Chimie du Solide, F-59000 Lille, France. (2) School of Physical Sciences, University of Kent, Canterbury, Kent CT2 7NH, U.K.

16:00 An innovative route to nanometric transition metal nitrides and carbides
Franck Tessier 1, Guillaume Dubois 1, Kévin Guy 1,2, Fabien Grasset 1,3, Stéphane Costier 1, Helena Kaper 2, Caroline Tardivat 2, Naoki Ohashi 3,4, Tetsuo Uchikoshi 3,4, David Lechevallier 3
1 Univ. Rennes, CNRS, Institut des Sciences Chimiques de Rennes – UMR 6226, 35000 Rennes, France 2 Ceramic Synthesis and Functionalization Laboratory, UMR 3080, SGR Provence-CNRS, 84306 Cavaillon, France 3 CNRS - Saint-Gobain – NIMS - IRL, 36269 Laboratoire pour l'Innovation des Matériaux et Structures (LINK), National Institute for Materials Science, Tsukuba 305-0044, Japan 4 Research Center for Functional Materials, National Institute for Materials Sciences, Tsukuba, Japan

17:15 Surface Layer on Ternary Nitrides for Electrocatalytic Reactions
Yao Yuan [1,2], Samira Adimi [2], Peilin Liao [3], Ye Zhu [4], Jiecheng Wang [5], Minghui Yang [2] and J. Paul Atfield* [1]

15:30 Hexagonal Argyrodites: A New Family for Lithium Ion Conduction
Alexandra Morscher, Matthew S. Dyer, Benjamin B. Duff, Guopeng Han, Jacinthe Park 1,2,3,4, Chloé Pablos 1,2,3, Emmanuel Petit 1,3, Jacob Olchowka 1,3, Dany Carlier 1,3, Laure Monconduit, Dany Carlier, Laurence Croguennec 1,3, Edouard Boivin 1,2,3, Long H. B. Nguyen 1,2,3, Sunkyu Batteries Using Vanadium Phosphates
Laurence Croguennec 1,3, Edouard Boivin 1,2,3, Long H. N. Nguyen 1,2,3, Sunkyu Park 1,2,3,4, Chloé Pablos 1,2,3, Emmanuel Petit 1,3, Jacob Olchowka 1,3, Dany Carlier 1,3, Antonella Iadecola 1,3, Jean-Noël Chotard 2,3 and Christian Masquelier 2,3
1 Université de Bordeaux, CNRS, Bordeaux INP, ICMCB UMR CNRS #5026, Pessac, France. 2 Laboratoire de Réactivité et de Chimie des Solides, Université de Picardie Jules Verne, CNRS-UMR 7314, F-80039 Amiens Cedex 1, France 3 R3SE, Réseau Français sur le Stockage Electrochimique de l’Energie, FR CNRS #3459, Amiens F-8039 Cedex 1, France 4 TIAMAT, 15 Rue Baudelocque, 80000 Amiens

16:15 Discussion
Tuning oxynitride, nitrides and oxyfluorides : Michael Hayward

16:30 Nitride Tuning of Transition Metal Oxides
Amparo Fuertes
Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC), Campus UAB, 08193 Bellaterra (Spain)

F.7
SYMPOSIUM G

Materials for sustainable energy technologies (M-SET)

Symposium Organizers:

Adam F. Lee, RMIT University

Arunugam Manthiram, University of Texas at Austin

Pierre Ruterana, Centre de Recherche sur les ions les matériaux et la photonique

Yuping Wu, Nanjing University of Technology

Selected papers will be published in a Special Issue of Materials Today Chemistry (Elsevier).
8:45 Welcome and Introduction to the Symposium, Symposium Organizers

Electrodes : Vincenzo PALERMO, Yuping Wu

09:00 Deciphering the electrochemical behavior of lithium metal under supergravity
Yuliang Gao, Fahong Qiao, Jingyuan You, Zeningyen Ren, Nan Li, Kun Zhang, Chao Shen, Ting Jin, Keyu Xue*
State Key Laboratory of Solidification Processing, Center for Nano Energy Materials, School of Materials Science and Engineering, Northwestern Polytechnical University

09:30 Disentangling the origin of charge storage in laser-deposited nitrogen-doped nanocarbon-NIO electrodes
Pablo García Lebiere, (a) Angel Pérez del Pino, (a) Enikő Győrgy, (a) Constantin Logovnic, (a) Denys Naumenko, (b) Heinz Amertisch, (d) Pjv Rajak, (e) Regina Ciancio, (e)
(a) Institute of Materials Science of Barcelona, ICAMAB-CSIC, Spain, (b) National Institute for Lasers, Plasma and Radiation Physics, Romania, (c) National Institute for Materials Physics, Romania, (d) Institute of Inorganic Chemistry, Graz University of Technology, Austria, (e) Instituto Officina dei Materiali-CNIR, Trieste, Italy

09:45 The Proton Surface Transfer Property in BZY from Density Functional Theory
ZhaoWenjuan, ZhuBin*, Wangjun*, LinBin
Southeast University, University of Electronic Science and Technology of China.

10:00 Impact of the Iron-Doping on the structural integrity of Co-free Li-Rich Layered oxides (LRLO) for positive electrodes in Lithium Manganese cathode electrodes for structural lithium ion batteries
Jaime S. Sanchez a, Johanna Xu a, Zhenyuan Xia a, b, *, Jinhua Sun a, Leif E. Asp c,d, Sylvain Le Tonquse c, Takao Mori d, Geoffroy Chevalier b, Claude Estournès e, Linda Abbassi a,b, David Mesguich b, David Berthebaud c, Bhuvanesh Srinivasan f, Daya Shen, Ting Jin, Keyu Xue*
Advanced Carbon Materials and Applied Technology, Hunan University, Changsha 410082, Hunan, P. R. China, (a) Institute of Condensed Matter and Nanosciences, Molecular Chemistry, Materials and Catalysis, Université catholique de Louvain, Louvain-la-Neuve, Belgium, (b) College of Materials Science and Engineering, Hunan Province Key Laboratory for Advanced Carbon Materials and Applied Technology, Hunan University, Changsha 410082, Hunan, P. R. China. (c) Department of Chemistry, University of Naples “Federico II”, Naples, Italy, (d) Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)-Portici, Research Centre, Piazzale F. Fermi 1, Portici, NA, Italy, (e) Department of Chemical Science, University of Naples “Federico II”, Naples, Italy

10:15 Discussion Electrodes I

10:30 Effect of partial conductivities on the polarisation resistance of positrodes for proton ceramic fuel cells and electrolyzers
Ragnar Strandbakke, Kalpana Singh, Truls Norby
Centre for Materials Science and Nanotechnology, Department of Chemistry, University of Oslo, FERMO, Gaustadalleen 21, NO-0349 Oslo, Norway

10:45 Thermoelectric performance of nanostructured ??FeSi2 alloys synthesized by G. E.3
Sanne van der Wegen, Michiel van Herwaarden, Arno Middelburg, Astrid Eggermont, Ernst van der Wielen, and Arno van den Berg
University of Twente, Institute for Lasers, Plasma and Radiation Physics, Netherlands.

11:00 Unveiling the electrochemistry of conjugated alka-l-ion disulfonyl-methide as organic positive electrode materials
Yan Zhang a,b, Petru Apostol a, Xiaohua Chen b, Xiaolong Guo a, Xuelian Liu a, b, *, Yuliang Gao, Fahong Qiao, Jingyuan You, Zeningyen Ren, Nan Li, Kun Zhang, Chao Shen, Ting Jin, Keyu Xue*
Advanced Carbon Materials and Applied Technology, Hunan University, Changsha 410082, Hunan, P. R. China, (a) Institute of Condensed Matter and Nanosciences, Molecular Chemistry, Materials and Catalysis, Université catholique de Louvain, Louvain-la-Neuve, Belgium, (b) College of Materials Science and Engineering, Hunan Province Key Laboratory for Advanced Carbon Materials and Applied Technology, Hunan University, Changsha 410082, Hunan, P. R. China.

11:15 Electrochromic coating of LiFePO4/Graphene oxide on carbon bers as cathode electrodes for structural lithium ion batteries
Jaime S. Sanchez a, Johanna Xu a, Zhenyuan Xia a, b, *, Jinhua Sun a, Leif E. Asp c, Vincenzo Palermo a,b,*
(a) Industrial and Materials Science, Chalmers University of Technology, Hostasvägen 7B, 41258, Göteborg, Sweden, (b) Instituto per la Sintesi Organica e la Fotoreattività, CNR, via Gobetti 101, 40129, Bologna, Italy

11:30 Effect of pre-lithiation on solid electrolyte interphase of SiOx electrodes combined with Ni-rich cathodes for electric vehicles
(1) Helmholtz-Institute Münster IEK-12, Forschungszentrum Jülich GmbH, Correnstraße 46 48149 Münster, Germany, (2) CIQEDT, Basque Research and Technology Alliance (BRTA), Paseo Miramon 196, 20014, Donostia-San Sebastian, Spain, (3) VARTA Micro Innovation GmbH, Stremyngasse 9, 8010 Graz, Austria, (4) MEET - Münster Electrochemical Energy Technology, Correnstraße 46, 48149 Münster, (5) Politecnico di Milano, Dept. of Energy Via Lambruschini 4, 20136 Milan, Italy.

12:00 Discussion Electrodes II

G. E.2

12:00 Discussion Electrodes II

Peroskytes : Judith Driscoll, Pierre Ruterana

13:30 G. PER.1
The Electronic Structure of MAI-Based Perovskite Solar Cells: Detailed Band Diagram Determination by Photoemission Spectroscopy
Tim Hellmann, Chitarranjan Das, Tobias Abzieher, Clemens Maier, Michael Wussler, Ulrich Paetzold, Thomas Mayer, Wolfram Jaegermann, Tobias Hellmann, Chitarranjan Das, Clemens Maier, Michael Wussler, Ulrich Paetzold, Thomas Mayer, Wolfram Jaegermann: Surface Science Group Materials Science Department Technical University of Darmstadt Alairch-Weiss-Straße 2, 64287 Darmstadt, Germany Tobias Abzieher, Ulrich Paetzold: Light Technology Institute Karlsruhe Technology Institute Engessenserstraße 13, 76131 Karlsruhe, Germany

14:00 Nickel oxide and copper-based inorganic hole transport layers in perovskite solar cells: a first-principles study
A. Pecoraro (1), P. Delli Veneri (2), M. Pavone (3), A. B. Muñoz-García (1)
(1) Department of Physics E. Pancini, University of Naples Federico II, Naples, Italy, (2) Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)-Portici, Research Centre, Piazzale F. Fermi 1, Portici, NA, Italy, (3) Department of Chemical Science, University of Naples Federico II, Naples, Italy

14:15 Strong Excitonic Effects in Zero-Dimensional Vacancy-Ordered Perovskites (Cs2TX6)
Seán R. Kavanagh, Shanti Lija, Christopher N. Savory, Gerasimos Konstantatos, Aron Walsh, David O. Scanlon
Royal College of Science and Technology, University of Edinburgh, Edinburgh, UK, Thomas Young Centre and Department of Materials, Imperial College London, London SW7 2AZ, UK. XCOO-Institut de Ciencies Fotòniques, The Barcelona Institute of Science and Technology, Castelldefels 08860 Barcelona, Spain, Department of Materials Science and Engineering, Yonsei University, Seoul 03722, Republic of Korea. ICREA-Institució Catalana de Recerca i Estudis Avançats, Lluís Companys 23, 08010 Barcelona, Spain

14:45 Disorder Enhanced Raman Scattering
Menahem, Matan(1), Asher, Maon(1), Olel Helmman(1), Sahran, Sam(1), Benshalom, Nimrod(1), Aharon, Sigalit(1), Kornoko, Roman(1), Yaffe, Omer(1)
(1) Weizmann Institute of Science, Israel  * lead presenter

15:00 Discussion Perovskites I

15:15 Impact of small compositional and nanoscale morphology variations on the efficiency and stability of perovskite solar cells
Lyubov A. Frolova (1), Lyubov A. Frolova (1), Nimrod(1), Aharon, Sigalit(1), Korobko, Roman(1), Yaffe, Omer(1)
(1) Weizmann Institute of Science, Israel

15:30 Strong Excitonic Effects in Zero-Dimensional Vacancy-Ordered Perovskites (Cs2TX6)
Seán R. Kavanagh, Shanti Lija, Christopher N. Savory, Gerasimos Konstantatos, Aron Walsh, David O. Scanlon
Royal College of Science and Technology, University of Edinburgh, Edinburgh, UK, Thomas Young Centre and Department of Materials, Imperial College London, London SW7 2AZ, UK. XCOO-Institut de Ciencies Fotòniques, The Barcelona Institute of Science and Technology, Castelldefels 08860 Barcelona, Spain, Department of Materials Science and Engineering, Yonsei University, Seoul 03722, Republic of Korea. ICREA-Institució Catalana de Recerca i Estudis Avançats, Lluís Companys 23, 08010 Barcelona, Spain

15:45 Disorder Enhanced Raman Scattering
Menahem, Matan(1), Asher, Maon(1), Olel Helmman(1), Sahran, Sam(1), Benshalom, Nimrod(1), Aharon, Sigalit(1), Kornoko, Roman(1), Yaffe, Omer(1)
(1) Weizmann Institute of Science, Israel  * lead presenter

16:00 Discussion Perovskites I

A. Pecoraro (1), P. Delli Veneri (2), M. Pavone (3), A. B. Muñoz-García (1)
(1) Department of Physics E. Pancini, University of Naples Federico II, Naples, Italy, (2) Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)-Portici, Research Centre, Piazzale F. Fermi 1, Portici, NA, Italy, (3) Department of Chemical Science, University of Naples Federico II, Naples, Italy

16:15 Nickel oxide and copper-based inorganic hole transport layers in perovskite solar cells: a first-principles study
A. Pecoraro (1), P. Delli Veneri (2), M. Pavone (3), A. B. Muñoz-García (1)
(1) Department of Physics E. Pancini, University of Naples Federico II, Naples, Italy, (2) Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)-Portici, Research Centre, Piazzale F. Fermi 1, Portici, NA, Italy, (3) Department of Chemical Science, University of Naples Federico II, Naples, Italy
17:00 Computational Design of Thermoelectric Alloys
Jiaxing Qu
University of Illinois at Urbana-Champaign

G P1.6

15:30 Low-cost scalable synthesis of efficient HTL materials for perovskite solar cells via oxidative polymerization of triarylamines
D.A. Kravets, L.A. Latyva, A.A. Sokolova, A.A. Seleznova, L.D. Frolova, P.A. Troshin
Institute of Problems of Chemical Physics of Russian Academy of Sciences, Chernogolovka, Russia 2nd Faculty of Fundamental Physics & Chemical Engineering, Lomonosov Moscow State University, Moscow, Russia 3rdSian University of Technology, Glawice, Poland

G PER.7

15:45 First-principles investigation of optoelectronic and transport properties of double perovskite Cs2TiX6 (X = Cl, Br)
M. Khull, G. El Hallani, N. Fazouani, El Hassan Alabba, Adil Es-Smari, Elhousine Maskar, Samah Al-Qaisi
(1)Higher School of Technology, Sultan Moulay Slimane University, 54000 Khénifra. Morocco (2)CRMIF of Beni Mellal-Khenifra. Morocco (3)Laboratory of Physics of Condensed Matters and Renewable Energies, Faculty of Sciences and Technologies, Hassan II University of Casablanca, B.P. 146, 20650 Mohammedia, Morocco (4)Nanomaterial and Nanotechnology Unit. E. N. S. Rabat. Energy Research Center, Faculty of Sciences, Mohammed V University, B.P. 1014 Rabat, Morocco (5)Palestinian Ministry of Education and Higher Education, Nablus, Palestine

G PER.8

16:00 Efficient and stable copper-based hole transport layers for perovskite solar cells
Alexander W. Stewart, Bernabé Mari Souchace
Université Politéchnique de Valencia

G PER.9

16:15 Towards High-Performance, Low-Temperature Solid Oxide Cells with Vertically Aligned Nanocomposite Films
Mallthew P. Wells, Adam J. Lovett & Judith L. MacManus-Driscoll
Department of Materials Science and Metallurgy, University of Cambridge, Cambridge CB3 0FS, United Kingdom

G PER.10

16:45 Discussion Perovskites II

17:00 The Polycationic Doping Effect on the Ionic Conductivity Properties of LATP Solid Electrolyte
A. Mashekov1,2, Ye. Bataltash, M. Yegamkulov1,2, Z. Bakanov1,2, I. Trussov1, A. Mukanova1,2
Institute of Batteries, 53, Kabanbay Batyr Avenue, Z0SP40X Nur-Sultan, Kazakhstan, 2ndNazarbayev University, 53, Kabanbay Batyr Avenue, Z0SP40X Nur-Sultan, Kazakhstan

G P1.1

17:00 Composite Anode Based on Red Phosphorus for Lithium-Ion Batteries
Z. Yelmesova, A. Naunzybaeva, A. Mashekov, Z. Bakanov, A. Mukanova
Institute of Batteries, 53, Kabanbay Batyr Avenue, Z0SP40X Nur-Sultan, Kazakhstan

G P1.2

17:00 Enhancing the Ionic Conductivity in Li-Garnet Thin Film Solid State Electrolytes
M. Yegamkulov, A. Shonagolova, B. Uzakbaileyu, A. Mukanova, Zh. Bakanov
School of Engineering and Digital Science, Nazarbayev University, Z0SP40X Nur-Sultan, Kazakhstan

G P1.3

17:00 Piezoelectric devices for generation of electrical energy
Irina Chilibin
National Institute of Research and Development for Optoelectronics, INOE-2000 409 Atomistilor Street, P.O. Box MG-5, 077125, Magurele, Romania

G P1.4

17:00 Deep insights into kinetics and structural evolution of dimension-engineered TiNi2O7 anode for lithium storage
Wenlei Xu1, Yaolin Xu2, Veronika Grzinic2, Thorsten Schultz3, Yan Lu2, Norbert Koch3, Nicola Pinnati1
1Institut für Chemie und IRIS Adlershof, Humboldt-Universität zu Berlin, Brok-Taylor-Str. 2, 12489 Berlin, Germany 2Department of Electrochemical Energy Storage, Helmholtz-Zentrum Berlin für Materialien und Energie, 14109 Berlin, Germany 3Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Albert-Einstein Str. 15, 12489 Berlin, Germany

G P1.5

17:00 Cu2P nickel foam as a bifunctional electrocatalyst for urea and hydrazine assisted water splitting
Harshad A. Bandal, Herr Kim
Department of Energy Science and Technology, Environmental Waste Recycle Institute, Myongji University, Republic of Korea

G P1.7

17:00 Laser-pyrolysis Ge–Si based nanoparticles and their composites with reduced graphene oxide for Li-ion battery anodes
C. Fleača, F. Dumlitrache, V. Craciun, M. Dumitrul, L. Gavrila-Florescu, C. Ungureanu, M. Buga
1 NILPC + – Institute for Lasers, Plasma and Radiation Physics, Atomistor str. No.409, Magurete-Bucharest, Romania, 2 ICSI – National Institute for Isotopic and Cryogenic Technologies, Uzinei str. No.4, Rm. Valcea, Romania

G P1.8

17:00 Preparation of a Wearable Single Electrode Triboelectric NanoGenerator
Y. Nurmakenov, G. Kalmuldina, R. Kuchkin
Y. Nurmakenov and R. Kuchkin: Nazarbayev University, School of Engineering and Digital Sciences, Nazarbayev University, Kabanbay Batyr Ave. 53, Nur-Sultan 010000 Kazakhstan G. Kalmuldina: Nazarbayev University, Department of Mechanical and Aerospace Engineering, School of Engineering and Digital Sciences, Nazarbayev University, Kabanbay Batyr Ave. 53, Nur-Sultan 010000 Kazakhstan

G P1.9

17:00 Synthesis and characterization of band gap tuned Cu2ZnSn(Sn1-xGex)S4 nanograins powders
L. Mengo, M. Kauk-Kuusk, K. Muska, V. Mikli, R. Kaupmees, M. Grossberg
Department of Materials and Environmental Technology, Tallinn University of Technology, Ehitajate tee 5, 19086 Tallinn, Estonia

G P1.10

17:00 Silicon Clathrates films for Photovoltaic Applications Investigated by Surface Photovoltage
(1)Laboratoire des Sciences de l’Ingénieur, de l’Informatique et de l’Imagerie (iCube), CNRS and University of Strasbourg, 23 rue du Loess, 67037 Strasbourg, France (2)Université de Lyon, Institut des Nanotechnologies de Lyon INL-UMR5270, CNRS, INSA Lyon, 7 Avenue Jean Capelle, 69621 Villeurbanne, France (3)Institut de Physique et Chimie des Matériaux de Strasbourg (IPCMS), UMR7504, CNRS and University of Strasbourg, 23 rue du Loes, 67034 Strasbourg, France

G P1.11

17:00 Continuous hydrothermal flow synthesis of Li-ion batteries’ cathodic materials
Federico Bartoni1, Dario Mosconi2, Silvia Gross1
1Università degli Studi di Padova, Italy 2Particular Materials srl, Padova, Italy

G P1.14

17:00 Alloying leads to drastic reduction of lattice thermal conductivity of half-Heusler compounds
Rasmus Tranå, Ole Martin Levvik, Kristian Berland
Department of Mechanical Engineering and Technology Management, Norwegian University of Life Sciences, SINTEF Sustainable Energy Technology, Department of Mechanical Engineering and Technology Management, Norwegian University of Life Sciences
17:00 Molecular Engineering of Polytriamine-Based Hole-Transport Materials for p-i-n Perovskite Solar Cells: Methyl Groups Matter
Mohamed M. Elnaggar,a,b,c,* Lavrenty G. Gutseva,a Nikita A. Emelianov,a Petr M. Kuznetsova, Lyubov A. Frolova,a Sergey M. Aldoshina and Pavel A. Troshin,a The Institute for Problems of Chemical Physics of the Russian Academy of Sciences, Semenov Prospect 1, Chernogolovka 141432, Russia b Moscow Institute of Physics and Technology, Dolgoprudny 141700, Moscow, Russia c Department of Physics, Faculty of Science, Tanta University, Tanta 31527, Egypt d Institute for Micromanufacturing, Louisiana Tech University, Ruston LA 71272, United States e Silesian University of Technology, Akademicka 2A, Gliwice 44-100, Poland

17:00 Bioconstruction of electro active Cu morphologies with possible application in CO2 reduction
Iacob, M.T. (1, 2), Stamatin, I. (1,2), Ghinea, A. (3), Diac, C. (1), Nechita, C. (2), Moisescu, C. (3), Ardelean, I. (3), Stamatin, S.N (1,2)
(1) iNano-SAE Research Centre, PO Box MG-38, Bucharest – Magurele, Romania (2) University of Bucharest, Physics, ICUB, Bucharest, Romania (3) Institute of Biology Bucharest, Romanian Academy, Splaiul Independentei 296, Bucharest 060031, Romania

17:00 Coupling electrochemical active Li4Ti5O12 with PVDF as a composite solid electrolyte for solid state lithium metal battery
Qi Zhou1, Rui Sun1, Xiaosong Xiong1, Bohao Peng1, Yusong Zhu1, Yuhui Chen1, Zhaogeng Wang1, Yujing Wu1,2*
1State Key Laboratory of Materials-oriented Chemical Engineering, School of Energy Science and Engineering, Nanjing Tech University, Nanjing, Jiangsu 211166, P. R. China, 2School of Energy and Environment, South East University, Nanjing, Jiangsu 211818, P. R. China

17:00 The ionic conductive properties of two-dimensional ZnO-Zn6Al2O9 nanocomposite membrane used for advanced fuel cells
Laiwen Huang, Xin Chen, Yan Wu*
Engineering Research Center of Nano-Geo Materials of Ministry of Education, Faculty of Materials Science and Chemistry, China University of Geosciences, 388 Lumo Road, Wuhan 430074, China

17:00 Interface channels accelerate ion transport through solid carbonate coated Gd0.1Ce0.9O1.9 (GDC)
Hao Wang, Wenhuan Zhao, Jiqing Liu, Enyi Hu, Yifei Zhang, Shuo Wan, Bin Zhu, Qi Fan, Faze Wang
Jiangsu Provincial Key Laboratory of Solar Energy Science and Technology/Energy Storage Research Center, School of Energy and Environment, Southeast University, No. 2 St Pai Lou, Nanjing, Jiangsu 210096, P. R. China

17:00 High-quality electrolytes for low-temperature solid oxide fuel cells
Yingbo Zhang, Jiaoxue Liu, Xin Jia, Decai Zhu, Xinfang Li, Yuzhao Ouyang, Xiaowei Gao, Jie Yu, Chengjun Zhu*
Key Laboratory of Semiconductor Photovoltaic Technology of Inner Mongolia Autonomous Region, School of Physical Science and Technology, Inner Mongolia University, 235 West Daxue Street, Hohhot, 010021, China

17:00 Research on Composite Oxide Materials as Composite Electrolytes for Low Temperature Solid Oxide Fuel Cells
Yuzhao Ouyang, Jiaoxue Liu, Yingbo Zhang, Xin Jia, Decai Zhu, Xinfang Li, Xiaowei Gao, Jie Yu, Chengjun Zhu*
Key Laboratory of Semiconductor Photovoltaic Technology of Inner Mongolia Autonomous Region, School of Physical Science and Technology, Inner Mongolia University, 235 West Daxue Street, Hohhot, 010021, China

17:00 Improvement of solid oxide fuel cell performance by semiconductor-ionic conductor composite electrolyte
Xinfang Li, Jiaoxue Liu, Xin Jia, Yingbo Zhang, Decai Zhu, Yuzhao Ouyang, Xiaowei Gao, Jie Yu, Chengjun Zhu*
Key Laboratory of Semiconductor Photovoltaic Technology of Inner Mongolia Autonomous Region, School of Physical Science and Technology, Inner Mongolia University, 235 West Daxue Street, Hohhot, 010021, China

17:00 Performance evaluation of Ca2.9-xBi0.1PrxCo4O9−δ cathode for anode-supported intermediate temperature solid oxide fuel cells
Xin Jia, Jiaoxue Liu, Yingbo Zhang, Decai Zhu, Xinfang Li, Yuzhao Ouyang, Xiaowei Gao, Jie Yu, Chengjun Zhu*
Key Laboratory of Semiconductor Photovoltaic Technology of Inner Mongolia Autonomous Region, School of Physical Science and Technology, Inner Mongolia University, 235 West Daxue Street, Hohhot, 010021, China

17:00 Azaadamantane derivatives enable improved thermal and photochemical stability of multication lead halide perovskites
Victoria V. Ozerova (1,2), Nikita A. Emelianov (1), Alexey Yu. Sukhorukov (3), Lyubov A. Frolova (1), and Pavel A. Troshin (1)
(1) The Institute for Problems of Chemical Physics of the Russian Academy of Sciences (IPCP RAS), Semenov Prospect 1, Chernogolovka, 141432, Russia (2) D. I. Mendeleev University of Chemical Technology of Russia, Miusskaya sq. 9, 125947, Moscow, Russia, (3) N. D. Zeleinsky Institute of Organic Chemistry of Russian Academy of Sciences, Leningrad Prospect, 47, Moscow
## Thermoelectrics I : Emanuel Guillemou, Romain Viennois

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td><strong>INV</strong> Superior thermoelectric performance of SiGe nanowires epitaxially integrated into thermal micro-harvesters</td>
<td>G TH.1</td>
</tr>
<tr>
<td></td>
<td>Jose Manuel Sojo Gondillo (a), Carolina Duque Sierra (a), Gerard Gadea Diez (e), Jaime Segura (b), Valentina Bonino (b), Marc Nuñez Eroles (a), Juan Carlos González-Ros投资额 (a), Denise Estrada-Wiese (c), Marc Salters (c), Marc Chaigneau (f), Luis Forseca (c), Alex Morata (a), Albert Tarancón (a,d). (a)</td>
<td>Catalonia Institute for Energy Research (IREC), Jardins de Les Dones de Negre 1, 08950, Sant Adrià de Besòs, Barcelona, Spain (b) The European Synchrotron Radiation Facility (ESRF), 71, Avenue des Martyrs, 38043, Grenoble, France (c) Institute of Microelectronics of Barcelona, IMB-CNMC SCIC, C/Titlers s/n (Campus UAB), 08193, Bellaterra, Barcelona, Spain (d) Catalan Institute for Research and Advanced Studies (ICREA), Passeig Lluis Companys 23, 08010, Barcelona, Spain (e) University of Basel, Physics Department, Klingelbergstrasse 82, 4056, Basel (f) HOFIBA, France Jobin Yvon S.A.S., CS 45002, Palaiseau, France</td>
</tr>
<tr>
<td>9:45</td>
<td>Thermoelectric properties of co-doped Tetrahedrite with Se and Ni</td>
<td>G TH.3</td>
</tr>
<tr>
<td></td>
<td>Moço, D. (a), Lopes, E. (1), Santos, L. (2), &amp; Gonçalves, A. P. (1). (1) C2TIN, DECN, Instituto Superior Técnico, Universidade de Lisboa, Campus Tecnológico e Nuclear (2) CQE, Instituto Superior Técnico, Univ. Lisboa, Portugal</td>
<td></td>
</tr>
<tr>
<td>10:00</td>
<td>Strong renormalization of Ba vibrations in thermoelectric type IX clathrate Ba24Ge100</td>
<td>G TH.4</td>
</tr>
</tbody>
</table>
|       | R. Viennois *, M. Beaudhuin *, M. M. Koza * ICMG, Univ Montpellier, CNRS, ENSCM, Montpellier, France | #
|       | (1) Institute of Solid State Physics, TU Wien, Wiedner Hauptstr. 8-10, 1040 Vienna, Austria (2) USTM, TU Wien, Wiedner Hauptstr. 8-10, 1040 Vienna, Austria | # lead presenter |
| 10:15 | ELECTRICAL CONTACTS CHARACTERIZATION OF TETRAHEDRITE BASED DEVICES | G TH.5                             |
|       | Rodrigo Coelho* (1), Yassine De Abreu (2), Francisco Carvalho (3) , Elsa Branco Lopes (1), António Peneira Gonçalves (1). (1) C2TIN, DECN, Instituto Superior Técnico, Universidade de Lisboa, Campus Tecnológico e Nuclear, 2695-066 Bobadela LRS, Portugal, (2) CESI, Campus d’enregistrement supérieur et de formation professionnelle, 15C Av. Albert Einstein, 69100 Villeurbanne, France (3) DEEC, Instituto Superior Técnico, Universidade de Lisboa, 1049-001 Lisboa, Portugal |
| 10:30 | Discussion Thermoelectric I | G TH.6                             |
| 10:45 | Violating translational symmetry in thermoelectric materials | G TH.7                             |
|       | Yuri Gin Max-Planck-Institut für Chemische Physik fester Stoffe |
| 11:00 | Seebeck coefficient of porous Silicon and graphene-doped porous Silicon | G TH.8                             |
|       | S. Nar-1,2, A. Stozi, D. Machon2, A. Bouchet1, N. Semmari1 (1) GREMI, UMR 7344, Université d’Orléans, CNRS, Orléans, France. 2. Laboratoire Nanotechnologies Nanosystèmes (L2N) - CNRS UMI 3463, Institut interdisciplinaire d’innovation technologique (SIT), Université de Sherbrooke, Canada | Corresponding author’s E-mails: *sibel.nar@univ-orleans.fr and sibel.nar@usherbrooke.ca |
| 11:15 | High Power Density Thermoelectric Generators with Skutterudites | G TH.9                             |
|       | Soulaïlane El Ouailidi1, Iuri Kogu1, Mohamed Benyahia3, Eugen Geczcz1, Uwe Knark2,1, Francis Kosior1, Philippe Masschelein1, Christophe Cando1, Anne Dauscher1, Jan Dieter Koenig2, Alexander Jaquet4, Thierry Caillat4, Eric Allen3, Bertrand Lenoir1,1 (1) Institut Jean Lamour, UMR 7198 CNRS – Université de Lorraine, Campus ARTEM, 2 allée André Guinier, BP 50840, 54011 Nancy, France (2) Fraunhofer Institute for Physical Measurement Techniques IPM, 79110 Freiburg, Germany (3) University of Basle, College of Science, King Faisal University, P.O. Box 400, Al-Ahsa 31982, Saudi Arabia (4) Institute for Physical Measurement Techniques, Université de Lorraine, UMR 5306 CNRS and Université Claude Bernard Lyon 1, France |
| 11:30 | Recent advances and progress in thermoelectric sulfides | G TH.10                            |
|       | Emmanuel Guillemou Normandie Univ, ENSICAEN, UNICAEN, CNRS, CRISMAT, 14000 Caen, France |

---

**INV** Recent advances and progress in thermoelectric sulfides

**INV** Development of three-dimensional nitrogen-doped graphene materials: towards PEMFC catalysts without platinum

**INV** Evaluation of CO2 Absorption by a New Barium Nickel Oxycarbonate

**INV** Strong harmonic generation (SHG) from semiconductors nanopowders: a polarization and an intensity profile studies

**INV** Tailoring the morphology of cost-effective vanadium diboride through co-balt substitution for highly efficient alkaline water

**INV** Computational investigation of Fe-doped NiOOH electrocatalysts

**INV** Boosting heterogeneous catalyst discovery by structurally constrained Machine Learning models

---

**G C.1** Development of three-dimensional nitrogen-doped graphene materials: towards PEMFC catalysts without platinum

**G C.2** Evaluation of CO2 Absorption by a New Barium Nickel Oxycarbonate

**G C.3** Strong harmonic generation (SHG) from semiconductors nanopowders: a polarization and an intensity profile studies

**G C.4** Tailoring the morphology of cost-effective vanadium diboride through co-balt substitution for highly efficient alkaline water

**G C.5** Computational investigation of Fe-doped NiOOH electrocatalysts

**G C.6** Boosting heterogeneous catalyst discovery by structurally constrained Machine Learning models
11:15 Surface-Engineered Homostructure for Enhancing Proton Transport
Yaqin Sang, Renyan Zhang, Jian Yang, Chunyan Zhao, and Hui Xu
Institute of Advanced Synthesis, School of Chemistry and Molecular Engineering, Nanjing Tech University, Nanjing 211816, China.

11:30 Goal oriented materials optimisation using deep reinforcement learning
Felix Bemmann
Prof. Nicholas M Harrison, Imperial College London

11:45 Cubic silicon carbide/zinc oxide heterostructure fuel cells
Yueming Xing, Enyi Hu, Faze Wang, Naveed Muhammad, Baoyuan Wang, Jun Wang, Aminrah Maniyan, Muhammad Naveed Rashheed, Muhammad Asghar, Chen Xia, Siying Yun, and Bin Zhu
Engineering Research Center of Nano-Geo Materials of Ministry of Education, Faculty of Materials Science and Chemistry, China University of Geosciences, No. 388 Lumo Road, Wuhan 430074, China.

11:00 Standardized Procedures Important for Improving Low-Temperature Ceramic Fuel Cell Technology
Xinlei Yang, Fan Yang, Bin Zhu, Jingjing Liu, Yifei Zhang, Wanli Sun
Jiangsu Provincial Key Laboratory of Solar Energy Science and Technology, School of Energy & Environment, Southeast University

11:15 Self-assembled SrCo0.8Fe0.2O3-δ/Fe3O4 heterostructure proton membrane for advanced semiconductor ionic fuel cell
Nabeela Akbar1, Sara Paydar1, Wu Yan1, Bin Zhu1,2
1. Engineering Research Center of Nano-Geo Materials of Ministry of Education, Faculty of Materials Science and Chemistry, China University of Geosciences, 388 Lumo Road, Wuhan 430074, China 2. Jiangsu Provincial Key Laboratory of Solar Energy Science and Technology/ Energy Storage Joint Research Center, School of Energy and Environment, Southeast University, No.2 Si Pai Lou, Nanjing 210096, China.

11:00 Tailoring transition metal elements to improve the stability of the semiconductor membrane fuel cell
Sun Wanli, Yang Fan, Zhu Bin, Liu Jingjing, Zhang Yilei, Yang Xinlei
Jiangsu Provincial Key Laboratory of Solar Energy Science and Technology/ School of Energy & Environment, Southeast University

11:15 Surface-Engineered Homosstructure for Enhancing Proton Transport
Enyi Hu, Faze Wang, Jun Wang, Bin Zhu, Peter Lund2
1.Jiangsu Provincial Key Laboratory of Solar Energy Science and Technology, School of Energy & Environment, Southeast University, Nanjing, 210096, China. 2.Department of Engineering Physics/Advanced Energy Systems, School of Science, Aalto University, 00076 Aalto, Espoo, Finland.

11:30 WO3-LSCF composite electrolyte with high ionic conductivity for low temperature solid oxide fuel cell
Xiaqian Jin, Wenjing Dong, Chen Xia, Baoyuan Wang, Xunying Wang
Hydrogen, as a secondary energy, can be produced by electrolyzing water using surplus renewable energy (e.g., solar or wind energy), and its combustion product is only water. Solid oxide fuel cell (SOFC) can transform hydrogen into electricity efficiently. What’s more, compared with proton exchange membrane fuel cell, SOFC possesses the advantage of no need of precious metal catalysts and low requirement for hydrogen purity. However, high work temperature limits its commercialization. Increase ionic conductivity of electrolyte can effectively decrease the SOFC work temperature. Recently, constructing heterointerface has been an emerging approach for increasing electrolyte materials conductivity. [1-6]. The most typical example is YSZ-StT03 (STO) 2D heterostructure which was reported by Garcia Bariocanal et al [1, 2]. The O2- conductivity of heterointerface between YSZ film and StT03 film was nearly 8 orders of magnitude higher than that of bulk YSZ. Besides, other 2D heterostructure materials (e.g., YSZ-MgO and CeO.8Sm0.2O2-5-Ag2O) also showed excellent ionic conductivity [3, 4]. Recently, 3D heterostructure materials were constructed extensively, and they displayed enhanced ionic conductivity compared with pure phase material under low temperature. The O2- conductivity of StT03 semiconductor was enhanced about 5 orders of magnitude by being covered with a amorphous core-shell heterostructure [7]. Large number of oxygen vacancies were detected in the shell layer, which was considered as the main reason for the excellent O2- conductivity. CeO2/CoO-δ core-shell heterostructure electrolyte exhibited the proton conductivity of 0.16 S cm-1 under 550 ºC [8]. It was considered that oxygen vacancies and charged layers at the interface mainly contributed to the excellent proton conductivity. Recently, we constructed 3D YSZ-LaNiO3 heterostructure electrolyte, and the power density of corresponding SOFC achieved 1045 mW cm-2 at 600 ºC [7]. Study results indicated that the heterointerface between YSZ and LaNiO3 provided a large number of oxygen vacancies which are beneficial for O2- conductivity. It has been reported that constructing built-in electric field can effectively prevent electrons transport across electrolyte and accelerate ion conduction. Here we adopted n-type WO3 and p-type LSCF to constructing p-n heterojunction and studied the effect of heterostructure on the SOFC performance.

11:45 How ternary Li-oxide coatings affect the interfacial dynamics between LiCoO2 and Li1La0.3S0.7O12 in thin-film solid-state cells
AndrŽ Müller, Abdessalem Aribia, Moritz H. Futscher, and Yaroslav E. Romanyuk
Laboratory for Thin Films and Photovoltaics Empa-Swiss Federal Laboratories for Materials Science and Technology, Überlandstrasse 129, Dübendorf CH-8600, Switzerland

12:00 Low temperature ceramic fuel cell with NASICON Na5YSi4O12 and semiconductor Ni0.8Co0.15Al0.05LiO2 composite electrolyte
Yong Yu1, Jianbing Huang1,*, Bin Zhu1,2,*
1.State Key Laboratory of Multiphase Flow in Power Engineering, Xi’an Jiaotong University, Xi’an 710049, Shaanxi, China 2.Jiangsu Provincial Key Laboratory of Solar Energy Science and Technology/ Energy Storage Joint Research Center, School of Energy & Environment, Southeast University, Nanjing 210096, China.

11:45 Organic bilayer-heterojunctions for efficient indoor photovoltaic applications
Song Yi Park, Chiara Labanti, Joel Luke, Yi-Chun Chin, Ji-Seon Kim
Imperial College London

11:55 Investigation of Electronic Properties of Grains and Grain Boundaries of CsPbBr3 Halide Perovskite Thin Films
Chandra Shaiker Pathak and Eran Edri
Faculty of Materials Science and Chemistry, Ben-Gurion University of the Negev, Israel

12:15 Effect of microstructure on hydrogenation pathways illustrated by correlative high-resolution SIMS, TEM, and optical microscopy
(1) Advanced Instrumentation for Nano-Analytics (AINA), Materials Research and Technology Department, Luxembourg Institute of Science and Technology (LIST), Luxembourg, (2) Institute for Materials Science (IMW), Department for Materials Physics, University of Stuttgart, Germany * lead presenter
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Authors</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00</td>
<td>Asymmetrical supercapacitor based on WO3 nanorods grown by one-step hydrothermal synthesis</td>
<td>G. Mineo1-2, M. Scuderi3, S. Mirabell1-2, E. Bruno1-2</td>
<td>Babacar Diallo1, Aissatou DIOU2, Danielle NGOUE2, Aurélien BELLAMY1, Olivier WENDLING1</td>
<td>Babacar Diallo1, Aissatou DIOU2, Danielle NGOUE2, Aurélien BELLAMY1, Olivier WENDLING1</td>
</tr>
<tr>
<td>16:15</td>
<td>Contribution of ion beam analysis in multilayer Si1-xCx:H/W solar selective absorber materials characterization</td>
<td>G. PH.5</td>
<td>Antoine GOULLET5, Audrey SOUM-GLAUDE2, Eric TOMASELLA4, Laurent THOMAS2, Thierry SAUVAGE1</td>
<td>Antoine GOULLET5, Audrey SOUM-GLAUDE2, Eric TOMASELLA4, Laurent THOMAS2, Thierry SAUVAGE1</td>
</tr>
<tr>
<td>16:30</td>
<td>Photoelectron Spectroscopy provides insights in perovskite solar cells from single layers to buried interfaces of a full device</td>
<td>G. PH.6</td>
<td>Maheu, Ch.1, Hellmann, T.1, Baretyzk, C.2, Sirtl, M. T.3, Bein, T.3, Würfel, U.2, Mayer, T.1, Hofmann, J.P.1, (1) Surface Science Laboratory, (2) Materials and Earth Sciences, Technical University of Darmstadt, (3) Freiburg Materials Research Center (FMF), University of Freiburg, (4) Department of Chemistry and Center for Nanoscience (CeNS), University of Munich, Germany</td>
<td>Maheu, Ch.1, Hellmann, T.1, Baretyzk, C.2, Sirtl, M. T.3, Bein, T.3, Würfel, U.2, Mayer, T.1, Hofmann, J.P.1, (1) Surface Science Laboratory, (2) Materials and Earth Sciences, Technical University of Darmstadt, (3) Freiburg Materials Research Center (FMF), University of Freiburg, (4) Department of Chemistry and Center for Nanoscience (CeNS), University of Munich, Germany</td>
</tr>
<tr>
<td>16:45</td>
<td>Zr-doped Indium Oxide as transparent electrodes for photovoltaics</td>
<td>G. PH.7</td>
<td>Melanie Miccai1, Marco Leonardi1,3, Salvatore Lombardo3, Giuseppe Bengasi4, Claudio Colletti4, Virginia Baldrini5, Esther Alarcón Lladó6, Antonio Terrasi1</td>
<td>Melanie Miccai1, Marco Leonardi1,3, Salvatore Lombardo3, Giuseppe Bengasi4, Claudio Colletti4, Virginia Baldrini5, Esther Alarcón Lladó6, Antonio Terrasi1</td>
</tr>
<tr>
<td>17:15</td>
<td>Discussion Photovoltaics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td>E-MRS EU-40 Materials Prize &amp; MRS Mid-Career Researcher Award Presentations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Thursday, June 2**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Authors</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td>Cathode materials for Zn-ion batteries</td>
<td>G. B.1.1</td>
<td>Adam Lee, Guanjie He</td>
<td>Adam Lee, Guanjie He</td>
</tr>
<tr>
<td>09:30</td>
<td>Hydroxysulfates as cathode materials for rechargeable batteries</td>
<td>G. B.1.2</td>
<td>Shashwat Singh1*, Valérie Pralong2 and Prabir Barpanda1</td>
<td>Shashwat Singh1*, Valérie Pralong2 and Prabir Barpanda1</td>
</tr>
<tr>
<td>09:45</td>
<td>Electronic Self-Passivating Behavior of Li-LIPON Solid-Electrolyte Interphases from Defect Calculations</td>
<td>G. B.1.3</td>
<td>Yuheng Li, Pierremmanuel Canepa, Prashun Gorai</td>
<td>National University of Singapore, National University of Singapore, Catania, School of Mines</td>
</tr>
<tr>
<td>10:00</td>
<td>A 3-D Tunnel type Intercalation Cathode Material for Lithium-Ion Battery</td>
<td>G. B.1.4</td>
<td>Pai Nanav Varanam3, Prabir Barpanda3</td>
<td>Pai Nanav Varanam3, Prabir Barpanda3</td>
</tr>
<tr>
<td>11:00</td>
<td>Lithiated Mn and Fe based nitrides as competitive negative materials for Li-ion battery</td>
<td>G. B.1.7</td>
<td>Y. Zhou, N. Emery, J.P. Pereira-Ramos, O. Nguyen, R. Baddour-Hadje1, Y. Zhou, N. Emery, J.P. Pereira-Ramos, O. Nguyen, R. Baddour-Hadje1</td>
<td></td>
</tr>
<tr>
<td>11:15</td>
<td>The impact of coating material on advanced SnO2 nanowire-based lithium ion battery anodes</td>
<td>G. B.1.8</td>
<td>Jasmin-Claire Bürger1, Serin Lee2, Sebastian Gutsch1, Frances M. Ross2, Margit Zacharias1</td>
<td>Jasmin-Claire Bürger1, Serin Lee2, Sebastian Gutsch1, Frances M. Ross2, Margit Zacharias1</td>
</tr>
<tr>
<td>11:30</td>
<td>Exploration of Li-P/B-S-O/Cl system for discovery of new solid electrolyte</td>
<td>G. B.1.9</td>
<td>Auric Neveu1, Vincent Pelet3, Christian Jordan3 and Valérie Pralong1,2</td>
<td>Auric Neveu1, Vincent Pelet3, Christian Jordan3 and Valérie Pralong1,2</td>
</tr>
<tr>
<td>12:00</td>
<td>Discussion Batteries I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:15</td>
<td>Lunch and Plenary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SYMPOSIUM H

2D materials for energy storage:
batteries, super capacitor, solar cells, thermoelectric

Symposium Organizers:

Manickam MINAKSHI, Murdoch University

Priya VASHISHTA, University of Southern California

Rajeev AHUJA (Main Organizer), Department of Physics and Astronomy, Uppsala University

JPhys Energy
From the publisher of the Journal of Physics series

IOP Publishing
WELCOME AND INTRODUCTION TO THE SYMPOSIUM

08:45

Large-Scale Thermal Property Simulations of 2D Materials using Machine Learning Force Fields
(1) Synopsys QuantumATK, Fruebjergvej 3, 2100 Copenhagen, Denmark * lead presenter

09:00

Polycrystalline silicon substrate thickness effect on solar cells performances
Mohamed BEN RABHA

09:15

Formation photocatalytic O-doped carbon nitride nanosheets on anatase
Konstantina A. Papadopoulou(1), David Parfitt(1), Alexander Chronos(2,3), and Stavros-Richard G. Christopoulos(1)
(1)Faculty of Engineering, Environment and Computing, Coventry University, Priory Street, Coventry CV1 5FB, United Kingdom (2)Department of Materials, Imperial College London, London SW7 2BP, United Kingdom (3)Department of Electrical and Computer Engineering, University of Thessaly, 38221 Volos, Greece

09:45

Identification of the best suitable medium for long duration storage of Ti2CtXMXene
Chrarjil Roy, Somnath Bhattacharyya
Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai 600036

10:00

Graphene-covered substrates for the growth of releasable GaAs thin films: towards substrate reuse in III-V photovoltaics
Carlos Macias 1,2, Antonella Cavanna 1, Ali Madouiri 3, Laurent Travers 2, Jean-Christophe Harmand 2, Stéphane Collin 2, Andrea Cattori 1,2, Arnaud Delamarre 1,2
1 Institut Photovoltaïque d’Île-de-France (IPVF), 18 Bd Thomas Gobert, 91120 Palaiseau, France. 2 Centre de Nanosciences et de Nanotechnologies (C2N), CNRS, Université Paris-Saclay, 10 Bd Thomas Gobert, 91120 Palaiseau, France.

10:45

COFFEE BREAK

11:00

Graphene-covered substrates for the growth of releasable GaAs thin films: towards substrate reuse in III-V photovoltaics
Carlos Macias 1,2, Antonella Cavanna 1, Ali Madouiri 3, Laurent Travers 2, Jean-Christophe Harmand 2, Stéphane Collin 2, Andrea Cattori 1,2, Arnaud Delamarre 1,2
1 Institut Photovoltaïque d’Île-de-France (IPVF), 18 Bd Thomas Gobert, 91120 Palaiseau, France. 2 Centre de Nanosciences et de Nanotechnologies (C2N), CNRS, Université Paris-Saclay, 10 Bd Thomas Gobert, 91120 Palaiseau, France.

11:45

LUNCH

12:00

DISCUSSION

12:15

DISCUSSION

12:45

Electrochemistry of single layer MXene pseudocapacitance at nanoscale
Marc Brunet Cabre (1), Dahnann Spurling (2), Pietro Martinez (3), Valeria Nicolosi (2), Paola E. Colavita (1), Kim McKeay (1,4)
(1) School of Chemistry, Trinity College Dublin, Dublin 2, Ireland. (2) School of Physics, Centre for Research on Adaptive Nanomaterials and Nanodevices (CRANN) and Advanced Materials and Bioengineering Research (AMBER), Trinity College Dublin, Dublin, Ireland. (3) Dipartimento di Chimica, Università degli Studi di Milano, Milan, Italy. (4) MacDiamid Institute for Advanced Materials and Nanotechnology, School of Chemical and Physical Sciences, Victoria University of Wellington, Wellington 6012, New Zealand.

13:00

Major Energy Storage Enhancement in Workfunction Engineered ZrO2 Supercapacitors
Patrick D. Lorenzen, Thomas Mikolajczk, Uwe Schroeder
Patrick D. Lorenzen Nano-Electronic Materials Laboratory (NaMLab) gGmbH, 01187 Dresden, Germany. Thomas Mikolajczk Nano-Electronic Materials Laboratory (NaMLab) gGmbH, 01187 Dresden, Germany. Chair of Nano-Electronic Materials Laboratory (NaMLab) gGmbH, 01187 Dresden, Germany.

13:45

Synthesis and Characterization of 2D Layered Phosphonium-Based Lead Halide Perovskite Material
Subrat Rout, Prabhanjan Pradhan and Biplab K. Patra*(corresponding author)
Subrat Rout, Prabhanjan Pradhan and Biplab K. Patra*(corresponding author)

14:30

Room temperature magnetic anisotropy of CrSBr two-dimensional ferromagnetic semiconductor investigated by electron spin resonance
Fabrizio Moro, Xue Liu, Andrés Granados del Agua and Marco Fanciulli
Fabrizio Moro and Marco Fanciulli - Department of Materials Science, University of Milano-Bicocca, Milano 20125, Italy. Xue Liu Information Materials and Intelligent Sensing Laboratory of Anhui Province, Institutes of Physical Science and Information Technology, Anhui University, Hefei 230061 China, Andres Granados del Agua - Division of Physics and Applied Physics, School of Physics and Mathematical Sciences, Nanyang Technological University, Singapore.

14:45

Synthesis and Characterization of 2D Layered Phosphonium Based Lead Halide Perovskite Material
Subrat Rout, Prabhanjan Pradhan and Biplab K. Patra*(corresponding author)
Subrat Rout, Prabhanjan Pradhan and Biplab K. Patra*(corresponding author)

15:30

Ultrathin printable transistors from an optimized dielectrics inks
Chengning Yao, Benji Fenech Salerno, Callon Peate, Felice Torrisi
Department of Chemistry-Molecular Sciences Research Hub-Imperial College London, Department of Chemistry-Molecular Sciences Research Hub-Imperial College London, Department of Chemistry-Molecular Sciences Research Hub-Imperial College London, Department of Chemistry-Molecular Sciences Research Hub-Imperial College London.

15:45

Optical anomalies in Large-Area MoS2 nanoribbons boost Photobleaching of Dye Molecules
(1) Dip. di Fisica, Università di Genova, Via Dodecaneso 33, 16146 Genova, Italy
SYMPOSIUM I

Sustainable approaches for renewable energy conversion to fuels and chemicals

Symposium Organizers:

Ann MAGNUSON, Department of Chemistry - Ångström Laboratory
Bert M. WECKHUYSSEN, Utrecht University
Francisco FABREGAT-SANTIAGO, Institute of Advanced Materials (INAM) Universitat Jaume I
Frédéric CHANDEZON, IRIG Dir
Monday May 30

08:45 Welcome and Introduction to the Symposium

Artificial Photosynthesis I: Maria Wächter

09:00 Kinetic challenges for solar driven fuel synthesis - matching photoexcited state and catalysis timescales
James Durrant
Department of Chemistry, Centre for Processable Electronics, Imperial College London, London W12 0BZ, U.K. and SPECIFIC IKC, College of Engineering, University of Swansea, Swansea, U.K. E-mail: j.durrant@imperial.ac.uk

09:30 Molecular Mechanisms of Artificial Photosynthesis
Leif Hammarström
Department of Chemistry – Ångström Laboratory, Uppsala University, Box 523, 751 20 Uppsala, Sweden

10:00 Digiothienylene glycol side chains increase charge generation in organic semiconductor nanoparticles photocatalyst
(1) King Abdullah University of Science and Technology (KAUST), Thuwal, Kingdom of Saudi Arabia (2) Department of Chemistry and Centre for Processable Electronics, Imperial College London, London, UK (3) Department of Chemistry University of Oxford, Oxford, UK

10:45 Coffee

Artificial Photosynthesis II: Leif Hammarström

11:00 Molecular approaches to artificial photosynthesis and solar fuel production
Murielle Chavaret-Kerlidou
LCBM, Université Grenoble Alpes/CNRS/CEA Grenoble, France

11:30 Photosynthesis re-wired on the pico-second timescale
Laura T. Wey2+, Tomi K. Baille1+, Hitesh Medipally3, Richard H. Friend1, Christopher J. Howe2*, Christoph Schnedermann1*, Akshay Rao1*, Jenny Z. Zhang4*
(1) Indian Institute of Science Education and Research Kolkata, India (2) Department of Chemistry – Ångström Laboratory, Uppsala University, Box 523, 751 20 Uppsala, Sweden (3) Department of Chemistry, Centre for Processable Electronics, Imperial College London, London W12 0BZ, U.K. (4) Department of Chemistry, Centre for Processable Electronics, Imperial College London, London, UK

11:45 Organic Polymer Dots for Photocatalysis
Haining Tian
Department of Chemistry - Ångström Lab., Uppsala University, Box 523, 75120 Uppsala, Sweden

12:00 Discussion

12:15 Lunch

15:45 Metallochalconepone-like effect of a hydrophobic ligand in FeOx/BIV04 nanohybrid formation for photoelectrochemical water oxidation
Timea Benkö (1), Shaohua Shen (2), Miklos Nemeth (1), Atos Szamosvölgyi (3), András Sápi (3), György Sáfrán (4), Sahir M. Al-Zurajj (1), József Sándor Pap (1) (1) Centre for Energy Research, Surface Chemistry and Catalysis Department, 29-33 Konkoly-Thege Street, H-1121 Budapest, Hungary, (2) International Research Center for Renewable Energy (IRCRE), State Key Laboratory of Multiphase Flow in Power Engineering (MFPE), Xi’an Jiaotong University, Xi’an, Shaanxi 710049, China, (3) University of Szeged, Interdisciplinary Excellence Centre, Department of Applied and Environmental Chemistry, H-47120, Rélnick Béla tér 1, Szeged, Hungary, (4) Centre for Energy Research, Institute of Technical Physics and Materials Science, Thin Film Physics Department, Konkoly-Thege Street 29-33, 1121 Budapest, Hungary

16:15 Discussion

16:30 Coffee

Energy Generation From Active Heteroatom (N and P) Based Porous Carbon: Hydride Oxidation Reaction
Nisha Dhiman, Kumud Malika Tripathi, Paritosh Mohanty

16:45 Enhanced elastocaloric cooling performances in gradient nanograin NiTi shape memory alloy
Junyu Chen
State Key Laboratory of Tribology, Department of Mechanical Engineering, Tsinghua University, Beijing 100084, China

16:50 Catalytic performance of ionic liquid on the carbonization of glycerol to glycerol carbonate with carbon dioxide
Ahu A. Pawar, Hern Kim*
Myongji University Yongin, Republic of Korea

16:55 Transition metal-carbon composite as an efficient electrolytacatalyst for nitrogen reduction to ammonia
Rajendra B. Mujumule, Hern Kim*
Department of Energy Science and Technology / Environmental Waste Recycle Institute, Myongji University

17:00 Tuning the properties of MnO2 OER electrocatalysts: Influence of the substrate and surface functionalization
Alberto Gasparotto, *a,a, Lorenzo Bigiani, a Chiara Maccato, a,b Cindia Sadic, c Johan Verbeeck,d Teresa Andreu,e,e Juan Ramón Morante,e,e Fabio Barreca,b,a Department of Chemical Sciences, Padova University and INSTM, 35131 Padova, Italy. b CNR-ICMATE and INSTM, Department of Chemical Sciences, Padova University, 35131 Padova, Italy. c Department of Physics and Astronomy, Padova University and INSTM, 35131 Padova, Italy. d EMAT and NANOlab of Excellence, University of Antwerp, 2020 Antwerp, Belgium. e Universitat de Barcelona (UB), 08028 Barcelona, Spain. 

17:15 Metallochalconepone-like effect of a hydrophobic ligand in FeOx/BIV04 nanohybrid formation for photoelectrochemical water oxidation
Timea Benkö (1), Shaohua Shen (2), Miklos Nemeth (1), Atos Szamosvölgyi (3), András Sápi (3), György Sáfrán (4), Sahir M. Al-Zurajj (1), József Sándor Pap (1) (1) Centre for Energy Research, Surface Chemistry and Catalysis Department, 29-33 Konkoly-Thege Street, H-1121 Budapest, Hungary, (2) International Research Center for Renewable Energy (IRCRE), State Key Laboratory of Multiphase Flow in Power Engineering (MFPE), Xi’an Jiaotong University, Xi’an, Shaanxi 710049, China, (3) University of Szeged, Interdisciplinary Excellence Centre, Department of Applied and Environmental Chemistry, H-47120, Rélnick Béla tér 1, Szeged, Hungary, (4) Centre for Energy Research, Institute of Technical Physics and Materials Science, Thin Film Physics Department, Konkoly-Thege Street 29-33, 1121 Budapest, Hungary

17:30 Role of anion etching and heteratom incorporation in cobalt silicate precatalyst for improved OER
Dr. Debashrita Sarkar1,2, Dr. Sagar Gangal1,3, Ayam Mondal 1, Prof. Venkataramanan Mahalingam1
1- Indian Institute of Science Education and Research Kolkata, India 2- Université de Paris, France 3- Uppsala University, Sweden
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td>CO2 reduction I: Marc Robert</td>
<td>Unveiling the Dynamic Behavior of CO2 Electro catalysts through in situ Microscopy and Operando Spectroscopy</td>
<td>Berlin</td>
</tr>
<tr>
<td>10:00</td>
<td>CO2 reduction II: Debashrita Sarkar</td>
<td>Shaping of mesoporous CeO2 powder into mm-sized catalyst supports for CO2 methanation</td>
<td>Barcelona</td>
</tr>
<tr>
<td>10:15</td>
<td>CO2 reduction III: Joanna Kargul</td>
<td>Nanoscale properties of colloidal CeO2: Synthesis, lanthanide doping and applications</td>
<td>Spain</td>
</tr>
<tr>
<td>11:00</td>
<td>Hybridization of molecular and conductive/semi-conductive porous materials for CO2 catalytic reduction</td>
<td>Marc Robert</td>
<td>Paris, France</td>
</tr>
<tr>
<td>11:30</td>
<td>Direct-synthesis of AgxCu100-x bimetallic nanoparticles on p-Si supports for the photoelectrochemical reduction of CO2</td>
<td>Harsh Chaliyawala, Stephanie Bastide, Diane Muller-Bouvet, Tariq Bourouina, Frederic Marty, Abir Rezgui, Stephane Bastide</td>
<td>Barcelona</td>
</tr>
<tr>
<td>11:45</td>
<td>Electrochemical CO2 conversion to nanocarbons in Li-K-Na molten salt electrolyte: tuning the nanocarbon morphology</td>
<td>Giannakopoulou T., Todorova, N., Vagenas, M., Plakantaraki, N., Papadis, I., Trapanis C.</td>
<td>Barcelona</td>
</tr>
<tr>
<td>12:00</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:15</td>
<td>Lunch and plenary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td>Alternative fuels and chemicals – with materials science from renewable electricity, CO2 and water up to the final product</td>
<td>Dr. Carina Faber, Dr. Héleine Lepaumier, Jim Griepkoven, Dr. Jan Mertens</td>
<td>Paris, France</td>
</tr>
</tbody>
</table>
15:30 High-rate CO2 electrocatalytic reduction to formate with InP colloidal quantum dots derived catalysts
Ivan Grigioni, Edward H. Sargent, Elena Sellia
Dipartimento di Chimica, Università degli Studi di Milano, Via Golgi 19, 20133 Milano, Italy. Department of Electrical and Computer Engineering, University of Toronto, Ontario, Canada. Department of Electrical and Computer Engineering, University of Toronto, Ontario, Canada. Dipartimento di Chimica, Università degli Studi di Milano, Via Golgi 19, 20133 Milano, Italy

15:45 CO2 reduction using nanostructured metal oxide/catalyst hybrid layers assembled at photoelectrodes
Julian Guererro[1][2], Nathananelle Schneider[2], Daniel Lincot[2], Negar Naghavi[2], Marc Robert[1][2]

16:00 Effect of noble metal doping on Layered CsCa2Ta3O10 for photocatalytic conversion of CO2 into valuable fuels
Tugba Yalcin (1,2), Ugur Unal (1)
(1) Koc University, Materials Science and Engineering Dept. Rumelifeneri yolu Saryer Istanbul Turkey; (2) Arıpet, Turkey

16:15 Discussion

16:30 Coffee

Characterization and Modeling I : Bert Weckhuysen

16:45 Recent Insights on Photoelectrochemical Interfaces from XPS Studies
Roel van de Krol
1. Institute for Solar Fuels, Helmholtz-Zentrum Berlin für Materialien und Energie, 14109 Berlin, Germany. Email: roel.vandekrol@helmholtz-berlin.de 2. Institut für Chemie, Technische Universität Berlin, Berlin, Germany

17:15 Bifunctional earth-abundant catalysts combined with solar cells for solar to hydrogen fuel production
M. G. Méndez-Medrano, 1 Nicolas Loone, 1 Frederique Donsanti, 1 Alexandre Blaziot, 1 Negar Naghavi, 1-2 1 IPVF Institut Photovoltaïque d’Île-de-France (IPVF), CNRS, UMR 9006, 91128 Palaiseau, France 2 CNRS-Institut Photovoltaïque d’Île-de-France, UMR 9006, 91128 Palaiseau, France

17:30 Superior overall water splitting performances of electroless deposited Ni-P films
Sergio Battisti, Luca Bruno, Antonio Terrasi, Salvo Mirabella
Dipartimento di Fisica e Astronomia “Ettore Majorana” and IMM-CNR, via S. Sofia 64, 95123, Catania, Italy

17:45 Hydrogen Evolution Reaction catalysed by low-cost synthesized WO3 nanorods
G. Mineo1-2, M. Scuderri3, E. Bruno1-2, S. Mirabella1-2 1 Dipartimento di Fisica e Astronomia “Ettore Majorana”, Università degli Studi di Catania, via S. Sofia 64, 95123 Catania, Italy, 2 CNR-IMM (Universita di Catania), via S. Sofia 64, 95123 Catania, Italy, 3 IMM-CNR, VIII strada 5, 95121 Catania, Italy

18:00 Discussion

Wednesday June 1

Bioconversion & Synthesis of added value products I: Ann Magnuson

09:00 Rational design of bio-organic interfaces for improved efficiency of photosystem I-based solar converting nanodevices
Joanna Kangul
Solar Fuels Laboratory, Centre of New Technologies, University of Warsaw, Banacha 2C, 02-097 Warsaw, Poland

09:30 Bioinspired nonadiabatic principles for artificial photosynthesis with high yield
Huub de Groot
Leiden Institute of Chemistry, Leiden University. The Netherlands

10:15 Development of Ru-Carbon Electro catalysts for the Electrochemical Nitrogen Reduction Reaction
Dario Formenti (1), Yannik Kohlhaas (2), Zhenglin Zhuang (1), Xin Wei (1), Maria Meledina (3), Matthias Wessling (2), Robert Kellner (2), Joachim Mayer (3), Ulrich Simon (1) 1 Institute of Inorganic Chemistry – RWTH Aachen University, Germany, 2 Chemical Process Engineering – RWTH Aachen University, Germany, 3 Central Facility for Electron Microscopy – RWTH Aachen University, Germany

10:30 What makes lithium unique in its ability to reduce nitrogen to ammonia?
Ilan E. L. Stephens
Department of Materials, Imperial College London

10:45 Discussion

Bioconversion & Synthesis of added value products II: Ifan Stephens

11:00 Electrosynthesis with molecular catalysts immobilized on conducting surfaces via host-guest interactions
David Tilley
University of Zurich

11:30 Alternative generation of ammonia via nitrate and N2 reduction through electrochemical routes
Sebastian Munica-Lopez, 1 Marcelo E. Chavez, 1 Juan R. Morante 1, 2 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, Sant Adrià de Besós, 08203, Spain

11:45 Reforming of Soluble Biomass and Plastic Derived Waste using a Bias-Free Cu20Pd70perovskite/Pt Photoelectrochemical Device
Subhajit Bhattacharjee, Virgil Andrei, Chanon Pornrungroj, Motiar Rahaman, Christian M. Pichler and Erwin Reisner*
Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, United Kingdom.

12:00 Discussion

12:15 Lunch and Plenary

Bioconversion & Synthesis of added value products III: David Tilley

15:00 Photo- and electro-catalyst development: carbon nitride and NiFe-oxide for catalytic oxidation of organic molecules to value-add
Meryn Shalom
Department of Chemistry, Ben-Gurion University of the Negev, Beer-Sheva, Israel

15:30 Co-based bimetallic catalysts for the production of hydrocarbons (C2-C4) via the direct hydrogenation of CO2 and CO
A. Alarcón 1, O. Palma1, E. Martínez1, M. Biset1, T. Andreu2, J. Guilera1 1. Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besós, Spain 2. Department of Ciència de Materials i Enginyeria Química, Universitat de Barcelona, Martí i Franquès 1, Barcelona 08029, Spain

15:45 Study of the electrochemical hydrogenation of nitrobenzene in Cu and CuPd electrodes
Carvajal, D1, Arcas, R1, Mesa, C1, Giménez, S1, Fabregat-Santiago, F1, Mas-Marzá, E1 1) Group of Advances Materials and Energy, Institute of Advanced Materials, Universitat Jaume I, Spain.
Thursday June 2

Water Splitting I: Murielle Chavarot-Keldou

10:00
INV (Photo)electrochemical Water Splitting Catalyzed by Materials with Well Defined Active Site Structures
Licheng Sun
1 Center of Artificial Photosynthesis for Solar Fuels, School of Science, Westlake University, 310204 Hangzhou, China 2 Department of Chemistry, KTH Royal Institute of Technology, 10044 Stockholm, Sweden

10:30
INV Molecular anodes for green and sustainable energy applications
Antoine Bornefont
Institute of Chemical Research of Catalonia (ICIQ), Barcelona Institute of Science and Technology (BIST), Av. Paisos Catalans 16, E-08007 Tarragona, Spain and Department of Química Universitat Autònoma de Barcelona, Cerdanyola del Vallés, E-08193 Barcelona, Spain. E-mail: aboront@iciq.cat

10:45
Coffee

11:00
INV Core shell nanoparticles: a catalyst for the oxygen evolution reaction
Lisa Royer, Antoine Bornefont, Benoit Pichon, Elina Savinova
Lisa Royer: Institut de Chimie et Procédés pour l’Energie, l’Environnement et la Santé, UMR 7515, CNRS-University of Strasbourg, 67087 Strasbourg Cedex 2, France. Antoine Bornefont: Institut de Physique et de Chimie des Matériaux de Strasbourg, UMR 7504, CNRS-University of Strasbourg, 67034 Strasbourg Cedex 2, France. Benoit Pichon: Institut de Chimie de Strasbourg, UMR 7177 CNRS-University of Strasbourg, 67070, Strasbourg, France, Elina Savinova: Institut de Chimie et Procédés pour l’Energie, l’Environnement et la Santé, UMR 7515, CNRS-University of Strasbourg, 67087 Strasbourg Cedex 2, France

11:15
Development of Highly Efficient Self-Supported Transition Metal Based Catalysts for Water Splitting
Faria Rafique, Dr Harib ur Rehman, Dr, Joe Briscoe
Syed Babar Ali School of Science and Engineering, LUMS - Lahore University of Management Sciences School of Engineering and Materials Science, Queen Mary University of London

11:30
Discussion

11:45
Coffee

Water Splitting II: Toni Llobet

12:00
INV Water splitting using wired perovskite tandem solar cells and molecular catalysts.
Yuanyuan Shi, 1 Tsung-Yu Hsheh 1, M Anasma Hoque 1, Werther Cambrau 1, Stéphanie Narbey 2, Carolina Gimbert-Suriñach 1, Emilio Palomares 1 3, Mario Lanza 4, Antonio Llobet 1 5
1 Institute of Chemical Research of Catalonia (ICIQ), Barcelona Institute of Science and Technology (BIST), Av. Paisos Catalans 16, 43007 Tarragona, Spain. 2 Solaronix S.A., Rue de l’Ouriette 129, CH-1170 Aubonne, Switzerland. 3 ICREA, Passeig Lluís Companys 23, 08010 Barcelona, Spain. 4 Physical Sciences and Technology (BIST), Av. Paisos Catalans 16, 43007 Tarragona, Spain. 5 Department of Química, Universitat Autònoma de Barcelona (UAB), 08193 Cerdanyola del Vallès, Barcelona, Spain.

12:15
Discussion

12:45
Lunch and Plenary

Applications to Industry I : Roel Van de Krol

13:00
INV Scalable photoelectrochemical hydrogen production and storage in a liquid silicon hydride carrier
Hannah Johnson
Toyota Europe

13:30
TRIBOCHEMICAL DECOMPOSITION OF SODIUM ALANATE (NaAlH4)
(1) Department of Physics of Materials, Autonoma University of Madrid, Spain, (2) Department of System Programming, South Ural State University, Chelyabinsk, Russia, (3) Department of Applied Physics, Nicolás Cabrera Institute and Center for Microanalysis of Materials, Autonoma University of Madrid, Spain, (4) Tribology unit, Fundación Teknil, Elbar, Spain, (5) Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados, Unidad Mérida, 97310, Mérida, Yucatan, Mexico, (6) Spanish National Research Council, Eduardo Torroja Institute of Construction Sciences (IETCC-CSIC), Madrid, Spain, esmenerda.munoz@estudiante.uam.es

14:00
Towards high productivity cathodes for hydrogen evolution reaction based on metal phosphides
Maria Isabel Díez Garcia, Sebastian Murcia, Joan Ramon Morante
Maria Isabel Díez Garcia, Sebastian Murcia, Joan Ramon Morante Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, Sant Adriá de Besós, Spain

14:30
Exploiting the Advanced Tailor-made Catalyst materials and Systems for the Up-scaled Electroconversions of CO2
Tandava, V.S.R.K., Andrés Alberto García, Sebastián Murcia-López, Joan Ramón Morante
Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre 1, 08930, Sant Adriá de Besós, Spain.

15:00
Discussion

15:30
Development upscaling of an electrochemical technology for the conversion of CO2
Amelie Jongerius
Aramoium Chemicals

16:00
INV Recent advances in lanthanide-doped TIO2 thin films for green hydrogen strategies
Katarzyna Zakrzewska, Marta Radecka
AGH-University of Science and Technology, al. Mickiewicza 30, 30-059 Kraków, Poland

16:30
INV Copper Vanadate Nanobelts as Anodes for PEC Water Splitting: Influence of CoOx Overlayers on Functional Performances
Leonardo Girardi, Gian Andrea Rizzi*, Lorenzo Bigiani, Davide Barreca, Chiara Maccato, Carla Marega, Gaetano Granozzi
Leonardo Girardi – Department of Chemical Sciences, Padova University and INSTM, Padova 35131, Italy, Gian Andrea Rizzi – Department of Chemical Sciences, Padova University and INSTM, Padova 35131, Italy, Lorenzo Bigiani – Department of Chemical Sciences, Padova University and INSTM, Padova 35131, Italy, Davide Barreca – CNR-ICMATE, INSTM and Department of Chemical Sciences, Padova University, Padova 35131, Italy, Chiara Maccato – Department of Chemical Sciences, Padova University, CNR-ICMATE and INSTM, Padova 35131, Italy, Carla Marega – Department of Chemical Sciences, Padova University and INSTM, Padova 35131, Italy, Gaetano Granozzi – Department of Chemical Sciences, Padova University and INSTM, Padova 35131, Italy.

17:00
Discussion

17:30
INV Applications to Industry II : Hannah Johnson

17:45
Cu3-xNixCo2-Layered Double Hydroxide Nanosheets for Enhanced Electrocatalytic Activity Towards Water Splitting
Sakshi Kansal, Debabrata Mandal, Surohi Priya, Salvik Anshu, Trilok Singh, Amresh Chandra
Research Scholar, Research Scholar: Research Scholar, Research Scholar, Professor, Professor

18:00
Discussion
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td><strong>Multi-scale modelling for photoelectrochemical water and CO2 splitting</strong></td>
<td>Sophia Haussener</td>
<td>Laboratory of Renewable Energy Science and Engineering, Institute of Mechanical Engineering, Ecole Polytechnique Fédérale de Lausanne, 1015 Lausanne, Switzerland.</td>
</tr>
<tr>
<td>09:30</td>
<td><strong>Charge-carrier dynamics in hybrid materials based on colloidal semiconductor nanocrystals for light-driven catalysis</strong></td>
<td>Maria Wächtler</td>
<td>Leibniz Institute of Photonic Technology</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>Oxygen electrocatalysis at transition metal oxides: correlating activity with orbital occupancy under operational conditions</strong></td>
<td>Mohammed A. Alkhalifah, Benjamin Howchen, Joseph Staddon, Veronica Celorio, Devendra Tiwari, David J. Fermin</td>
<td>School of Chemistry, University of Bristol, Cantocks Close, Bristol BS8 1TS, UK</td>
</tr>
<tr>
<td>10:15</td>
<td><strong>Probing the optoelectronic structure of (Ir, Al)-codoped SrTiO3 for enhanced photocatalytic activity</strong></td>
<td>Namitha Anna Koshi,† Dharmapura H K Murthy,‡ Sudip Chakraborty,§ Seung-Cheol Lee,§ and Satadeep Bhattacharjee†</td>
<td>Indo-Korea Science and Technology Center (IKST), Jakkur, Bengaluru 560065, India</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Discussion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td><strong>Coffee</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:30</td>
<td><strong>The role of spin degrees of freedom in manipulating the reactivity of a metal surface containing 3d transition metals</strong></td>
<td>Satadeep Bhattacharjee and Seung Cheol Lee</td>
<td>Indo Korea Science and Technology Center, Bangalore, India.</td>
</tr>
<tr>
<td>12:00</td>
<td><strong>Discussion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:15</td>
<td><strong>Closing</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SYMPOSIUM J

Future electrochemical energy storage materials: from nanoscience to device integration and real environment application

Symposium Organizers:

Adélio MENDES, Faculdade de Engenharia da Universidade do Porto

Carlos PONCE DE LEON ALBARRAN, University of Southampton

Cristina FLOX, Institut de Ciencia de Materials de Barcelona, CSIC

Olivier CROSNIER, Université de Nantes

Volker PRESSER, Leibniz Institut für Neue Materialien GmbH
08:45 | Welcome and Introduction to the Symposium

09:00 | Tracking ion fluxes in electrodes for energy storage applications
Patrice Simon
1. Université de Toulouse-3 Paul Sabatier, CIRIMAT Laboratory, Toulouse, France
2. RS2E, FR CNRS 3459, F-31062 Toulouse, France E-mail address: simon@chimie.ups-tlse.fr

09:30 | Microsupercapacitors: between a rock and a hard place
Thierry Brousset(1,2), Jean Le Bideau(1,2) and Christophe Leblin(1,2,3)
1. Institut des Matériaux Jean Rouex (IM2N), CNRS UMR 6502 – Université de Nantes, 2 rue de la Houssinière BP32229, 44322 Nantes cedex 3, France 2. Réseau sur le Stockage Electrométrie de l’Energie (RSE2), CNRS FR 3459, 33 rue Saint Leu, 80039 Amiens Cedex, France 3. Institut d’Electronique, de Microélectronique et de Nanotechnologies (IEMN), Université de Lille, CNRS, Centrale Lille, ISEN, Université de Valenciennes, UMR 8520 - IEMN, F-59000 Lille, France

10:00 | Development of polysiloxane based polymer electrolyte for application in solid state micro-supercapacitors
Mathieu Deschanet(1), Marc Dietrich(2,3), Pascale Gentili(1), Saida Saidi(2), Cristina lojdo(1) and Fannine Albou
1. Univ. Grenoble Alpes, CNRS, Grenoble INP LEPMM, 38000 Grenoble, France 2. Univ. Grenoble Alpes, CEA, CNRS, IRIG-SYMMES, 38000 Grenoble, France 3. Université Grenoble Alpes, CEA-Grenoble, IRIG-DEPHY-PHELIQS-SINAPS, F-38000 Grenoble, France

10:15 | Asymmetric VN // RuN micro-supercapacitors based on sputtered nitride films
Khaê Huy Dinh(1,2,3), Kevin Robert(1,3), Florent Blanchard(2), Marielle Huév(1,2,3), Christophe Leblin(1,3,4)
1. Institut d’Electronique, de Microélectronique et de Nanotechnologies, Université de Lille, CNRS, Centrale Lille, Université Polytechnique Hauts-de-France, UMR 8520 – IEMN, F-59000 Lille, France 2. Unité de Catalyse et de Chimie du Solide (UCCS), Université de Lille, CNRS, Centrale Lille, Université d’Artois, UMR 8118 – UBT, F-59000 Lille, France 3. Réseau sur le Stockage Electrométrie de l’Energie (RSE2), CNRS FR 3459, 33 rue Saint Leu, 80039 Amiens Cedex, France 4. Institut Universitaire de France (IUF)

10:30 | Electrochemical studies on Cs-functionalized carbon nanotubes
Farjana J. Sonia*, Golam Haider, Martin Müller, Milan Bousa, Antonín Fejfar, Martin Kalbači, Otakar Frank
1. National R&D Institute for Cryogenics and Isotopic Technologies – ICSI, Rm.Valcea, 4 Uzinei Str. RM Valcea, 240050, Romania 2. National Institute of Materials Physics, RO-077125 Magurele, Romania 3. University of Bucharest, Faculty of Physics, 3Nano-SAE Research Center, 405 Atomistilor, P.O. Box 409 Atomistilor, 077125, Magurele Romania 4. University of Bucharest, 405 Atomistilor, 077125, Magurele Romania 5. University of Bucharest, Institute of Research and Development in Optoelectronics-INOE 2000, Optospintronics Department, 409 Atomistilor, 077125, Magurele Romania 6. University of Bucharest, Faculty of Physics, 405 Atomistilor, 077125, Magurele Romania 7. University of Bucharest, National Institute for R&D in Microtechnologies MT-Bucharest, 126A Erou Iancu Nicolae Str., Voluntari, 077180, Romania

10:45 | Sustainable, non-volatile supercapacitors for photo-supercapacitors applications
Nilanka M. Keppeljopolu(1,2), G. A. K. Mumara(2), Marie-Anne Douges(1), Céline Olivier(1), Thierry Toupane(1), Ludmila Cocijara(1)
1. The University of Bordeaux, Institute of the Molecular Science, 351 Cours de la Libération F-33405 Talence Cedex, France 2. National Institute of Fundamental Studies, Hantana Road, 20000 Kandy, Sri Lanka

11:00 | Porous cobalt oxides nanostructures electrodeposition on graphene electrode for energy storage applications
H. Ghannam(1,2), O. Ekhovou(1,3), T. Tile(1), C. Ungureanu(1), M. Buga(4), A. A. Zaouati(4), E. Matei(1), C. C. Negrilă(1), A. C. Galca(1), G. Stan(1), A. Chahboun(2)
1. National Institute of Materials Physics, RO-077125 Magurele, Romania 2. National R&D Institute for Cryogenics and Isotopic Technologies – ICSI, Rm.Valcea, 4 Uzinei Str. RM Valcea, 240050, Valcea, Romania 3. University of Bucharest, Faculty of Physics, 3Nano-SAE Research Center, 405 Atomistilor, P.O. Box 409 Atomistilor, 077125, Magurele Romania 4. University of Bucharest, 405 Atomistilor, 077125, Magurele Romania 5. National Institute for R&D in Microtechnologies MT-Bucharest, 126A Erou Iancu Nicolae Str., Voluntari, 077180, Romania
Tuesday May 31

11:30 Eutectogel and ionogel hybrid solid electrolytes for rechargeable batteries
A. Hardy, J. Mencenk, A.-S. Kelchtermans, B. Joos, D. De Sloovere, M.K. Van Bael
UHasselt, Institute for Materials Research, imec division immunom, Energyville,
Agoralaan building D, 3590 Diepenbeek, Belgium

12:15 LUNCH

Redox Flow Batteries : Cristina Flox

15:00 INV Sustainable Carbon Fibres for the Next Generation of Redox Flow Batteries
Ana Belén Jorge Sobrido*, Rhodri Jervis, Michael W Thielke, Maria Crespo
Ribadeneyra
Associate Professor in Sustainable Energy Materials, UKRI Future Fellows
School of Engineering and Materials Science, Queen Mary University of London
a.sobrido@qmul.ac.uk

15:30 Solid boosted flow batteries: Operation from the point of view of the
thermodynamics and kinetics of charge transfer between the re
M. Moghadam1 and P. Peljto1
1. Research group of Battery Materials and Technologies, Faculty of Technology,
University of Turku, 20500 Finland pekka.peljto@utu.fi / mahdi.moghadam@utu.fi

15:45 A long cycle life zinc-iodide flow battery enabled by a low cost electrolyte
additive
M. Chakraborty1, T. Andreu1, M. Gu1, J. R. Morante1, S. Murcia-Lopez1
1 Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre
1, Sant Adria de Besós, 08930, Spain 2 Universitat Autonoma de Barcelona (UAB),
Plaça Cívica, Bellaterra, 08193, Spain 3 University of Barcelona (UB), Martí i
Franquès 1, Barcelona, 08020, Spain e-mail address: mchakraborty@irec.cat

16:00 Modelling electrolyte degradations in aqueous redox flow batteries
Loïs Briot(a), Quentin Cacciuttolo(a), Martin Petit(g), Marie-Cécile PERA(b)
(a) IFP Energies Nouvelles, Fond-Point de l’échangeur de Solaize, F-69360
Solaize, France. (b) FEMTO-ST Institute, FCLAB, Univ. Bourgogne Franche-
Comté, CNRS, F-90000 Besançon, France.

16:15 Discussion

16:30 INV Recent works on the membrane for non-aqueous redox flow battery
Yongdan Li a,b,c*
a) Department of Chemical and Metallurgical Engineering, Aalto University,
Kemistintie 1, FI-00076 Aalto, Finland  b) State Key Laboratory of Chemical
Engineering (Tianjin University), Tianjin Key Laboratory of Applied Catalysis
Science and Technology, School of Chemical Engineering and Technology,
Tianjin University, Tianjin 300072, China  c) Collaborative Innovation Center of
Chemical Science and Engineering (Tianjin), Tianjin 300072, China E-mail of
corresponding author: yongdan.li@aalto.fi

17:00 INV Material designs and testsings of organic redox flow batteries based on multi-
electron quinone molecule
Pukki Leung
School of Energy and Power Engineering, Chongqing University, Chongqing, China

17:30 Novel Organic Materials for Non-Aqueous Redox Flow Batteries:
Implementation of Triaryliamine and Phenazine Core Structures
M. Moghaddam1 and P. Peljto1
1. Research group of Battery Materials and Technologies, Faculty of Technology,
University of Turku, 20500 Finland pekka.peljto@utu.fi / mahdi.moghadam@utu.fi

17:45 Discussion

Electrolytes for batteries : Olivier Crosnier

09:00 INV Ionic liquids electrolytes: industrial challenges from lab to market
Sebastien FANTINI, Rongying LIN, Anna FALGARYAT, Pauline RULLIERE, Pierre-
Alexandre MARTIN, Tom GOUEVA, Francois MALBOSC
Solvionic SA, Chemin de la Loge, CS 27613, Toulouse, 31078, France

09:30 Structural and dynamic properties of pyrrolidinium-based ionic liquid - Li
electrolyte solutions
Michele A. Salvador, Elena Degoli, Alice Ruini, Rita Magri
University of Modena and Reggio Emilia, University of Modena and Reggio Emilia,
University of Modena and Reggio Emilia, University of Modena and Reggio Emilia

10:00 Long Cycle Life Li-ion Batteries Using Non-flammable Gel Electrolyte
Prepared Via In-situ Crosslinking
Cluzelau Benoît, Edyvreye Rémi, Dumont Erwan, Gilot Stéphane, Jordy Christian,
Pavlengo Ekaterina
IPREM laboratory, IPREM laboratory, Saft compagny, Saft Compagny, Salt Compagny.
Salt Compagny.

10:15 Low resistance at interface of [LiG4][TFSA] ionic liquid and LiCoO2(001)
positive electrode by introducing Li3PO4 buffer layer
Jun Deng, Kazunori Nishio, Yuki Watanabe, Kurei Edamura, Ryota Shimizu, and
Taro Hitosugi
Tokyo Institute of Technology, Japan

10:45 A long cycle life zinc-iodide flow battery enabled by a low cost electrolyte
additive
M. Chakraborty1, T. Andreu1, M. Gu1, J. R. Morante1, S. Murcia-Lopez1
1 Catalonia Institute for Energy Research (IREC), Jardins de les Dones de Negre
1, Sant Adria de Besós, 08930, Spain 2 Universitat Autonoma de Barcelona (UAB),
Plaça Cívica, Bellaterra, 08193, Spain 3 University of Barcelona (UB), Martí i
Franquès 1, Barcelona, 08020, Spain e-mail address: mchakraborty@irec.cat

10:50 Long Cycle Li-ion Batteries Using Non-flammable Gel Electrolyte
Prepared Via In-situ Crosslinking
Cluzelau Benoît, Edyvreye Rémi, Dumont Erwan, Gilot Stéphane, Jordy Christian,
Pavlengo Ekaterina
IPREM laboratory, IPREM laboratory, Saft compagny, Saft Compagny, Salt Compagny.
Salt Compagny.

11:15 Micro-spectroscopic investigation of the SEI on amorphous Si electrodes
operating in ionic liquid electrolytes
N. Carboni,(a) S. Brutt,(a),(b),(c) Ó. Palumbo,(a) G.B. Appetecchi,(d) G.
Maresca,(d) H. Geaney,(e) K. M. Ryan,(e) F. Capitani,(f) S. Fantini,(g) R. Lin,(g)
P.-A. Martin,(g) A. Paolone(a)
(a) ISC-CNRI, UOS Sapienza, Piazzale A. Moro 5, 00185 Roma, Italy, (b) Dip.
Chimica Un. Roma La Sapienza, P.le Aldo Moro 5, 00185 Roma (IT), (c) GISEL—
Centro di Riferimento Nazionale per i Sistemi di Accumulo Elettrochimico di
ENERGIA, (d) Istituto di Chimica Fisica “Galvani”, Università degli Studi di
Napoli, Napoli, Italy (e) Solvionic SA, 11 Chemin des Silos, 31100 Toulouse (FR)

11:30 Eutectogel and ionogel hybrid solid electrolytes for rechargeable batteries
A. Hardy, J. Mencenk, A.-S. Kelchtermans, B. Joos, D. De Sloovere, M.K. Van Bael
UHasselt, Institute for Materials Research, imec division immom, Energyville,
Agoralaan building D, 3590 Diepenbeek, Belgium

12:00 Discussion

12:15 LUNCH
Wednesday June 1

09:00
Digitalization of battery manufacturing processes: From fundamentals to accelerated optimization
Alejandro A. Franco
Laboratoire de Réactivité et Chimie des Solides (LRCs), CNRS UMR 7314, Université de Picardie Jules Verne, Hub de l’Energie, 15 Rue Baudelocque, 80039 Amiens, France. Réseau sur le Stockage Electrochimique de l‘Energie (RSE2), Fédération de Recherche CNRS 3459, Hub de l’Energie, 15 Rue Baudelocque, 80039 Amiens, France, ALISTORE-European Research Institute, Direction de la Recherche, 103 Boulevard Saint-Michel, 75005 Paris, France.

09:30
In operando chemical and structural imaging of battery materials using correlative SEM and SIMS
(1) Advanced Instrumentation for Nano-Analyses (AINA), MRT Department, Luxembourg Institute of Science and Technology, 41, rue du Brill, L-4422 Belvaux, Luxembourg.
(2) German Aerospace Center (DLR), Institute of Engineering Thermodynamics, Pfaffenwaldring 38-40, 70569 Stuttgart, Germany.
(3) Natural and Medical Sciences Institute (NMI) at the University of Tübingen, Marktwiesenstr. 55, 72770 Reutlingen, Germany.

09:45
Enabling Layer-Structured Si-Anodes for usage in Li-ion Batteries by Controlled Kirkendall Void Formation
Sahar Lausch, Andreas Krause-Bader, Robert Gorgas, Tori Butller, Susan Füllé, Marcel Neubert.
Sahar Lausch, Andreas Krause-Bader, Robert Gorgas, Susan Füllé, Marcel Neubert are with the NORC3i GmbH Battery Company, Weinbergweg 23, D-06120 Halle, Germany. Tori Butller is with the Interdisciplinary Centre for Materials Sciences (IZM), Martin Luther University Halle-Wittenberg, D-06120 Halle, Germany.

10:00
Unveiling the (electro-)chemical interface degradation upon cycling of NCM811/LPSi solid-state batteries
(1) Electrochemistry Laboratory, Paul Scherrer Institut, Villigen PSI, Switzerland.
(2) Swiss Light Source, Paul Scherrer Institut, Villigen PSI, Switzerland.
(3) SAF'T, Direction de la Recherche, Bordeaux, France.

10:15
Improved electrochemical performance of a high voltage spinel LiNi0.5Mn1.5O4 modified by an Al rich coating
Gwenaelle COURBARON, (1,2), Nathalie DELPUECH, (1,2,3,4), Emmanuel PETIT (2,3,4), Jon SERRANO (2,4), Dany CARLIER (2,3,4), Jacob OLCHOWKA (2,3,4), Christine LABRUGERE (2,3,4), Gerard WANDELT².
(1) ICGM, University Montpellier, CNRS, Montpellier, France.
(2) Chimie-ParisTech, PSL Research University, CNRS, ICP, 75005 Paris, France.
(3) A.R.I.D, Zaragoza, Spain.
(4) mbernechea@unizar.es

11:00
Multiscale investigation of sulfide based solid electrolyte
Adrien fauchier-Magnan¹, Patrice Perrenot², Oscar Defoor³, Emmanuelle Suard⁴, Franços Fauhth⁵, Claire Villevieille¹
¹ Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP², LEPMI, 38000 Grenoble, France.
² CEA-LETI, 17 rue des Martyrs, F-38000 Grenoble, France.
³ CEA, IRIG Institute, 17 rue des Martyrs, F-38000 Grenoble, France.
⁴ ILL, rue des Martyrs, F-38000 Grenoble, France.
⁵ ALBA synchrotron, Barcelona, Spain.

11:15
Unraveling the role of counter electrode in the analysis of the nucleation overpotential in lithium metal batteries
Aboelkhaled Mohammad Lahore Conondt Lorenzo Stevane Reza Younesi
1 ICGM, Université Montpellier, CNRS, Montpellier, France. 2 Department of Chemistry – Ångström Laboratory, Uppsala University, Box 538, 75121 Uppsala, Sweden. 3 Alistore-Eri, CNRS FR, Amiens 3104, France. 4 RSE2, CNRS, Amiens, France.

11:30
Hybrid materials based on carbon-metal sulphide nanocrystals as electrodes for rechargeable batteries
Maria Bernachea1,2,3,4*, Sergio Aina1,2, M. Pilar Lobera1,2,3
1 Instituto de Nanociencia y Materiales de Aragon (INMA) CSIC-Universidad de Zaragoza, Zaragoza, Spain. 2 Department of Ingenieria Quimica y Tecnologias del Medio Ambiente, Universidad de Zaragoza, Zaragoza, Spain. 3 Networking Biomedical Research Centre of Bioengineering, Biomaterials and Nanomedicine (CIBER-BBN), Madrid, Spain. 4 ARAID, Zaragoza, Spain. * mbernechea@unizar.es

11:45
Cross-section nano-Auger analysis to reveal bulk chemical/morphological information in composites for energy storage
Madec, L.¹(2,3), Ledeuil, J.B.¹(2,3), Tang, C. (2,3), Gaume, D. (2,4), Guerlou-Demourgues, L. (2,3), Monconduit, L. (2,5), Martinez, H. (1,2).
(1) Université de Pau et des Pays de l’Adour, E2S UPPA, CNRS, IPREM, Pau, France.
(2) Réseau sur le Stockage Electrochimique de l’Energie, CNRS FR3459, Amiens, France.
(3) Bordeaux, Bordeaux INP, ICMCB UMR5026, F-33600 Pessac, France.
(4) Chimie-ParisTech, PSL Research University, CNRS, IRCP, 75005 Paris, France.
(5) ICGM, Université de Montpellier, CNRS, Montpellier, France.

Discussion

12:00
Lunch

15:00
Vanadium oxides and zinc oxide thin films for energy storage applications: study of their combination and synergy with graphene
T. Ter(l)¹, H. Gharainam²(1,2), E. Elhoskhjat(1,3), C. Ungureanu(4), M. Buga(4), A.A. Zaulet(4), I. Stavarchave(1), E. Male(1,2), M. Y. Zaki(1), C. C. Negra(1), A.C. Galca(1), G.E. Stan(1), A. Galatanu(1), M-C. Bartha(1), M. Balbarescu(2).
(1) National Institute of Materials Physics, RO-077125 Magurele, Romania.
(2) A. Badalematek Essexaad University, FSTT, Thin Films and Nanomaterials Lab, 30000 Tangier, Morocco.
(3) Laboratory of Materials and Subatomic Physics, Faculty of Science, Ibn Tofail University, Campus Universitaire, 40000 Kenitra, Morocco.
(4) National Research and Development Institute for Cryogenics and Isotopic Technologies - ISCI Rm. Valcea, Uzinei street no. 4, PO Box Răureni 7, 240050, Râmnicu Vâlcea, Romania.

Discussion

15:15
A cost and performance analysis of organic battery materials
Innocenti, A. (1,2), Chen, Z. (1,2) & Passerini, S. (1,2).
(1) Helmholtz Institute Ulm (HIU), Germany.
(2) Karlsruhe Institute for Technology (KIT), Germany.

15:30
Anodic sulfate adsorption on vicinal Cu(111) electrode surfaces
C. L. Bussetti1, Claudia Filioni1,1, Lamberto Dub1, Franco Cicciac1, Klaus Wandelt².
(1) Department of Physics, Politecnico di Milano (Italy).
(2) Institute of Theoretical Chemistry, Bonn University (Germany).

15:45
Investigation of the thermodynamic properties of new full-Heusler Co2TiPb by using first principles calculations
Ali Zitouni, Gherici Remil, Bouabdellah Bouadjemi, Samira Cherid, Yamina Sefir, Mohamed Houari, Mohamed Matougui, Tayeb Lantri and Samir Bentata.

Discussion
11:30  Stoichiometry of electrochemical solvent co-intercalation reactions and new sodium-ion electrolyte for graphite anodes
Gustav Ávall, Youhyun Son, Guillermo Alvarez Ferrero, Knut Arne Janßen, Philipp Adelhelm
Institut für Chemie, Humboldt Universität zu Berlin, Brock-Taylor-Str. 2, 12489 Berlin, Germany, Institut für Chemie, Humboldt Universität zu Berlin, Brock-Taylor-Str. 2, 12489 Berlin, Germany, Institut für Chemie, Humboldt Universität zu Berlin, Brock-Taylor-Str. 2, 12489 Berlin, Germany, Institut für Chemie, Humboldt Universität zu Berlin, Brock-Taylor-Str. 2, 12489 Berlin, Germany, Joint Research Group Operando Battery Analysis, Helmholtz-Zentrum Berlin, Hahn-Meitner-Platz 1, 14109 Berlin, Germany

11:45  Ab initio study of external electric field effects on Na adsorption and uptake at TiO2 anatase surfaces
(1) Department of Chemical Sciences, University of Naples Federico II, Via Cintia 21, 80126 Napoli, Italy (2) Department of Physics “E. Pancini”, University of Naples Federico II, Via Cintia 21, 80126 Napoli, Italy * lead presenter

12:00  Discussion

12:15  Lunch

Post Lithium-ion batteries : Olivier Crosnier

15:00  Exploration of spray drying prepared mixed polyanionic NaFe2PO4¬(SO4¬)2 battery insertion material
(1) Indian Institute of Science, Bangalore, India, (2) Uppsala University, Uppsala, Sweden, (3) Arizona State University, Arizona, United States

15:15  Stable cycling of sodium metal anodes enabled by a sodium/silica-gel host
A. Petrongari (a), M. Tuccillo (a), A. Latini (a), S. Brulli (a)
(a) Dipartimento di Chimica, Università di Roma La Sapienza, P.le Aldo Moro 5, 00185 Roma (Italy)

15:30  Oxygen redox activity in P2-type layered oxides as high-energy cathodes for Na-ion battery
Arianna Massaro, Ana Bélen Muñoz-García, Michele Pavone
Department of Chemical Science, University of Naples “Federico II”, Naples, Italy
Department of Physics “E. Pancini”, University of Naples “Federico II”, Naples, Italy

15:45  The energy problem solution on base of the nuclear fusion reactions realization in frame of radiation fluxes waveguide-resonance
Egorov E.V.(1,2,3), Egorov V.K.(1)
(1) Institute of Microelectronics Technology Russian Academy of Science (IMT RAS)
(2) Institute of Radio Engineering and Electronics Russian Academy of Science (IRE RAS)
(3) Financial University under the Government of the Russian Federation

16:00  Discussion and Closing Remarks
SYMPOSIUM K

Thin film chalcogenide photovoltaic materials

Symposium Organizers:

Alex REDINGER, University of Luxembourg

Byungha SHIN, Korea Advanced Institute of Science and Technology (KAIST)

Matthew REESE, NREL

Oana COJOCARU-MIREN, RWTH Aachen

Romain CARRON, Empa

Selected papers will be published in a topical issue of Thin Solid Films.
(Ag,Cu)(In,Ga)Se2 thin film solar cells with more than 23% bifacial efficiencies

R. F. Alexandre, D. Ramos
division IMOMEC (partner in Solliance), Wetenschapspark 1, 3590 Diepenbeek,
Campus Universitário de Santiago, 3810-193 Aveiro, Portugal
T. S. Lopes  Imec
N. Oliveira, P. M. P. Salomé  Departamento de Física, Universidade de Aveiro,
Nanotechnology Laboratory, Avenida Mestre José Veiga, 4715-330 Braga, Portugal
A. J. N. Oliveira, J. P. Teixeira, T.S. Lopes, Hanfuke Lu, Shih-Chi Yang, Qi Zhang, Shiro Nishiwaki, Ayodhya N. Tiwari, and
Romain Carron  (2) Department of Material Science, University of Luxembourg, Luxembourg

K 1.1

Impact of the RbF post-deposition treatment on the interface between CIGS(Ga)Se2 and sputtered-deposited Ga2O3
E. Pyatenko (1,2), D. Hauschild (2,3,4), R. Steininger (2), D. Hariskos (5), W. Witte (5), M. Powalla (5), C. Heske (2,3,4), and L. Weinhardt (2,3,4)
(1) Laboratory for Applications of Synchrotron Radiation (LAS), Karlsruhe Institute of Technology (KIT), Kaiserstrasse 12, 76131 Karlsruhe, Germany 2. Institute for Photon Science and Synchrotron Radiation (IPS), Karlsruhe Institute of Technology (KIT), Hermann-v.-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany 3. Institute for Chemical Technology and Polymer Chemistry (ITCP), Karlsruhe Institute of Technology (KIT), Engesserstrasse 12/20, 76128 Karlsruhe, Germany 4. Department of Chemistry and Biochemistry, University of Nevada, Las Vegas (UNLV), 4505 Maryland Parkway, Las Vegas, NV 89154-4003, United States 5. Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Meitnerstraße 1, 70563 Stuttgart, Germany

K 2.2

A Facile Pathway for Colloidal Nanoparticle Synthesis and Thin-Film Devices Thereof for Reduction in Carbon Impurities
Hayes, D. C.* (1), Agrawal, R. (1)
(1) Davidson School of Chemical Engineering, Purdue University, West Lafayette, IN 47906, USA

K 2.3

Interplay between potassium and copper on epitaxial CIGS(Ga)Se2 after post-deposition treatment
Evan Enye-Martanzo, Omar Ramirez, Susanne Siebengerrit, Alex Redinger
Department of Physics and Materials Science, University of Luxembourg,
Luxembourg

K 2.4

Impact of compositional changes on the quality of the CIGS(Ga)Se2 absorber in thin-film solar cells
Sinju Thomas1, Wolfram Wittke2, Dimitrios Hariskos3, Stefan Paetel3, Chang-Yun Song3, Heiko Kempa3, Nora El-Ganainy4, Daniel Abou-Ras1

K 2.5

Discussion

K 2.6

The Effect of Absorber Stoichiometry on the Stability of Wide-Gap (Ag, Cu)(In, Ga)Se2 thin film solar cells
Patrick Pearson, Jan Keller, Charlotte Platzer-Björkman.
Uppsala Universitet, Sweden

K 3.1

The Challenges and Developments in Light Management for CIGS Solar Cells

K 2.1

Design and Optimization of Perovskite / CIGS Tandem Solar Cells
Philipp Schultz
CNRS, Institut Photovoltaïque d’Île de France (IPVF), UMR 9006, 18 boulevard Thomas Gobert, 91120 Palaiseau, France

K 3.2

Chemical and electronic structure profiles of wide-gap (Ag, Cu)(In, Ga)Se2 thin film solar cells absorbers
Donald Valenta (1), Jakob Bombsch (1), Regan G. Wilks (1,3), Natalia Martin (2), Tobias Törndahl (2), Charlotte Platzer-Björkman (2), Marika Edoff (2), and Marcus Bär (1,3,4,5)

K 3.3

Impact of Ag on the electric transport in low bandgap CIGS(Ga)Se2 solar cells
Maximilian Krause, Simon Moser, Shih-Chi Yang, Shiro Nishiwaki, Ayodhya N. Tiwari, and Romain Carron
Laboratory for Thin Films and Photovoltaics, Empa - Swiss Federal Laboratories for Materials Science and Technology, Ueberlandstrasse 129, 8600 Dübendorf, Switzerland

K 3.4
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:15</td>
<td>Theoretical and experimental study of stable and metastable phases in</td>
<td>Kostiantyn V. Sophia1, Jes K. Larsen1, Clas Persson2,3, Charlotte Platzer-Bjurman1,</td>
</tr>
<tr>
<td></td>
<td>sputtered Cu(In,Sb) absorbers</td>
<td>Marika Edof1, 1 Division of Solar Cell Technology, Department of Materials Science and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engineering, Uppsala University, Box 534, SE-75121 Uppsala, Sweden, 2. Centre for</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Materials Science and Nanotechnology/Department of Physics, University of Oslo, P.O.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Box 1048, Blindern, NO-0316 Oslo, Norway, 3. Division of Applied Materials Physics,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Materials Science and Engineering, KTH Royal Institute of Technology, SE-10044 Stockholm, Sweden</td>
</tr>
<tr>
<td>15:30</td>
<td>CuGaSe2 absorber on FTO transparent back contacts</td>
<td>A. Thomann1, M. Placido1,2, Maxim Guo1, Yulianna Sanchez1, Robert Fonoll-Rubio1, Victor Izioprodu-Roca1, Z. Jeh Li-Xiao2, A. Perez-Rodríguez1, 1. Catalina Institute for Energy Research IREC, Jardins de les Dones de Negre, 1, 2 pl., 08050 Sant Adrià de Besós, Barcelona, Spain. 2. Polytechnic University of Catalonia, Electrical Engineering Department, c/Jordi Girona 31, Barcelona 08034, Spain</td>
</tr>
<tr>
<td>15:45</td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Machine Learning for Accelerated Analyses of Time-resolved</td>
<td>Calvin Fai, Prof. Tony Ladd, Prof. Charles J. Hages, Department of Chemical Engineering, University of Florida, Gainesville, FL, USA 32611 “presenting author, email: <a href="mailto:c.hages@ufl.edu">c.hages@ufl.edu</a></td>
</tr>
<tr>
<td>16:15</td>
<td>Synthesis and study of microstructural, optical and electrical properties</td>
<td>Matthias Masberg1, Chang-Yun Song1, Marcin Morawski1, Felix Neduck1, Joshua Damm1, Heiko Kempa1, Dimitrios Haniskos2, Wolfram Witte2, Roland Scheer1, 1. Institute of Physics, Martin-Luther-University Halle-Wittenberg, von Danckelmann-Platz 4, 06120 Halle (Saale), Germany. 2. Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Meitenstraße 1, 70563 Stuttgart, Germany</td>
</tr>
<tr>
<td>16:30</td>
<td>Digital Twins – a simulation model for Cu(In,Ga)Se2 solar cells of high</td>
<td>Matthias Masberg1, Chang-Yun Song1, Marcin Morawski1, Felix Neduck1, Joshua Damm1, Heiko Kempa1, Dimitrios Haniskos2, Wolfram Witte2, Roland Scheer1, 1. Institute of Physics, Martin-Luther-University Halle-Wittenberg, von Danckelmann-Platz 4, 06120 Halle (Saale), Germany. 2. Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Meitenstraße 1, 70563 Stuttgart, Germany</td>
</tr>
<tr>
<td>16:45</td>
<td>First-principles modelling of hydrogen on the absorber-buffer interface in</td>
<td>A. G. Marinopoulos, CEFiUC, Department of Physics, University of Coimbra, P-3004-516 Coimbra, Portugal</td>
</tr>
<tr>
<td>17:00</td>
<td>Advanced feature extraction with machine learning and combinatorial</td>
<td>Arthur L. K.L. Strydom, M. Plant, R. Strydom, A. G. Marinopoulos, CEFiUC, Department of Physics, University of Coimbra, P-3004-516 Coimbra, Portugal</td>
</tr>
<tr>
<td>17:15</td>
<td>and moderate efficiency</td>
<td>A. G. Marinopoulos, CEFiUC, Department of Physics, University of Coimbra, P-3004-516 Coimbra, Portugal</td>
</tr>
<tr>
<td>17:30</td>
<td>CuInSe2-based solar cells</td>
<td>A. Thomann1, M. Placido1,2, Maxim Guo1, Yulianna Sanchez1, Robert Fonoll-Rubio1, Victor Izioprodu-Roca1, Z. Jeh Li-Xiao2, A. Perez-Rodríguez1, 1. Catalina Institute for Energy Research IREC, Jardins de les Dones de Negre, 1, 2 pl., 08050 Sant Adrià de Besós, Barcelona, Spain. 2. Polytechnic University of Catalonia, Electrical Engineering Department, c/Jordi Girona 31, Barcelona 08034, Spain</td>
</tr>
<tr>
<td>17:45</td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td>Thermodynamics and kinetics of phase separation in Ag(Cu,In,Ga)Se2</td>
<td>Markus Mock, Karsten Albe Tu Darmstadt, Tu Darmstadt</td>
</tr>
<tr>
<td>18:15</td>
<td>New Technology of Atom Probe Tomography Instrumentation and an Overview</td>
<td>Peter Kemna, J. van den Berg, S. Anh, M. Theelen TNO part of Solliance</td>
</tr>
<tr>
<td>18:30</td>
<td>of Photovoltaic Applications</td>
<td></td>
</tr>
<tr>
<td>18:45</td>
<td>Study of the Beneficial Effects of Sodium Doping Cu2ZnSnS4 Material</td>
<td>Markus Mock, Karsten Albe Tu Darmstadt, Tu Darmstadt</td>
</tr>
<tr>
<td>19:00</td>
<td>Multiscale Modeling of Energy Materials, Dynamics of Condensed Matter,</td>
<td>Giovanni Sozzi Department of Engineering and Architecture - University of Parma</td>
</tr>
<tr>
<td>19:15</td>
<td>Numerical Simulation of Grain-Boundary in Cu-poor and Cu-rich CIGS thin</td>
<td>Giovanni Sozzi Department of Engineering and Architecture - University of Parma</td>
</tr>
<tr>
<td>19:30</td>
<td>Machine Learning for Accelerated Analyses of Time-resolved</td>
<td>Calvin Fai, Prof. Tony Ladd, Prof. Charles J. Hages, Department of Chemical Engineering, University of Florida, Gainesville, FL, USA 32611 “presenting author, email: <a href="mailto:c.hages@ufl.edu">c.hages@ufl.edu</a></td>
</tr>
<tr>
<td>19:45</td>
<td>12:15 Discussion</td>
<td></td>
</tr>
<tr>
<td>10:00</td>
<td>Influence of Interface States on Ultrathin Cu(In,Ga)Se2 Solar Cells with Mo</td>
<td>Giovanni Sozzi Department of Engineering and Architecture - University of Parma</td>
</tr>
<tr>
<td>10:15</td>
<td>New Technology of Atom Probe Tomography Instrumentation and an Overview</td>
<td>Peter Kemna, J. van den Berg, S. Anh, M. Theelen TNO part of Solliance</td>
</tr>
<tr>
<td>10:30</td>
<td>of Photovoltaic Applications</td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>New Technology of Atom Probe Tomography Instrumentation and an Overview</td>
<td>Peter Kemna, J. van den Berg, S. Anh, M. Theelen TNO part of Solliance</td>
</tr>
<tr>
<td>10:50</td>
<td>of Photovoltaic Applications</td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td>First-principles modelling of hydrogen on the absorber-buffer interface in</td>
<td>A. G. Marinopoulos, CEFiUC, Department of Physics, University of Coimbra, P-3004-516 Coimbra, Portugal</td>
</tr>
<tr>
<td>11:15</td>
<td>Advanced feature extraction with machine learning and combinatorial</td>
<td>Arthur L. K.L. Strydom, M. Plant, R. Strydom, A. G. Marinopoulos, CEFiUC, Department of Physics, University of Coimbra, P-3004-516 Coimbra, Portugal</td>
</tr>
<tr>
<td>11:30</td>
<td>Digital Twins – a simulation model for Cu(In,Ga)Se2 solar cells of high</td>
<td>Matthias Masberg1, Chang-Yun Song1, Marcin Morawski1, Felix Neduck1, Joshua Damm1, Heiko Kempa1, Dimitrios Haniskos2, Wolfram Witte2, Roland Scheer1, 1. Institute of Physics, Martin-Luther-University Halle-Wittenberg, von Danckelmann-Platz 4, 06120 Halle (Saale), Germany. 2. Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Meitenstraße 1, 70563 Stuttgart, Germany</td>
</tr>
<tr>
<td>11:45</td>
<td>Towards multi-coloured CIGS solar cells</td>
<td>Lena Menges1, Shash Shilat1, Alice Debolt1, Van Ben Chut1, Didier Arl2, Joana Ferreira1, Ricardo G. Poirier1, Oscar Ramiriez2, Hasan A. Yetkin1, Michele Melchior1, Philip J. Dale1, 1. Department of Physics and Materials Science, University of Luxembourg, Belvaux, L-4422, Luxembourg. 2. Luxembourg Institute of Science and Technology, Materials Research and Technology Department, 41, rue du Brill, L-4422 Belvaux, Luxembourg</td>
</tr>
<tr>
<td>12:00</td>
<td>Synthesis and study of microstructural, optical and electrical properties</td>
<td>Markus Mock, Karsten Albe Tu Darmstadt, Tu Darmstadt</td>
</tr>
<tr>
<td>12:15</td>
<td>New Technology of Atom Probe Tomography Instrumentation and an Overview</td>
<td>Peter Kemna, J. van den Berg, S. Anh, M. Theelen TNO part of Solliance</td>
</tr>
<tr>
<td>12:30</td>
<td>Lunch and Plenary</td>
<td></td>
</tr>
</tbody>
</table>
15:00 Growth and Characterization of Earth-abundant Quaternary Semiconductor Cu$_2$SnS$_4$ (M=Zn, Fe, Co and Ni) Thin Films via Thermal Vac H. Gueslaïli, M. Marzoug1, H. Hammami1, M. Ben Rabeh1 and M. Kanzari2 1University of Tunis El Manar, National Engineering School of Tunis, Photovoltaic and Semiconductor Materials Laboratory, 1002, Tunis, Tunisia. 2University of Tunis, Preparatory Institute for Engineering Studies of Tunis, Photovoltaic and Semiconductor Materials Laboratory, 1002, Tunis, Tunisia  

15:30 Structural characterization of the solid solution Cu$_2$Mn(Ge$_x$Sn$_{1-x}$)S$_4$ David C. N. Matzdorf$^{(1,2)}$, Dr. Galina Gurieva$^{(1)}$, Dr. Denis Shepilakov$^{(3)}$, Prof. Dr. Susan Schottor$^{(1,2)}$ 1 Helmholtz-Zentrum Berlin für Materialien und Energie, Hahn-Meitner-Platz 1, 14109 Berlin, Germany (contact: david.matzdorff@helmholtz-berlin.de) 2 Berlin Institute für Geowissenschaften, FU Berlin, Malteserstr. 74-100, 12249 Berlin, Germany 3 Paul Scherrer Institute, Forschungsstrasse 111, 5232 Villigen PSI, Switzerland  

15:00 Cu$_2$FeSnS$_4$ (CFTS) thin films by sputtering technique for photovoltaic application Luigi Friloni, Vanira Trifiletti, Giorgio Tseberlidis, Stefano Marchionna, Simona Binetti, Felice M. Brioschi, and Andrea Tedeschi. Università degli Studi di Milano Bicocca, Italy.  

15:00 Investigation of the effects of Li-Na co-doping in CZTS solution-processed absorbers on performance and morphology Simon Mosey, Ayodhya N. Tiwari, Romain Carron Laboratory for Thin Films and Photovoltaics, Empa - Swiss Federal Laboratories for Materials Science and Technology, Uberlandstrasse 129, 8600 Dübendorf, Switzerland  

15:00 Growth and properties of Cu$_2$NIn$_5$S$_4$ (CNTS) films using spray pyrolysis Qutman El Khouria ($^{(1,2)}$), Khalid Nouneh ($^{(2)}$), Mohamed Ebn Touhami ($^{(2)}$), Abdelali Talbi ($^{(2)}$), Yassine Khaisa ($^{(2)}$), Elena Matei ($^{(1)}$), Mi Cuculescu ($^{(1)}$), Vishnu Melki ($^{(1)}$), Stancu ($^{(1)}$), Aurelian Catalin Gaia ($^{(1)}$) ($^{(1)}$) National Institute of Materials Physics, Aigmisitulim 405A, 077125 Magurele, Romania, (2) Faculty of Science, Ibn Tofain University, Campus Universitaire, 14000 Kenitra, Morocco  

15:00 Sequential magnetron sputtering approach for the synthesis of Cu$_2$ZnSnS$_4$ films Mohamed Yassine Zaki ($^{(1)}$), Florin Savu ($^{(1)}$), Iosif Daniel Simandan ($^{(1)}$), Angel Theodor Burianiu ($^{(1)}$), Claudia Mihai ($^{(1)}$), Alin Velea, Aurelian Catalin Gaia ($^{(1)}$) ($^{(1)}$) National Institute of Materials Physics, Aigmisitulim 405A, 077125 Magurele, Romania, (2) Faculty of Science, Ibn Tofain University, Campus Universitaire, 14000 Kenitra, Morocco  

16:00 Optical Constants of Cu$_2$SnS$_4$ Thin Films Grown via Thermal Evaporation H. Hammami1, M. Ben Rabeh1 and M. Kanzari2 1University of Tunis El Manar, National Engineering School of Tunis, Photovoltaic and Semiconductor Materials Laboratory, 1002, Tunis, Tunisia. 2University of Tunis, Preparatory Institute for Engineering Studies of Tunis, Photovoltaic and Semiconductor Materials Laboratory, 1002, Tunis, Tunisia  

16:00 Electron selective contacts based on transition metal oxides and amino acid dipeptides for CZTSe solar cells. Rosa Estefania Almache, Benjamin Pusay, Eli Ros, Kunal Tiwari, Alex Jimenez, Alejandro Pérez, Gerard Mastmitja, Cristóbal Voz, Edgardo Saucedo, Joaquin dipoles for CZTSe solar cells. Ion Lungu, Lidia Ghimpu, Dumitru Untila and Tamara Petlog 1Department of Thin Film Chemical Technologies, Department of Materials and Environmental Technology, Tallinn University of Technology, 1002, Tallinn, Estonia  

16:00 High-Quality Large-Area Growth of MoS$_2$ Monolayers using Combinational Phase Precursors based Chemical Vapor Deposition Ary Anggara Widowo ($^{(1)}$), Mike Tebytekerewa ($^{(2)}$), Anh D. Bui ($^{(1)}$), Sandra Sai ($^{(3)}$), Congyou Yin ($^{(3)}$), Yueru Lu ($^{(1)}$), Daniel Macdonald ($^{(1)}$), and Hieu T. Nguyen ($^{(1)}$) ($^{(1)}$) School of Engineering, The Australian National University, Canberra, ACT 2601, Australia. ($^{(2)}$) School of Chemical and Physical Engineering, The University of Queensland, St Lucia, Brisbane 4072, Australia. ($^{(3)}$) Research School of Chemistry, The Australian National University, Canberra, ACT 2601, Australia  

16:00 Different Morphological Growth of Molybdenum Disulphide via Aerosol-Assisted Chemical Vapour Deposition Lewis Adams, Nilan Ratnaratnam, Peter D. Matthews School of Chemical and Physical Sciences, Keele University, Keele, ST5 5BG, UK  

16:00 Efficient ultrathin AgBi$_2$S$_4$ nanocrystal solar cells via cation disorder engineering (Fundamentals & Theory) Seán R. Kavanagh, Yongjie Wang, Ignasi Burgues-Ceballos, Gerasimos Konstantatos, Aron Walsh, David O. Scanlon Thomas Young Centre and Department of Chemistry, University College London, London WC1H 0AJ, U.K. 1 Thomas Young Centre and Department of Chemistry, Imperial College London, London SW7 2AZ, U.K. 2 ICF-Instutü de Ciencies Fotòniques, The Barcelona Institute of Science and Technology, 08860 Barcelona, Spain, 3 Department of Materials Science and Engineering, Yonsei University, Seoul 03722, Republic of Korea, ICREA-Institució Catalana de Recerca i Estudis Avancats, Lluis Companys 23, 08010 Barcelona, Spain  

16:00 In situ monitoring of field evaporation in planar Ga$_2$O$_3$ films grown via a gas-source MBE technique Ion Lungu, Lidia Ghimpu, Atanas Katerski, Malle Krunks and Ioana Oja Acik. Department of Materials and Environmental Technology, Tallinn University of Technology, Enstituek tsa 5, 19086 Tallinn, Estonia  

16:00 Development of Bismuth-based thin film semiconductor alloys for photovoltaic applications Mykhalio Koltsov, Nicolas Spalatu, Jaan Hiie, Malle Krunks, Ionana Oja Acik. Department of Materials and Environmental Technology, Tallinn University of Technology, Enstitutek tsa 5, 19086 Tallinn, Estonia  

16:00 Development of antimony sulfi de thin-film solar cells for semi-transparent applications *Robert Begliaray, Atanas Katerski, Ionana Oja Acik, Malle Krunks. Laboratory of Thin Film Chemical Technologies, Department of Materials and Environmental Technology, Tallinn University of Technology, Estonia  

16:00 Copper-related defects in ZnTe thin films grown by close space sublimation method. 10n Lungu, 2Lidia Ghimpu, 1Dumitru Unțula and 1Tamara Potlog 1Physics Department and Engineering, Moldova State University, MD-2009, Chisinau, Moldova. 2Institutte of Electronic Engineering and Nanotechnologies, Academy of Sciences of Moldova, Chisinau, Moldova. 3Institutte of Electronic Engineering and Nanotechnologies, Academy of Sciences of Moldova, Chisinau, Moldova.  

16:00 Gallium Sulphide layers by Close-Spaced Sublimation for UV Detector applications Spialí, D.(1), Vatavu, E.(2), Ghilețchi, Gh.(1), Dimitroglou, L.(1,2), Shapoval, O.(1), Belenchuk, A.(1), Loiota, G.(1), Patamarchi, M.(1), Naor, J.(1), Shaji, A.(2) and Gopi, S.*(1,3) (1) Institute of design and Fabrication (IDF)-Universitat Politecnica de Valencia (UPV) Camino de Vera, s/n 46022 Valencia, Spain. 2 COMSATS University Islamabad, Abbottabad Campus (CUI), Pakistan. 3 Department of Electrical Engineering, Federal Urdu University of Arts, Science and Technology, Islamabad, Pakistan.  

16:00 Influence of vapour transport deposition conditions on properties of Sb$_2$Se$_3$ thin film absorber and solar cells Sajeev Vadakkedath Gopi, Nicole Spalatu, Atanas Katerski, Malle Krunks and Ioana Oja Acik. Department of Materials and Environmental Technology, Tallinn University of Technology, Eventsite tsa 5, 19086 Tallinn, Estonia  

16:00 Transition metal dichalcogenides for light harvesting applications Ganesh Ghiminei1, Denys I. Miakota1, Rajesh Ulaganathan1, and Stefa Canuel1. Department of Photonics Engineering, Technical University of Denmark, DK-4000 Roskilde, Denmark.  

K-6 K-7
**Wednesday June 1**

**Kesterites:** Phillip Dale - tbd

- **09:00**
  - **Inv** Band gap increase in kesterites through Ge alloying
    - C. Platzer Björkman, N. Sanji, J. K. Larsen
    - Div. Solar Cell Technology, Dep Materials Science and Engineering Uppsala University

- **09:30**
  - **Surface Electronic Characterisation of Cu2ZnSn(S,Se)4 Films from Sn(ll) and Sn(V) precursors**
    - Alice Sheppard, Neil A. Fox, David J. Fermin
    - School of Chemistry, University of Bristol, Cantock’s Close, Bristol (UK) and H.H. Wills Physics Laboratory, University of Bristol, Tyndall Av., Bristol (UK), School of Chemistry, University of Bristol, Cantock’s Close, Bristol (UK) and H.H. Wills Physics Laboratory, University of Bristol, Tyndall Av., Bristol (UK), School of Chemistry, University of Bristol, Cantock’s Close, Bristol (UK)

- **09:45**
  - **Crystallographic structure and point defects vs. efficiency and stability in Cu2ZnSn(S,Se)4 monograin solar cells**
    - G. Gueurev1, K. Erritz, N. Sminia3, A. Manjon Sanaz1, S. Sheptyakov5, M. Kirkham4, D. Meissen2,6, S. Schor1,7
    - 1 Helmholz-Zentrum Berlin für Materialien und Energie, 14109 Berlin, Germany
    - 2 crystalsol OÜ, 12618 Tallinn, Estonia
    - 3 Institute of Applied Physics, Academy of Sciences of Moldova, MD-2029 Chişinău, Moldova
    - 4Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge, TN 37931, USA
    - 5 Paul Scherrer Institute, 5232 Villigen PSI, Switzerland
    - 6 Tallinn University of Technology, Tallinn, Estonia
    - 7 Freie Universität Berlin, Institute of Geosciences, 12249 Berlin, Germany

- **10:00**
  - **Characterization of generated carrier transport of Na passivated flexible Cu2ZnSn(S,Se)4 thin film solar cells under mech an**
    - Ha Kyung Park 1, Yunae Cho 1,2, Juran Kim 1, Sammi Kim 3, Kee-Jeong Yang 3, Dae-Hwan Kim 3, Jin-Kyu Kang 3, William Jo 1,2
    - 1 Department of Physics, Ehwa Womans University, Republic of Korea
    - 2 New and Renewable Energy Research Center, Ehwa Womans University, Republic of Korea
    - 3 Division of Energy Technology, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Republic of Korea

- **10:15**
  - **Semi-transparent Cu2ZnGe(S,Se)4 thin film solar cells**
    - 1 Universidad Autónoma de Madrid, Departamento de Física Aplicada, Spain
    - 2 REC, Catalonia Institute for Energy Research, Spain
    - 3 Instituto de Optica Daza de Valdés, CSIC, Spain
    - 4 Universidad Politécnica de Cataluña, Spain
    - 5 PVCOMb-Helmholtz Zentrum Berlin für Materialien und Energie, Germany

- **10:30**
  - **Discussion**

- **10:45**
  - **Radio-frequency magnetron sputtering deposition process for In2O3:H**
    - G. Avez(1),2, Joaquim Carneiro(2), Vasco Teixeira(2), & Sascha Sadewasser(1)
    - 1 International Iberian Nanotechnology Laboratory, Av. Mestre José Veiga s/n, Braga, Portugal
    - 2 Centre of Physics of the Minho and Porto Universities (CF-UM-UP), Azurém Campus, 4800-058 Guimarães, Portugal

- **11:00**
  - **Electronic properties of CIGS Solar Cells with different Ag/(Ag Cu) ratio**
    - Shih-Kai Lin, Jien-Han Siew, Tzu-Ying Lin
    - Shih-Kai Lin, Advanced Thin Film Energy Materials Laboratory, Department of Materials Science and Engineering National Tsing Hua University, Hsinchu, Taiwan
    - Jien-Han Siew, Advanced Thin Film Energy Materials Laboratory, Department of Materials Science and Engineering National Tsing Hua University, Hsinchu, Taiwan
    - Tzu-Ying Lin, Advanced Thin Film Energy Materials Laboratory, Department of Materials Science and Engineering National Tsing Hua University, Hsinchu, Taiwan

- **11:00**
  - **Impact of heat soaking on CunGa(S,Se)2 solar cells**
    - Jien Han Siew, Shih-Kai Lin, Tzu-Ying Lin
    - Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan

- **15:00**
  - **Inv** Te Alloys and Te Oxides to Enhance the Back-Contact of CdTe Cells
    - James Siles
    - Colorado State University

- **15:30**
  - **Impact of metastable defect structures on carrier recombination in solar cells**
    - Séan R. Kavanagh,1,2 Aron Walsh,2 David O. Scanlon1 and Christoph Freysoldt3
    - 1. Thomas Young Centre and Department of Chemistry, University College London, 20 Gordon Street, London WC1H 0AJ, U.K.
    - 2. Thomas Young Centre and Department of Materials, Imperial College London, Exhibition Road, London SW7 2AZ, U.K.
    - 3. Max-Planck-Institut für Eisenforschung GmbH, Max-Planck-Str. 1, 40237 Düsseldorf, Germany

- **16:00**
  - **Electronic properties of CdTe based detector structures by Kelvin Probe and Photoelectron Yield Spectroscopy**
    - Vatalov, S.1,2,3, Rotaru, C. (1,2), Nalysnyk, I.G.(1), Ghieletchi, Gh.(1), Berco, E.(1), Nicorici, V.(1), Unold, T.3, Rusu, M.1,3
    - 1 Physics of Condensers and Devices Lab, Faculty of Physics and Engineering, Moldova State University, 60 A. Mateevici str., MD 2009, Chisinau, Moldova
    - 2 CallRISMA Research Center, Faculty of Physics and Engineering, Moldova State University, 60 A. Mateevici str., MD 2009, Chisinau, Moldova

**K 8.1**

**K 8.2**

**K 8.3**

**K 8.4**

**K 8.5**

**K 9.1**

**K 9.2**

**K 9.3**

**K 9.4**

**K 9.5**

**K 9.6**

**K 9.7**

**K 9.8**

**K 10.1**

**K 10.2**

**K 10.3**

**K 10.4**
16:15 Study of Cadmium Telluride-Embedded Copper Nanowire Interfaces for Photovoltaic Applications
Ana-Maria PANAITESCU (1), Julia ANTOHE (2), Claudiu LOCOVEI (1,3), Sorina IFIȚMIE (1), Stefan ANTOHE (1,4), Luc PIRAUX (5), and Vlad-Andrei ANTOHE (1,5,*)
(1)  University of Bucharest, Faculty of Physics, R&D Center for Materials and Electronic & Optoelectronic Devices (MDEO), Atomistilor Street 405, 077125 Magurele, Ilfov, Romania. (2) National Institute for Lasers, Plasma and Radiation Physics (INFLPR), Atomistilor Street 409, 077125 Magurele, Ilfov, Romania, (3) National Institute of Materials Physics (IMrP), Atomistilor Street 450A, 077125 Magurele, Ilfov, Romania, (4) Academy of Romanian Scientists (AOSR), Splaiul Independentei 54, 050094 Bucharest, Romania, (5) Université catholique de Louvain (UCLouvain), Institute of Condensed Matter and Nanosciences (IMCN), Place Croix du Sud 1, B-1348 Louvain-la-Neuve, Belgium, *Corresponding and contact author: vladi.antohe@fizica.unibuc.ro (V. A. ANTOHE).

16:30 Discussion

16:45 Investigating the origin of the N1 signature in admittance spectroscopy of CIGS solar cells by a variation of cell layers
Stephan J. Heise, Hippolyte Hirwa, Jörg Ohland
Ultrafast Nanoscale Dynamics, Institute of Physics, University of Oldenburg, 26111 Oldenburg, Germany

16:50 Quasiparticle Bound States in the Solid State Physics: a CdTe Case Study
Klyukanov, A.A.(1), Varzari, A.(1), Vatavu, S.(1) (1) Physics of Semiconductors and Devices Lab, Faculty of Physics and Engineering, Moldova State University, 60 A. Mateevici str., MD 2009, Chisinau, Moldova

18:00 E-MRS EU-40 Materials Prize & MRS Mid-Career Researcher Award Presentations
### Thursday June 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Authors and Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td><strong>Nanoscience electronic properties of alkali-treated CIGSe thin-film solar cells</strong></td>
<td>N. Nicora(1)*, D. Sharma(1), R. Manaligod(1), P. Jackson(2), W. Willert(2), G. Sozzi(3), R. Menozzi(3), Sascha Sadewasser(1) (1)International Iberian Nanotechnology Laboratory, 4715-330 Braga, Portugal (2)Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg, 70565 Stuttgart, Germany (3)University of Parma, 43124 Parma, Italy</td>
</tr>
<tr>
<td>09:45</td>
<td><strong>Low temperature bias and frequency dependent ambipolar diffusion maps</strong></td>
<td>G. Bräunner, R. Scaffidi, S. Hanitae, Y. Wang, J. de Wild, M. Meurs, J. Poortmans, B. Vermang all authors are with 1 imec division IMOMED - partner in Solliance, Wetenschapspark 1, 3590 Diepenbeek, Belgium. 2 Institute for Material Research (IMR) Hasselt University – partner in Solliance, Wetenschapspark 1, 3590 Diepenbeek, Belgium. 3 EnergyVille, Thorup 8310 &amp; 8320, 3600 Genk, Belgium. J. Poortmans is also with 4 Department of Electrical Engineering, KU Leuven, Kasteelpark Arenberg 10, 3001 Heverlee, Belgium.</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>Chemical and Electronic Properties of Co-Evaporated In2Se3 and RbInSe2 Thin Films from Photoemission Spectroscopies and Kelvin Probes</strong></td>
<td>M. Rusu1, N. Matico2c, T. Kodalle2, T. Bertram2, I. Simsek1, I. Lauermann2, C. A. Kaufmann2, R. Schlatmann2, S. Schirch3, and T. Uno11 1Department Structure and Dynamics of Energy Materials, Helmholtz-Zentrum Berlin für Materialien und Energie. 2Magnetismus-Magnetische Energie. 3Leibniz-Institut für Neue Materialien, Jena, Germany 3Institute of Geosciences, Freie Universität Berlin, Maltese St. 74-100, 12249 Berlin, Germany</td>
</tr>
<tr>
<td>10:15</td>
<td><strong>Discussion</strong></td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td><strong>Emerging Chalcogenide Thin Films for Next Generation Photovoltaic Devices</strong></td>
<td>Lydia Helena WONG 1,2 1 School of Materials Science and Engineering, Nanyang Technological University, Singapore. 2 Campus of Research Excellence and Technological Enterprise (CREATE), Singapore</td>
</tr>
<tr>
<td>11:30</td>
<td><strong>Efficient AgBiS2 Nanocrystal Solar Cells via Cation Disorder Engineering</strong></td>
<td>Yongjie Wang1,*(1), Sean R. Kavanaugh2,3, Igsani Burgués-Ceballos1, Anon Walsh3,4, David Scanlon2, Gerasimos Konstantatos1,5 (1)ICFO-Institut de Ciencies Fotoniques, The Barcelona Institute of Science and Technology, Spain. (2)Thomas Young Centre and Department of Chemistry, University College London, U.K. (3)Thomas Young Centre and Department of Materials, Imperial College London, U.K. (4)Department of Materials Science and Engineering, Yonsei University, Republic of Korea. (5)ICREA-Institució Catalana de Recerca i Estudis Avançats, Spain. * Lead presenter</td>
</tr>
</tbody>
</table>

### K 12.1

**K 12.2**

**K 12.3**

**K 13.1**

**K 13.2**

**K 13.3**

**K 13.4**

**K 13.5**

**K 13.6**

**K 13.7**
SYMPOSIUM L

Chromogenic materials and devices

Symposium Organizers:

Aline ROUGIER, ICMCB, UMR-CNRS 5026

Bernard DAM, Delft University of Technology, Chemical Engineering

Fabien CAPON, Institut Jean Lamour

Smagul KARAZHANOV, Institute for Energy Technology
Monday may 30

08:45 Welcome and Introduction to the Symposium - B. Dam, F. Capon, S. Karazhanov, A. Rougier

09:00 Temperature-Responsive Reflective Coatings for Smart Windows
Albert Schenning
Eindhoven University of Technology

09:30 Thermochromic properties of NITIO3

09:45 Thermochromic Coatings and Laminates for Smart Windows Comprising W-Doped VO2 Nanopigments

10:00 Oxidation of a novel V2N precursor as an efficient method to form thermochromic VO2 thin films
A.C. Garcia-Wong, D. Pitkoud, S. Bruyère, F. Capon, J.F. Pierson
Institut Jean Lamour, UMR 7198, CNRS-Université de Lorraine, Campus Artem, 2 allée André Guinier, 54011 Nancy, France.

10:15 Atomic Layer Deposition (ALD) of thermochromic VO2 thin film
A. Jolivet a, J. Cardin a, C. Frilly a, O. Debieu b, P. Marie b, S. Duprey a, F. Lemort a, X. Portier a, B. Horcholles a, P. Bazin c, J. More-Chevalier d, P. Fitl d, S. Cichy e, J. D. Lan‘oki d, W. Jöschewitsch d, M. Kaden f, D. Cammas g, D. Cauwet a, Ch. Adamantidis a, Peter紅-Lee Thien a, a) Eindhoven University of Technology, b) University of Paris-Nord, c) University of Lille 1, d) University of Leuven, e) University of Liège, f) University of Brussels, g) University of Leiden

10:30 Discussion

11:00 Discussion

11:45 Luminescent mechanochromic materials based on copper iodide compounds
Raquel Udrea-Melo, Florian Massuyau, Jean-Yves Mevellec, Camille Lalouche, and S. Perruchas
Université de Nantes, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, F-44000 Nantes, France.

12:00 Study of localized surface plasmon resonance(LSPR) induced electrolyte chemistry to achieve quadruole mode electrochromic device
Jiseon Kim(1), Dongwon Shin(1), Sungjun Choi(1) and Caroline Sunyong Lee(1)
(1) Department of materials science and chemical engineering, Hanyang University, South Korea

12:15 Lunch

13:45 INV Photochromism in oxygen-containing rare-earth hydrides ? what have we learned?
D. Primethofer
Department of Physics and Astronomy, Uppsala University, Box 516, SE-751 20 Uppsala, Sweden

14:15 Photochromism in Rare-Earth Oxyhydroxide thin films
Bernard Dam1, Giorgio Colombi1, Diana Chaykina1, Zying Wu1, Gilles A. De Wijs2, Shrestha Banerjee2, Ano P. M. Kortgern2, Stephan W. H. Eijt1
1) Faculty of Applied Science, TU Delft, Delft, The Netherlands. 2) Institute for Molecules and Materials, Radboud University, Nijmegen, The Netherlands

14:30 New dithienylene[enes ? polyoxometalates hybrid materials with highly efficient solid-state photochromic properties
Patricia Bolle (a), Oleh Stetsuk (a,b), Clotilde Menet (a), Marin Puget (a), Hélène Serier-Braunf (a), Marie Cordier (b), Shofel Katoz (c), Véronique Guernchais (b), Florent Bouche (c), Tsucyo Kawai (c), Reimi Dessapt (a)
(a) Université de Nantes, CNRS, Institut des Matériaux Jean Rouxel, IMN, F-44000 Nantes, France. . (b) Univ Rennes, CNRS, ISCR T UMR8226, F-35000, Rennes, France. . (c) Nara Institute of Science and Technology, 8916-5 Takayama, Icocma, Nara 630-0192, Japan.

14:45 Synthesis and optical/thermal reversible photo-switching of AgCl-AgPO3 photochromic composite glass coatings for space applicati
Marios Adamiadis, Ioannis Konidias, Emmanuel Stratakis
Institute of Electronic Structure and Laser (IESL), Foundation for Research and Technology-Hellas (FORTH), 70013 Heraklion-Crete, Greece

15:00 INV Physics and crystal chemistry of rare-earth metal oxyhydride systems
A. Plichtshev(1), E. Strugovshchikov(2), S. Z. Karazhanov(3)
(1)Institute of Physics, University of Tartu, W.Ostwaldi 1, 50411 Tartu, Estonia, (2)Institute of Electronic Structure and Laser (IESL), Foundation for Research and Technology-Hellas (FORTH), 700013 Heraklion-Crete, Greece

15:30 Discussion
### Development of dual responsive poly(ionic liquid)s for smart window/display applications
Pranob Vithal Rathod, Hem Kim * Lead Presenter: Pranob Vithal Rathod, Email: pranobrathod1992@gmail.com Corresponding author*: Hem Kim. Email: hemlin@mu.ac.kr

Department of Energy Science and Technology / Environmental Waste Recycle Institute Myongil University, Yongin, Gyeonggi-do 17058, Republic of Korea

**L P1.3**

### Thermochromic Solar Control Coatings on SiO2-Coated Float Glass for Energy-Efficient Smart Windows
Yung, C. P. K. * (1, 2), Habets, R. (1, 2), Leukens, L. (1, 2), Colberts, F. (3, Stout, K. (3), Verheijen, M. A. (4), Vroon, Z. (1), Mann, D. T. (1, 2)).


**L P1.4**

### Reactive e-beam evaporation of yttrium: A spectral and structural investigation of metallic yttrium, yttrium oxide, and yttrium nitride

(1) Centre de Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia. (2) Centre de Subbotin, K. A. * (1, 2), Loiko, P. A. (3), Zimina, Y. I. (2), Kuleshova, K. V. (2), Didenko, Y. S. (2), Titov, A. I. (1, 2). * lead presenter

**L P1.5**

### Characterisation studies of thermochromic V02 thin films for smart windows applications
Ayushi Rai, Vishal Hansen, Cristian N. Mihailescu, and Andrei Delimitis * 1Department of Mechanical and Structural Engineering and Materials Science, University of Stavanger, PO box 8600, N-4036 Stavanger, Norway 2Department of Applied Physics, Eindhoven University of Technology, 5600MB Eindhoven, The Netherlands. 3European University Institute, Institute for Materials Research (IMO), DESIRe group, Marfelenlaan 42, 3500 Hasselt, Belgium. * lead presenter

**L P1.6**

### Optical properties of lamarin V02-TiO2 nanocomposites: Implication for thermochromic coatings
Betancuk, A. (1, 2), Stroh, K. (3), Shapoval, O. (1, 2), Vatavu, S. (1, 2).

(1) Physics of Semiconductors and Devices Lab, Faculty of Physics and Nanotechnologies, 3/3 Academiei str., 40228 Chisinau, Moldova. (2) Solid State Institute of Electronic Technology and Nanotechnologies, 3/3 Academiei str., MD 2028, Chisinau, Moldova. (3) Institute of Experimental Physics, Hasso Plattner Institute, 210314 Göttingen, Germany

**L P1.7**

### Chromogenic sensor for Candida spp. detection
Ana-Maria IORDACHE1, Stefan-Marian IORDACHE1, * Roxana BOHILTEA2, Valentina CAPATINAS, Cristina Eugenia Ana GRIGORESCU3

(1) National Institute of R&D in Optoelectronics, INOE 2000, 40 Atomistilor Street, 077125, Magurele, Jud. Ilfov, Romania. 2Carolina Daviau-University of Medicine and Pharmacy Bucharest, 3DionisieLupu, 020021, Bucharest, Romania. 3University of Bucharest, Faculty of Physics, 405 Atomistilor Street, PO Box MG-36, 077125 Magurele, Romania

**L P1.8**

### Dopants Concentrations and Mechanical Strength of the Promising YbLi2nW4O4 Crystal
Subbotin, K.A. (1, 2), Titov, A.I. (1, 2), Pavlov, S.K.(2,1), Volkov, P.A.(3), Samina, V.V.(1), Lis, D.A.(1), Lis, O.N.(1), Kuleshova, K.V.(2), Didenko, Y.S.(2) & Zharikov, E.V.(1)

(1)Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia (2)Mendeleyev University of Chemical Technology of Russia, Russia (3)IRCEA Shared Knowledge Center, Russia

**L P1.9**

### Dispersion of Principal Refractive Indices of Monoclinic MgW4O12 Laser Host Crystal
Subbotin, K.A. * (1, 2), Loiko, P.A. (3), Zimina, Y.I. (2), Kuleshova, K.V. (2), Didenko, Y.S. (2), Titov, A.I. (1, 2). * lead presenter

(1)Prokhorov General Physics Institute, Russian Academy of Sciences, Russia (2)Mendeleyev University of Chemical Technology of Russia, Russia (3)Centre de Recherche sur les Ions, les Matériaux et la Photonique (CIRMAP), UMR 6252 CEA-CNRS-ENSICAEN, Université de Caen Normandie, France

**L P1.10**

### Tuesday, May 31

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td>IV</td>
<td>Multi-color changeable polyaniline based polymer and waterproof Russian blue gaschromic materials</td>
<td>L P1.11</td>
</tr>
<tr>
<td>09:30</td>
<td>IV</td>
<td>Evaluation of solar transmittance properties using dry-deposited trimodal electrochromic/mirror device for Zero-energy building</td>
<td>L P1.12</td>
</tr>
<tr>
<td>09:45</td>
<td>IV</td>
<td>Hybrid Molybdenum-Tungsten Oxide as a New Generation Plasma Electrochromic Material for Smart Windows</td>
<td>L P1.13</td>
</tr>
<tr>
<td>10:00</td>
<td>IV</td>
<td>Spectrally Selective Electrochromic Devices: from Engineered Nanomaterials to Large Area Prototypes</td>
<td>L P1.14</td>
</tr>
<tr>
<td>10:15</td>
<td>IV</td>
<td>Development of composites based on metallic nanowires and functional oxides for energy-efficient smart windows</td>
<td>L P1.15</td>
</tr>
<tr>
<td>10:30</td>
<td>IV</td>
<td>Discussion</td>
<td>L P1.16</td>
</tr>
<tr>
<td>11:15</td>
<td>V</td>
<td>X-ray absorptions study of chromogenic materials</td>
<td>L P1.17</td>
</tr>
<tr>
<td>11:30</td>
<td>V</td>
<td>Origin of the memory effect in electrochromic WO3 thin films: crystallinity and stoichiometry issues</td>
<td>L P1.18</td>
</tr>
<tr>
<td>12:00</td>
<td></td>
<td>Lunch and Plenary</td>
<td></td>
</tr>
</tbody>
</table>
Yttrium Oxyhydride (YHO) for Commercial Applications - Challenges and Perspectives
Elbruz Murat Baba1-2, Chang Chuan You2, Erik Roenneberg1, Smagul Karazhanov2
1 Sunphade AS, Oslo, Norway, 2 Department for Solar Energy, Institute for Energy Technology (IFE), Kjeller, Norway

Modification of CeO2 by doping for glass industry applications: ab-initio study
D. Mamedov, S. Zh. Karazhanov
1) Department for Solar Energy, Institute for Energy Technology, 2027 Kjeller, Norway 2) Department of Materials Science, National Research Nuclear University, 115409 Moscow, Russia

Oxygen-containing yttrium hydride and deuteride thin films: synthesis aspects together with optical and vibrational properties
Institute of Solid State Physics, University of Latvia, Kengaraga 8, LV-1063, Riga, Latvia

New Lanthanide-free polyoxometalates as highly sensitive and reusable photoluminescent solid sensors for water detection
Aurély BAGGI, Philippe DENIARD, Hélène SERIER-BRAULT, Rémi DESSAPT
Institut des matériaux Jean Rouxel (IMN), UMR 6502 CNRS, Université de Nantes, 2 rue de la Houssinière, BP 32229, 44322 Nantes cedex 3, France

Fluorescent ion-imprinted polymers as sensing materials for lead detection
William René, Véronique Lenoble, Katri Laatikainen, Catherine Branger
William RENE, Université de Toulon, MAPIEM Laboratory, France & Aix Marseille Université, CNRS, IRD, MIO, Toulon, France, Véronique LENOBLE, Aix Marseille Université, CNRS, IRD, MIO, Toulon, France, Katri LAATIKAINEN, Lappeenranta-Lahti University of Technology LUT, School of Engineering Science, Department of Separation Science, Lappeenranta, Finland, Catherine BRANGER, Université de Toulon, MAPIEM Laboratory, France

Discussion and Closing
SYMPOSIUM M

Novel materials for radiation detectors

Symposium Organizers:

Jinsong HUANG, University of North Carolina

Laura BASIRICO, University of Bologna

Paul SELLIN, University of Surrey
Monday may 30

14:45 Welcome and Introduction to the Symposium

15:00 INV Perovskite - a wonder material for X-ray detection
Shengzhong (Frank) Liu
1Dalian National Laboratory for Clean Energy, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, P.R. China 2Key Laboratory of Applied Surface and Colloid Chemistry, Ministry of Education, Shannxi Key Laboratory for Advanced Energy Devices, Shaanxi Engineering Lab for Advanced Energy Technology, School of Materials Science & Engineering, Shaanxi Normal University, Xi’an 710119, P.R. China

15:30 INV Developing Advanced Materials for X-ray Imaging and Sensing
Xiaogang Liu
National University of Singapore

16:00 Heterojunction Structures for Reduced Noise in Large Area, Stable and Sensitive Perovskite X-ray Detectors
Ying Zhou, Liang Zhao, Zhenyi Ni, Shuang Xu, Jingjing Zhao, Xun Xiao and Jinsong Huang
Department of Applied Physical Science, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, USA

16:15 Discussion

Tuesday may 31

14:50 Welcome to Day 2

15:00 INV Organic and Hybrid films as platform for Large-area and Flexible Direct Detection of Ionizing Radiation
Andrea Ciavatti
Department of Physics and Astronomy, University of Bologna, Italy

15:30 INV Radiation Detectors based on Organic Field-Effect Transistors (RAD-OFETs)
Dana D. Jurchescu
Dana D. Jurchescu, Department of Physics and Center for Functional Materials, Wake Forest University, Winston Salem, NC 27109, USA

16:00 CsPbCl3 inorganic perovskite thin film detectors under high energy proton beams
Mara Bruzzì1,2, Nicola Calsisi, Carlo Cavininì1, Enrico Verro1, Anna Vinattieri1,2
1Dipartimento di Fisica e Astronomia, Università degli Studi di Firenze, Via G. Sansone 1, 50019 Sesto Fiorentino (FI) Italy, 2 I.N.F.N. Sezione di Firenze Via G. Sansone 1, 50019 Sesto Fiorentino (FI) Italy

16:15 Discussion

Monday may 30

14:45 Welcome and Introduction to the Symposium

15:00 Welcome to Day 2

15:00 INV Perovskite - a wonder material for X-ray detection
Shengzhong (Frank) Liu
1Dalian National Laboratory for Clean Energy, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, P.R. China 2Key Laboratory of Applied Surface and Colloid Chemistry, Ministry of Education, Shannxi Key Laboratory for Advanced Energy Devices, Shaanxi Engineering Lab for Advanced Energy Technology, School of Materials Science & Engineering, Shaanxi Normal University, Xi’an 710119, P.R. China

15:30 INV Developing Advanced Materials for X-ray Imaging and Sensing
Xiaogang Liu
National University of Singapore

16:00 Heterojunction Structures for Reduced Noise in Large Area, Stable and Sensitive Perovskite X-ray Detectors
Ying Zhou, Liang Zhao, Zhenyi Ni, Shuang Xu, Jingjing Zhao, Xun Xiao and Jinsong Huang
Department of Applied Physical Science, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, USA

16:15 Discussion

Tuesday may 31

14:50 Welcome to Day 2

15:00 INV Organic and Hybrid films as platform for Large-area and Flexible Direct Detection of Ionizing Radiation
Andrea Ciavatti
Department of Physics and Astronomy, University of Bologna, Italy

15:30 INV Radiation Detectors based on Organic Field-Effect Transistors (RAD-OFETs)
Dana D. Jurchescu
Dana D. Jurchescu, Department of Physics and Center for Functional Materials, Wake Forest University, Winston Salem, NC 27109, USA

16:00 CsPbCl3 inorganic perovskite thin film detectors under high energy proton beams
Mara Bruzzì1,2, Nicola Calsisi, Carlo Cavininì1, Enrico Verro1, Anna Vinattieri1,2
1Dipartimento di Fisica e Astronomia, Università degli Studi di Firenze, Via G. Sansone 1, 50019 Sesto Fiorentino (FI) Italy, 2 I.N.F.N. Sezione di Firenze Via G. Sansone 1, 50019 Sesto Fiorentino (FI) Italy

16:15 Discussion
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:50</td>
<td>Welcome to Day 3</td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td>High-resolution room temperature gamma-ray detection with CsPbBr3 perovskite</td>
<td>Mercourti G Kanatzidis, Department of Chemistry, Northwestern University, Evanston, IL 60208, USA</td>
</tr>
<tr>
<td>15:15</td>
<td>Investigation on CsPbBr3 Detectors: from Leakage Current and Charge Transport Behaviors to Contact and Configuration</td>
<td>Yangong Xu 12, Yingying Han1, Xin Zhang1, Fangge Li1, Ruichen Bai1, Qihao Sun1, Menghua Zhu1, Wang Ji1,2.</td>
</tr>
<tr>
<td>16:00</td>
<td>Extreme γ-ray radiation hardness and high scintillation yield in perovskite nanocrystals</td>
<td>Matteo L. Zaffalon, Francesca Cova, Mingming Liu, Alessia Cenni, Ilaria Di Sarcina, Carmelita Roda, Mauro Fasoli, Francesco Mennardi, Liang Li, Anna Veddà, Sergio Brovelli.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano - Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10. Dipartimento di Scienza dei Materiali, Università degli Studi Milano - Bicocca, via R. Cozzi 55, IT-20125 Milano, Italy &amp; Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Milano – Bicocca, Milano, Italy.</td>
</tr>
<tr>
<td>16:15</td>
<td>Discussion</td>
<td></td>
</tr>
</tbody>
</table>
| 16:30  | Understanding and manipulating of radiation induced triplets states for efficient X-ray scintillation and imaging. | Yang Yang (Michael)  
State Key Laboratory of Modern Optical Instrumentation, College of Optical Science and Engineering, Zhejiang University, Hangzhou, Zhejiang 310027, China. |
| 17:00  | Discussion                                                             |                                                                                                   |
| 17:10  | Orthohombic Cesium Plumbodiolide for Sensitive High-Resolution X-ray Detectors | Maksud I. Saidaimevon  
University of Victoria, Canada. |
Dept. Electrical and Mechanical Engineering, Graduate School of Engineering, Nagoya Institute of Technology, Gokiso, Showa, Nagoya 466-8555, Japan. |
| 17:10  | Synthesis of morphology controlled Hf-halide double perovskite and Lu-hydroxy-halide luminescent nano/micro-particles | Madeleine Fellner, Alessandro Laura  
ETH Zurich, Department of Materials, Laboratory of Multifunctional Materials, Vladimir-Prelog Weg 5, 8093 Zurich. |
| 17:10  | MAPbBr1-xCl3 perovskite materials and influence of environment on crystal growth for direct X-ray detection | Javier Mayen Guillen, Giovanni Armario, Ferdinand Ledere, Oriane Baussens, Marian Chapman, Jean-Marie Verlinhac, Eric Gros D’Aillon, Alain Ibañez, Julian Zaccaro  
University of Bologna, 40127 Bologna, Italy Ferdinand Ledeé – Grenoble Alpes University, CEA, LETI, DPT, F38000 Grenoble, France.  
Marian Chapman – Grenoble Alpes University, CEA, LETI, DPT, F38000 Grenoble, France.  
Oriane Baussens – Grenoble Alpes University, CEA, LETI, DPT, F38000 Grenoble, France.  
Jean-Marie Verlinhac – Grenoble Alpes University, CEA, LETI, DPT, F38000 Grenoble, France.  
Eric Gros D’Aillon – Grenoble Alpes University, CEA, LETI, DPT, F38000 Grenoble, France.  
Alain Ibañez – Grenoble Alpes University, CNRS, Grenoble INP, Institut Néel, F38042 Grenoble, France.  
Julien Zaccaro – Grenoble Alpes University, CNRS, Grenoble INP, Institut Néel, F38042 Grenoble, France. |
| 17:10  | Novel sustainable and flexible composite neutron detector based on fully enriched lithium tetraborate | Jessica Delgado, Felix Pino, Sara Maria Carbur, Giorgia Mantovani, Matteo Polo, Daniela Fabris, and Sandra Moretto.  
Dipartimento di Fisica e Scienze della Terra, Universita di Ferrara, Ferrara, 44122, Italy, Department of Physics and Astronomy “Gallar”, University of Padova, Padova, 35121, Italy, INFN-Laboratori Nazionali di Legnaro, Legnaro, 35020, Italy, INFN-Padova Section, Padova, 35131, Italy. |
| 17:10  | Organic additivies for stabilizing low-dimensional hybrid perovskites incorporated in sensor and related devices | Anna Ioannou, A.I.1, Uluk Ilmaz, U.Y.2, Georg Ramer, G.R. (2), Bernhard Ledl, B.L. (2), Ioannis Koutselas, I.K. (1)  
(1) Department of Materials Science, University of Patras, Greece  
(2) Institute of Chemical Technologies and Analytics, Technische Universität Wien, Austria. |
| 17:10  | Development and understanding of highly efficient MOF composite scintillators | Hayden Salway * (1), Elena Avila (1), Samuel Stranks (1), David Fairen-Jimenez (1), Miguel Anaya (1).  
(1) Department of Chemical Engineering and Biotechnology, University of Cambridge, Phillips Fawcett Drive, Cambridge, CB3 1QA UK.  
* Lead presenter. |
| 17:10  | Bias-modulated spectral-slective perovskite/organic hybrid photodetector | Suen Chun Wai, Cai Linfeng, Zhu Fuqiong  
Department of Physics, Research Centre of Excellence for Organic Electronics, and Institute of Advanced Materials, Hong Kong Baptist University. |
| 17:10  | Direct Detection of 5-MeV protons by Flexible Thin-Film devices based on Organic Semiconductors | Ilaria Fratelli (1)(2), Andrea Ciavatti (1)(2), Enrico Zanazzi (3)(4), Laura Basiricò (1)  
(1) Department of Chemical Engineering and Biotechnology, University of Padova, Padova, 35121, Italy,  
INFN-Laboratori Nazionali di Legnaro, Legnaro, 35020, Italy,  
INFN-Padova Section, Padova, 35131, Italy. |
| 17:10  | Lead Bromide Perovskite thin films and single crystals based devices | Marianna Testa, Luísa De Marco, Matthias Aul der Mahr, Fabio Matteocci, Ilaria Vioia, Silvia Morganti, Chiara Rovelli, Antonino De Santis, Silvia Rizzato, Leonardo Lo Presti  
Marianna Testa, Luigi De Marco, CNR-Nanotech, Matias Aul der Mahr Electronic Engineering Department Tor Vergata University, Fabio Matteocci Electronic Engineering Department Tor Vergata University, Ilaria Vioia CNR-Nanotech, Silvia Morganti Romat-1INFN, Chiara Rovelli Romat-1INFN, Antonino De Santis LNF-INFN, Silvia Rizzato Department of Chemistry University degli Studi di Milano, Leonardo Lo Presti Department of Chemistry University degli Studi di Milano. |

Wednesday June 1
17:10 Unconventional two-dimensional CsPb2Br5 perovskite single crystals for enabling radiation detection
Saq Alishogehani, Da Cao, Bryant Kanies, Ge Yang
Department of Nuclear Engineering, North Carolina State University, 2500 Stinson Drive, Raleigh, NC 27695-7969, USA Contact Emails: Ge Yang (gyang@ncsu.edu), Saq Alishogehani (salshog@ncsu.edu)

17:10 Synthesis and characterisation of lead-free double perovskite scintillators for nanocomposite applications
Joseph O’Neill, Suad Alghamdi, Stephanie Bennett, Isabel Bradlock, Carol Cream, Joydip Ghosh, Caroline Shenton-Taylor, Paul Sellin1,1, Sion Richards, Matthew Wilson2

17:10 A perovskite-enhanced photogating type X-ray detector.
Guo-Hua Du1,2,4, Ken Qiu1,2,4, Xiang-Shun Geng1,2, Yuan-Yuan Li1,2, Dan Xie1,2,*, He Tian1,2,*, Yi Yang1,2,* and Tian-Ling Ren1,2,* # These authors contributed equally to this work. *Email: RennL@tsinghua.edu.cn, yiyang@tsinghua.edu.cn, xianhe88@tsinghua.edu.cn, xiedan@tsinghua.edu.cn
1 School of Integrated Circuits, Tsinghua University, Beijing 100084, China. 2 Beijing National Research Center for Information Science and Technology (BNRist), Tsinghua University, Beijing 100084, China.

17:10 Basic properties of point defects in halide perovskites derived from analysis of the corresponding binary metal halides
A.I. Popov1, E.A. Kotomin1,2, J. Maier2
(1) Institute of Solid State Physics, University of Latvia, Riga, Latvia, (2) Max Planck Institute for Solid State Research, Stuttgart, Germany

17:10 Solution Processed Lead-Free Double Perovskite Single crystal for X-ray Detection
Naveen Kumar Tailor1, Joydip Ghosh2, Mohammad Adil Afroz1, Paul Sellin2, Soumira Satpathy1
1Department of Physics, Indian Institute of Technology Roorkee, Roorkee, 247667, India 2Department of Physics, University of Surrey, Guildford GU2 7XH, United Kingdom

17:10 Polarized photodetectors based on oriented organic semiconductors: Fabrication, dark-current suppression and applications
Alekandr Perevedentsev1,2, Hadhemi Meirj1,2, Luis A. Ruiz-Preciado1,2, Tomasz Marszałek3, Uli Lemmer1,4, Paul W. M. Blom3, Gerardo Hernandez-Sosá1,2,4, 1Light Technology Institute, Karlsruhe Institute of Technology, 76131 Karlsruhe, Germany, 2 InnovationLab, 69115 Heidelberg, Germany, 3 Max Planck Institute for Polymer Research, 55128 Mainz, Germany, 4 Institute of Microstructure Technology, Karlsruhe Institute of Technology, 76344 Eggenstein-Leopoldshafen, Germany

14:50 Welcome to Day 4 Thursday June 2

15:00 INV Exploration of metal halides for indirect and direct X-ray detection
Jiang Tang, Guangda Niu
Huazhong University of Science and Technology

15:30 INV Benefits and challenges of charge transport in halide perovskites
Artëm Musienko
Heinrich-Hertz-Zentrum Berlin für Materialien und Energie GmbH, Institut für Silizium Photovoltaik

16:00 Impact of X-ray irradiation on the excitonic properties of lead halide perovskite single crystals
Giovanni Armario1, Laura Ferlauto1,2, Ferdinand Lédée1,2, Mattilded Lini1, Andrea Ciavatti1,2, Alessandro Kovtun3, Francesco Bonatti4, Gabriele Calabrese5, Silvia Milita5, Beatrice Fraboni1,2, and Daniela Cavalcani1

16:15 Discussion

16:30 INV Recent progress in metal halide perovskite radiation detectors
[1] Department of Nuclear Engineering, University of Tennessee, Knoxville, TN 37996,[2] Institute of Advanced Materials and Manufacturing, University of Tennessee, Knoxville, TN 37996, [3] Department of Materials Science Engineering, University of Tennessee, Knoxville, TN 37996, [4] Nuclear Engineering, Department of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, OH 43210

17:00 INV Recent progress of lead-free perovskite radiation detectors
Xiaoh youthful, Yu-Ang Chen, Guan-Hua Dun1,2, Dan Xie1,2,*, He Tian1,2,*, Yi Yang1,2,* and Tian-Ling Ren1,2,* # These authors contributed equally to this work. *Email: RennL@tsinghua.edu.cn, yiyang@tsinghua.edu.cn, xiedan@tsinghua.edu.cn
1 School of Integrated Circuits, Tsinghua University, Beijing 100084, China. 2 Beijing National Research Center for Information Science and Technology (BNRist), Tsinghua University, Beijing 100084, China.
SYMPOSIUM N

Synthesis, processing and characterization of nanoscale multi functional oxide films VIII and 6th E-MRS & MRS-J bilateral symposium

Symposium Organizers:

Fabio MILETTO GRANOZIO, CNR-SPIN
Hiroaki NISHIKAWA, Kindai University
Maryline GUILLOUX-VIRY, University of Rennes 1
Nobuyuki IWATA, College of Science & Technology, Nihon University
Samuel S. MAO, University of California at Berkeley
Tetsuya YAMAMOTO, Kochi University of Technology
Valentin CRACIUN, INFLPR
Monday may 30

08:45 Welcome and Introduction to the Symposium

Growth of thin films : Cracium, T. Yamamoto

09:00 INV Growth Mechanism of mist CVD
Toshiyuki Kawaharamura
Kochi Univ. of Tech., Res. Inst., Kochi Univ. of Tech, Japan

09:30 Crystalinity Spread of Compositionally Graded Na1 xTaO3 δ Fabricated by Chemical Beam Vapor Deposition
Corrado Garlisi (1), Petru Lunca Popa (1), Kevin Menguefi (1), Vincent Roge (1), Marc Michel (1), Estelle Wagner (2), William Maudez (2), Giacomo Benvenuti (2), Bianca Rita Pistillo (1), Emanuele Barbarini (1).

10:00 Spatial Atomic Layer Deposition of Tubular Membranes
Fidel Todra-Reig, Clément Lausecker, Matthieu Weber, Michael Bechelany, David Muñoz-Rojas
Université Grenoble Alpes, CNRS, Grenoble INP, LMGIP, F-38000 Grenoble, France
(Fidel Todra-Reig, Clément Lausecker, Matthieu Weber, David Muñoz-Rojas) Institut Européen des Membranes, IEM, UMR-5635, Université de Montpellier, CNRS, ENSCM, Place Eugène Bataillon 34059 Montpellier cedex 5, France

10:45 Using XPS and ToF-SIMS to Investigate ALD Prepared La Doped HfO2 Thin Films Deposited on a Lateral High Aspect Ratio Structure
Valentin Sebera Teodorescu (1), Toma Stoica (1), Magdalena Lidia Ciurea (1,2), Silvère Barrat (a), Fabien Capon (a)
(a) Université de Lorraine, CNRS, UMR 7347, Nancy, France (b) Laboratoire d’Analyse par Réactions Nucléaires (LARN), Namur Institute of Structured Matter (NISM) University of Namur, Namur 61 rue de Bruxelles, 5000 Namur, Belgium

11:15 Discussion and Lunch

13:45 INV Ferroelectric two-dimensional electron gases
Manuel Bies
Université Mixte de Physique CNRS/Thales, Université Paris-Saclay, 91767 Palaiseau, France

14:15 Ferroelectric Ge-doped HfO2 by HfO2 capping
Catalin Palace (1), Ana-Maria Lepadatu (1), Adrian Slav (1), Ovidiu Ciojocata (1,2), Alin Iuga (1), Valentine Serban Teodorescu (1,4), Valentin Severin Ciurea (1,4) Institut de Physique et Chimie des Matériaux de Strasbourg, UMR 7172, CNRS, 74, avenue des Martyrs, 38043 Grenoble, France

14:45 Thickness-independence of the characteristic AFE domain dimensions in PbZrO3 epitaxial thin-films determined by X-ray nanoscopy
Jamil E. Flores Gonzalez (1), Alexander E. Ganzha (1), Maria A. Knyazeva (1), Daria A. Andronikova (1), Arvind Dasgupta (2), Ran Gao (2), Carsten Richter (3) and Roman G. Borkovsky (1)
1. Peter the Great St.Petersburg Polytechnic University, St.Petersburg, Russian Federation, 2. National Institute for Laser, Plasma and Radiation Physics, 707125 Magurele, Romania, 3. University of Vienna, Austria, 4. University of Zurich, Switzerland, 5. Leibniz Institute for Crystal Growth, Berlin, Germany

15:00 Tailoring the electronic properties of perovskite nickelate thin films through ferroelectric field effects
G. Kriegel, C. P. Suž., L. Schlur, R. Fand, P. Steadman, A. Gloter, N. Vier, and D. Pesquie
1 Université de Strasbourg, CNRS, IPCMS, UMR 7054, F-67000 Strasbourg, France, 2 Laboratoire de Physique des Solides, CNRS, UMR 6502, Université Paris-Sud, F-91405 Orsay Cedex, France, 3 Diamond Light Source Ltd., Harwell Science and Innovation Campus, Chilton, Didcot, Oxfordshire OX11 0DE, United Kingdom

15:45 Shallow electron traps in ferroelectric HfO2 and HfZrO4
Izmailov, R.A.* (1), O’Sullivan, B.J. (2), Popovici, M.I. (2) & Afanas’ev, V.V. (1)
(1)KU Leuven, Belgium, (2)imec, Belgium
Tailoring polar domains in Sr$_{1-x}$Ba$_x$MnO$_{3-\delta}$ epitaxial thin films
Panagiòlis Koutsoliannis, Pedro A. Algarabel, José A. Pardo and César Magén
1. Instituto de NanoCiencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Spain
2. Laboratorio de Microscopias Avanzadas (LMA), Universidad de Zaragoza, Spain
3. Departamento de Física de la Materia Condensada, Universidad de Zaragoza, Spain
4. Departamento de Ciencia y Tecnología de Materiales y Fluidos, Universidad de Zaragoza, Spain

Micro/nanostructured piezoelectric α-quartz thin films on silicon
(1) Institut d'Electrochimie et des Systèmes (IES), CNRS, Université de Montpellier, 860 Rue de Saint Priest 34095 Montpellier, France
(2) Unite Mixte de Physique, CNRS, Thales, Université Paris Sud,Université Paris-Saclay, F-91767 Palaiseau, France

Micro/nanostructured piezoelectric a-quartz thin films on silicon
N 4.5
(1) Institut d'Electrochimie et des Systèmes (IES), CNRS, Université de Montpellier, 860 Rue de Saint Priest 34095 Montpellier, France
(2) Unite Mixte de Physique, CNRS, Thales, Université Paris Sud,Université Paris-Saclay, F-91767 Palaiseau, France

Discussion
N 4.4
Panagiòlis Koutsoliannis, Pedro A. Algarabel, José A. Pardo and César Magén
1. Instituto de NanoCiencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Spain
2. Laboratorio de Microscopias Avanzadas (LMA), Universidad de Zaragoza, Spain
3. Departamento de Física de la Materia Condensada, Universidad de Zaragoza, Spain
4. Departamento de Ciencia y Tecnología de Materiales y Fluidos, Universidad de Zaragoza, Spain

Micro/nanostructured piezoelectric thin films on silicon
N 4.4
(1) Institut d'Electrochimie et des Systèmes (IES), CNRS, Université de Montpellier, 860 Rue de Saint Priest 34095 Montpellier, France
(2) Unite Mixte de Physique, CNRS, Thales, Université Paris Sud,Université Paris-Saclay, F-91767 Palaiseau, France

Discussion
N 4.3
Panagiòlis Koutsoliannis, Pedro A. Algarabel, José A. Pardo and César Magén
1. Instituto de NanoCiencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Spain
2. Laboratorio de Microscopias Avanzadas (LMA), Universidad de Zaragoza, Spain
3. Departamento de Física de la Materia Condensada, Universidad de Zaragoza, Spain
4. Departamento de Ciencia y Tecnología de Materiales y Fluidos, Universidad de Zaragoza, Spain

N 8.1 09:00  
**INV** Circulating Manufacturing and Advanced Oxide Thin Films using Photo Reaction Process for Next Generation  
Tetsuo Tsuhiya, T. Nakajima, I. Yamaguchi, J. Monoto, Y. Kitanaka, Y. Uzawa  
Advanced Manufacturing Research Institute, National Institute of Advanced Industrial Science and Technology (AIST)

N 8.2 09:30  
Peculiar Magnetic Property of Superlattices and Multilayers Using both of Antiferromagnetic LaFeO₃ and CaFeO₃.  
Nobuyuki Iwata  
College of Science & Technology, Nihon Univ., 7-24-1 Narashinodai, Funabashi-shi, Chiba 274-8501 Japan

N 8.3 09:45  
Modification of Various Amorphous or Polycrystalline TCO films by the Strong Flash-lamp Irradiation  
Makoto Kashiiwga*(1),(2), Kentaro Tanaka(1), Simpei Iwasaki(1), Takehiko Yokomori(3), Yuki Oguchi(4), Takuya Komoda(5), "Yozo Shigesato(1)  
(1) Graduate School of Science and Engineering, Aoyama Gakuin University, JAPAN, (2) PRESTO, Japan Science and Technology Agency, JAPAN, (3) Business Management Head Quarters, Ushio Inc., JAPAN, (4) Center for Instrumental Analysis, Aoyama Gakuin University, JAPAN, (5) Research Organization for Center of Innovation, Yamagata University, JAPAN

N 8.4 10:00  
Semiconductor to metal transition in ZnO-based thin films and their nanocomposites: Effect of energetic ions  
Himanshi Gupta*1, Subodh R. Gautam1,2, RG Singh1, Jitendra Singh1,4, Monika Tomar1,2, G. R. Unipath1, S. Ojha1, Soumen Kar1, Fouran Singh1  
1) Inter-University Accelerator Centre, Aruna Asaf Ali Marg, New Delhi - 110067, India.  2)Laboratory of Solid-State Physics (LPS), University of Paris-Sud, 91400 Orsay, France.  3)Department of Physics, Bhagni Nivedita University, University of Delhi, New Delhi -110043, India.  4) Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taipei 10607, Taiwan.  5)Miranda House College, University of Delhi, New Delhi - 110007, India.

N 8.5 10:15  
An Experimental Comparison Study on the Cu2O thin films via different preparation techniques  
Chihiro Venugopalan Kartha , Dominique Muller , Stéphane Roques , Gérald Ferblantier , Abdelilah Slacou , Thomas Fix  
Icube Laboratory, Université de Strasbourg and CNRS, 23 rue du Loess, BP 20 CR, F-67037 Cedex 2 Strasbourg, France

N 8.6 10:30  
Discussion  
Advanced oxide thin films II : Tetsuo Tsuchiya

N 9.1 10:45  
INV High ionitic conductivity at the infaces of solid electrolytes and electrodes  
Taro Hitosugi  
The University of Tokyo

N 9.2 11:15  
Substechiometric Molybdenum trioxide as selective contacts for silicon solar cells  
Salvatore La Manna 1 2, Fiorella Tringali 1 2, Giorgia Franzò 2, Antonio Terrasi 1, Maria Miritello 2  
1) University of Catania, Via S. Sofia,64, I-95123 Catania, Italy, 2) CNR-IMM, Via S. Sofia,64, I-95123 Catania, Italy

N 9.3 11:30  
Ferroelectric properties of epitaxial Pb(Zr, Ti)O₃ transferred from SrTiO₃(100) single crystal to flexible Cu/polyimide sheet  
Hiroaki Nishikawa1), Tomofumi Mizuyama2)  
1 Faculty of Biology-Oriented Science and Technology, Kindai University  2 Graduate School of Biology-Oriented Science and Technology, Kindai University
11:45 Metal Oxide Thin-film Transistors prepared by an Aqueous Blade-coating process
Tianyu Tang, Preetam Dacha, Joshua Kreß, Christian Hänsich, Jonathan Perez Andrade, Alexander Kreß, Darius Pohl, Markus Löffler, Felix Tainak, Katherine Haase, Mike Hambsch, Sebastian Reineke, Yana Vanyzov, Stefan C. B. Mannsfeld, Christian Hänsich, Sebastian Reineke, Yana Vanyzov, Dresden Integrated Center for Applied Physics and Photonics Materials (IAPP) and Institute for Applied Physics, Technische Universität Dresden, Dresden 01069, Germany
9.4

11:45 Wideband pyroelectric response of amorphous Y-Ba-Cu-O thin films growing by ultrafast transient liquid assisted growth
Kapit Gupta, Latavia Sallarelli, Roger Guzmán, Albert Queraltó, Laia Soler, Júlia Filas, Kapil Gupta, Lavinia Saltarelli, Teresa Puig, Instituto de Ciencia de Materials de Barcelona (ICMAB-CSIC), Campus UAB, 08193 Bellaterra, Barcelona, Spain
9.4

12:00 Factors limiting carrier transport of W-doped In2O3 films with thicknesses of less than 10 nm
Tetsuya Yamamoto, Palani Rajasekaran, Hisao Makino, Research Institute, Kochi University of Technology
9.5

12:15 Discussion

12:30 Lunch and Plenary

High Temperature superconducting thin films: T. Yamamoto

15:30 Microstructural tuning of High Current Density YBCO Superconducting Thin Films Grown by Ultrafast Transient Liquid Assisted Grow
Kapit Gupta, Latavia Sallarelli, Roger Guzmán, Albert Queraltó, Laia Soler, Júlia Filas, Kapil Gupta, Lavinia Saltarelli, Teresa Puig, Instituto de Ciencia de Materials de Barcelona (ICMAB-CSIC), Campus UAB, 08193 Bellaterra, Barcelona, Spain
10.1

15:45 Wideband pyroelectric response of amorphous Y-Ba-Cu-O thin films extending up to 40 MHz
Annick Degardin, Antoine Chenou, Corentin Morin, Martin Clergeau, Alain Kreis, Paris-Saclay, CentraleSupélec, CNRS, Group of Electrical Engineering, 91190 Gif sur Yvette, France, Sorbonne Université, CNRS, Group of Electrical Engineering, 91190 Gif sur Yvette, France
10.2

16:00 Discussion

Thursday June 2

2D and epitaxial thin films I: Hiroaki NISHIKAWA

12:00 Factors limiting carrier transport of W-doped In2O3 films with thicknesses of less than 10 nm
Tetsuya Yamamoto, Palani Rajasekaran, Hisao Makino, Research Institute, Kochi University of Technology

12:45 Enhanced Verwey Transition in Fe3O4 Ultra-thin Film Grown on Atomically Flat and Ordered MgO substrate
(1) SANKEN, Osaka University, Japan (2) Department of Precision Science and Technology, Graduate School of Engineering, Osaka University, Japan (3) Graduate School of Science and Technology, Nara Institute of Science and Technology (NAIST), Japan (4) Institute of Mechanical Engineering, Dalian Jiaotong University, China

13:00 A sustainable self-induced solution seeding approach for multipurpose BiFeO3 active layers in flexible electronic devices
Barrios, O., Jiménez, R., Ricote, J., Tartz, P., Calzada, M.L. & Brestos, I.
Instituto de Ciencia de Materiales de Madrid (ICM-CSIC), CI- Sor Juana Inés de la Cruz 3, Madrid, 28049, Spain.

13:15 Effect of bending strain on magnetic anisotropy in epitaxial ferrite thin films on mica
Darla Maret (1), Zheng Ma (1, 3), Vassil Skumryev (2, 3), Florencio Sánchez (1), Nico Díx (1), Martí García (1)
(1) Instituto de Ciencia de Materiales de Barcelona (ICM-CSIC), Campus UAB, Bellaterra, Barcelona, Spain (2) Instituto Catalana de Resonants Estudis Avançats (ICREA), Barcelona 08010, Spain (3) Universitat Autònoma de Barcelona, Departament de Física, Bellaterra 08193, Spain

15:00 2D and epitaxial thin films II : Osada Minoru

15:45 Synthesis of optically active Europium oxyhydroxide 2D-microstars
A. Carlo(1), F. Chacon(1), B. Galanina(2), G. B. Pereza(2), A. de Andrés(3), A. Mariscal-Jiménez(4), J. Gonzalo(1), R. Sema(1),
(1) Laser Processing Group, Instituto de Optica, IO, CSIC, Serrano 121, 28006 Madrid, Spain, (2) Dept. of Physics, Escuela Politécnica Superior, Universidad Carlos III, 28911 Leganés, Madrid, Spain, (3) Instituto de Ciencia de Materiales de Madrid, ICM, CSIC, Castiblanco, 28049 Madrid, Spain, (4) Dept. of Information Technologies, Escuela Politécnica Superior, Universidad CEU-San Pablo, Campus Montepríncipe, Boadilla del Monte, Madrid 28668, Spain

16:00 Atomic Layer Deposition of Alumina to Enhance the Stability of Silicon-Based Nanocomposite Micro-supercapacitor Electrodes
Authors Marc Dietrich 1-2, Anthony Valero 1-2, Nicolas Pauc 1, Pascal Gentile 1, Bochum, Germany 44780, Germany

16:15 SnO2 thin films for TFT and sensor applications: Unearthing a versatile Sn(IV) precursor in PEALD and MOCVD for fine-tuned film deposition
David Zandies, Claudia Bock, Klaus Schierbaum, Arjuna Devi Inorganic Materials Chemistry, Ruhr University Bochum, Universitätstrasse 150, Bochum, Germany 44780, Faculty of Electrical Engineering and Information Technology, Ruhr University Bochum, Universitätstrasse 150, Bochum, Germany 44780, Institute of Experimental Condensed Matter Physics, Department of Materials Science, Heinrich-Heine University Düsseldorf, 40225 Düsseldorf, Germany, Inorganic Materials Chemistry, Ruhr University Bochum, Universitätstrasse 150, Bochum, Germany 44780,
11:30 Growth of the Correlated Metal SrVO3 by Molecular Beam Epitaxy
Lishai Shoham1, Maria Baskin1, Myung-Geun Han2, Yimel Zhu2, and Lior Kornblum3
1 Andrew and Erna Viterbi Department of Electrical and Computer Engineering, Technion—Israel Institute of Technology, 2 Condensed Matter Physics and Materials Science, Brookhaven National Laboratory

11:45 Giant thermoelectric tuning by epitaxial strain of p-type Sr-doped LaCrO3 transparent thin films
D. Han1, R. Mosall1, F. Fina2, V.M. Giordano3, M. d’Esperonnat1, C. Botella1, G. Girons1, R. Bonnior1, M. d’Esperonnat1, and R. Bachelet1
1. INL - Institut des Nanotechnologies de Lyon, Univ. Lyon, Ecole Centrale de Lyon, CNRS, UMR5270, 69134 Ecully, France; 2. ICMAB - Institut de Ciencia de Materials de Barcelona, CSIC, Barcelona 0803 (Spain); 3. ILM - Institut Lumiere Matiere, Universite de Lyon, UCBLS, CNRS, UMR5306, 69622 Villeurbanne, France

12:00 Lunch and Plenary

N 12.5

N 12.6

N 12.7

N 13.1

N 13.2

N 13.3

N 13.4

N 13.5

N 13.6

N 14.1

N 14.2

N 14.3

N 14.4

N 14.5

N 14.6

N 14.7

N 15.0

N 15.1

N 15.2

N 15.3

N 15.4
16:00 An eco-friendly flexible system for piezoelectric application
M. Nasu1*, R. B. Sorhner 1, T. Petrisor Jr.1, E. Ware2, M.S. Gabor, L. Ciontea 1, T. Petrisor1
1Centre for Superconductivity, Spintronics and Surface Science, Technical University of Cluj-Napoca, Sf. Memorandumului, Nr. 28, 400114 Cluj-Napoca, Romania 2 Imperial College London, Exhibition Road, South Kensington, London SW 7 2AZ, United Kingdom

16:00 Piezoelectric study of doped BCTZ thin films for ceramic transducer application
Nazar Jaber, Jerome Wolfman, Fabien Giovannelli, Claire Bantignies, Bogdan Rosinski, Jean-Louis Longuet, Pascal Andreazza, Beatrice Negueslu
N. Jaber1, J. Wolfman1, F. Giovannelli1, C. Bantignies2, B. Rosinski1, J-L. Longuet1, P. Andreazza1, B. Neguesl1 – GREMAN, UMR7374 CNRS, Université de Tours, Parc de Grandmont, 37200 Tours, France 2 VÉRMON SA, 180 rue du Général Renault, 37038 Tours, France 3 CEA, DAM, Le Ripault, F-37290 Monts, France 4 ICMM, UMR 7374 CNRS, Université d’Orléans, 1b rue de la Férolière, 45071 Orléans, France

16:00 Interference of oxide nanoparticles with microbiota isolated Enterococcus sp strains
Holban, A.M.*(1,2), Grummezucco, A.M.(1,2), Carapu, P. (1), Assafel, M.(1), Diu, L.M.(1,2), Curulli, C.(1,2), Puscas, N. (1), Lazăr, V.(1)
(1)Department of Microbiology and Immunology, Faculty of Biology, University of Bucharest 2Research Institute of the University of Bucharest, Romania (3) Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Applied Chemistry and Materials Science, University Politehnica of Bucharest

16:00 Synthesis of single crystal metal oxide nanoparticles by using microwave vaporization of metal wires
Doina Craciun1, Petronela Garoi1, Marian Mogildea2, George Mogildea2, Bogdan S. Vasilie3, Valentin Craciun4, 1National Institute for Laser, Plasma and Radiation Physic, Laser Department, 409 Atomistilor St., PO Box Magurele, Romania, 2Institute for Space Science, 077125, Magurele, Romania, 3University POLITEHNICA from Bucharest, Faculty of Applied Chemistry and Materials Science, Department of Science and Engineering of Oxide Materials and Nanomaterials, Bucharest, Romania, 4Extreme Light Infrastructure for Nuclear Physics, ELI-NP, IFIN-HH, Magurele, Romania

16:00 Preparation of ZnO based structures by hydrothermal method for detector and highpower electronics applications
(1) Physics of Semiconductors and Devices Lab, Faculty of Physics and Engineering, Moldova State University, 60 A. Mateevici str., MD 2001, Chisinau, Moldova

16:00 Nb-doped TiO2 anatase as a metallic buffer for lattice-mismatched complex oxide heterostructures
Belenchuk, A.(1,2), Shapoval, O.(1,2), Dehning, A.(3), Flathmann, C. (4), Vatavu, S.(1,1), Mosyaghi, V.(2,1), M. Seibt(4) and Jooss, C.(3)
(1) Physics of Semiconductors and Devices Lab, Faculty of Physics and Engineering, Moldova State University, 60 A. Mateevici str., MD 2001, Chisinau, Moldova, 2) Erates Physikalisches Institut, Georg-August-Universität Göttingen, Friedrich-Hund Platz 1, 37077 Göttingen, Germany, (3) Institut für Materialphysik, Georg-August-Universität Göttingen, Friedrich-Hund Platz 1, 37077 Göttingen, Germany, (4) Wiertes Physikalisch Institut, Georg-August-Universität Göttingen, Friedrich-Hund Platz 1, 37077 Göttingen, Germany

16:00 Development of Air-Electrode Catalyst using Coll.III-containing Vanadate Glass for Rechargeable Metal-Air Batteries
Saeko Matsatsui (1), Takahisa Sakuragi (1), Hyuga Nakahara (1), Ayaka Fukuchi (1), Yuma Morimoto (1), Masayoshi Yuasa (1), Tetsuaki Nishida (2), Nobuto Oka (1)
(1) Kindai University, Japan, (2) Environmental Materials Institute, Japan

Friday June 3

09:00 Solution-based Metal Oxides: A Demand to Scale-up Electronic Devices from Lab to Fab
Emanuel Caruso1, Rita Branquinho1, Asal Kiazadeh1, Jonas Deuermeier1, Rodrigo Martin1 and Elvia Fortunato1
1 INOCEMAT, Department of Materials Science, Faculty of Sciences and Technology, Universidade NOVA de Lisboa and CEMOP/UNINOVA, Campus de Caparica, 2829-516 Caparica, Portugal

09:30 Growth and Characterizations of Zinc Tin Oxynitride Thin Films
Naomichi Yamada, 1) Kenta Matsuura, 1) Mari Mizutani, 1) Shunichiro Yata, 1) Masataka Imaura, 2) Hidenobu Murata, 3) Junjun Jia, 4) Fumio Kawaiamu
1) Department of Chemistry, Chubu University, 2) Next-Generation Semiconductor Group, National Institute for Materials Science (NIMS), 3) Department of Materials Science, Osaka Prefecture University, Global Center for Science and Engineering, Waseda University, High Pressure group, National Institute for Materials Science (NIMS)

10:15 Observation of room-temperature cavity-polaritons in ZnO microcavities fabricated by a top-down process
Kohei Shimah, Kentaro Furusawa, and Shigefusa F. Chichibu
1) RIKEN Institute for Advanced Materials Science and Technology (AIST), 1-1-1, Higash, Tsukuba, Ibaraki 305-8568, Japan, 2) Advanced Manufacturing Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), 1-1-1, Higash, Tsukuba, Ibaraki 305-8566, Japan

10:30 Discussion
Ferroelectric thin films III : FOUCHET Arnaud

10:45 Homogeneous versus non-homogeneous switching in ferroelectrics: can charge injection trigger the switching?
L. Pintilie
National Institute of Materials Physics

11:15 Magnetic phase and magneto-resistive effects in vanadium oxide epitaxial nanoclusters
* Université de Strasbourg, CNRS, Institut de Physique et Chimie des Matériaux de Strasbourg, UMR 7504, F-67000 Strasbourg, France  ^ Synchrotron SOLEIL, L’Orme des Merisiers, Saint-Aubin, BP 48, F-91129 Gif-sur-Yvette, France

11:30 Steep-slope Negative Capacitance Field Effect Transistors with Solution Combustion-Derived Hf0.5Zr0.5O2 ferroelectrics
Pavan Pujar*(1), Haewon Cho (1), Sunkook Kim (1)
(1) Multifunctional Nano Electronics Lab, School of Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon, Gyeonggi-do 16419, South Korea.

11:45 Ferroelectric Phase Formation in Hf0.5Zr0.5O2 using Dual-step PLD Growth for Negative Capacitance Field-Effect Transistors
Haewon Cho*(1), Pavan Pujar(1), Sunkook Kim(1)
(1) Multifunctional Nano Electronics Lab, School of Advanced Materials Science and Engineering, Sungkyunkwan University, Gyeonggi-do, Suwon 16419, South Korea.
Low power magnetization manipulation for spintronics: spin Hall magnetoresistance in multiferroic oxide-based heterostructures
Suvidyakumar Homkar, Elodie Martin, Benjamim Meunier, Alberto Anadon-Barcelona, Corinne Bouillet, Jon Gorchon, Karine Dumesnil, Christophe Lefèvre, François Roulland, Olivier Copie, Daniele Preziosi, Sébastien Petit-Watelot, Juan-Carlos Rojas-Sánchez, and Nathalie Viart
Université de Strasbourg, CNRS, IPCMS, UMR 7504, F-67000 Strasbourg, France, Université de Lorraine, CNRS, UJL, F-54000 Nancy, France

Discussion and Closing
SYMPOSIUM O

Nano-engineered coatings and thin films: from design to applications

Symposium Organizers:

Jean-François PIERSON, Institut Jean Lamour – University of Lorraine

Jiri HOUSKA, University of West Bohemia

Nikolaos KALFAGIANNIS, Nottingham Trent University
Simultaneous oblique deposition of nanocolumnar tungsten thin films with highly versatile up-converting oxyfluoride-based nanophosphor films

Double parameter multilayer sensor for biomedical applications

Developing functional nanofibrous membranes modified with β-cyclodextrins

Influence of the nucleation surface on the growth of epitaxial Al2O3 thermal CVD films

The effect of electrolyte compositions on the microstructure and properties of PEO coatings on pure Ti substrate

Synthesis of Composite Layers on Cu39Zn1Pb Brass Using Ultrasonic Impact Treatment

Effects of 7 MeV proton irradiation on microstructural, morphological, optical, and electrical properties of PTO thin films

2D layered chalcogenide crystals' surfaces application as templates for indium deposited nanosystems formation

Optical properties and sensing characteristics of ZnMe2O (Me: Mn, Co, Ni) thin films
16:45  Optically active Europium oxyhydroxide 2D-microstars embedded in thin films for photonic devices  
(1) Laser Processing Group, Instituto de Óptica, IO, CSIC, Serrano 121, 28006 Madrid, Spain, (2) Department of Physics, Escuela Politécnica Superior, Universidad Carlos III, 28911 Leganés, Madrid, Spain, (3) Instituto de Ciencia de Materiales de Madrid, ICM, CSIC, Cantoblanco, 28049 Madrid, Spain, (4) Department of Information Technologies, Escuela Politécnica Superior, Universidad CEU-San Pablo, Campus Montepríncipe, Boadilla del Monte, Madrid 28668, Spain. 

16:45  Zirconium oxyxnitrde nanocatalysts by plasma sputtering and cluster beam deposition for the oxygen reduction reaction  
S. Atmane 1, N. Neha2, S. Valange2, C. Coutanceau2, S. Baranton2, P. Braut1, A.-L. Thoman1, E. Milton1, S. Ibrahim1, A. Caillard1  
1 GREM1, Université d’Orléans, CNRS, 14 rue d’Issoudun, BP6744, 45067 Orléans cedex 2, France , 2 IC2MP, Université de Poitiers, CNRS, 4 rue Michel Brunet, 86022 Poitiers, France 

16:45  Halogenated Polymer Thin Film with Ultra-High Refractive Index and Excellent Thermal Stability  
Ni Huo, Jeremy Rivkin, Wyatt E. Tenhaeff*  
University of Rochester Department of Chemical Engineering

Tuesday May 31

09:00  INV  Mesoporous coatings of metal oxynitride nanoparticles produced by reactive magnetron sputtering  
Andrei Choukurov(1), Pavel Pieskunov(1), Daniil Nikitin1,1, Kateryna Bilak1, Maria Protas1,1, Miroslav Cieslar1,1, Yuriy Pihosh2, Vikas Nanda3, Kazunari Domern2  
1. Charles University, Faculty of Mathematics and Physics, Prague, Czech Republic, 2. The University of Tokyo, Japan, 3 National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

09:30  Electrical and optical characterization of high entropy (NbTaTiVZr)N Nanoparticles (RdStTIVZr)N films  
S. Barchini1,2, V. Grand d’Esmon1, D. Pillou1, G. Pierson1, C. Gendarme1, A. Nominate1,2, V.A. Milchick1,2, J.F. Pierson1,  
1 Université de Lorraine, CNRS, LIL, Nancy, France 2 School of Physics and Engineering, ITMO University, St. Petersburg, Russia

09:45  Maximum achievable N content in atom-by-atom growth of amorphous (Si)N (B)-N films  
Jiri Houska  
Department of Physics and NTIS - European Centre of Excellence, University of West Bohemia, Univerzitni 8, 30614 Plzen, Czech Republic, email jhouska@kfy.zcu.cz

10:00  Tuning alumina matrix using MF and HIPIMS sputtering with gold nanoparticles for plasmonic coatings  
Marta Ferreira, Jean-Baptiste Chemin, Dr. Patrick Choquet  
Luxembourg Institute of Science and Technology (LIST)

10:15  Surface engineering of flexible Al2O3 substrate by chemical solution deposition  
M. Nasui, T. Petrisor Jr., R. B. Sonher , M.S. Gabor, L. Ciontea , T. Petrisor Centre for Superconductivity, Spintronics and Surface Science, Technical University of Cluj-Napoca, Str. Memorandumului, Nr. 28, 400114 Cluj-Napoca, Romania

10:30  Discussion

10:45

11:00  Coating of SPIIONs with calix[4]arenes: enhanced stability, protective effect, and robust post-functionalization with PEI  
Carlos Moya(1), Ivan Jabin (2), and Gilles Bruynants (1)  
(1) Engineering of Molecular NanoSystems, Ecole Polytechnique de Bruxelles, Université libre de Bruxelles (ULB), Avenue F. D. Roosevelt 50, CP165/84, B-1050 Brussels, Belgium, (2) Laboratoire de Chimie Organique, Service de Chimie et PhysicoChimie Organiques, Université libre de Bruxelles (ULB), Avenue F.D. Roosevelt 50, CP166/06, 1050 Brussels, Belgium.

11:15  TiO2 thin film encapsulated moth-eye nanostructured PMMA surfaces with enhanced stability  
Tomas Kubart1, Daniel F. Fernandes1, Alejandro-Jacobo-Martir2, Jaime J. Hernandez2, Eduardo Solano3, Juan Carlos Martinez2, Miguel A. Monclus4, Jon M. Molina-Aladregui4, Isabel Rodriguez2  
1Uppsala University, Solid State Electronics, Box 65, 751 03 Uppsala, Sweden, 2Madrid Institute for Advanced Studies in Nanoscience (IMDEA Nanoscience), Ciudad Universitaria de Cantoblanco, C/ Faraday 9, 28049 Madrid, Spain, 3 ALBA Synchrotron, Carrer de la Llum 2-8,08290 Cerdanyola del Vallés, Barcelona, Spain, 4 IMDEA Materials Institute, C/ Eric Kandel 2, Tecnogatea, Getafe. 28905 Madrid, Spain.

11:30  Nano-Faceted Growth of Polar-Oxide Thin Films: The Case of MgO(111) and NiO(111) Surfaces  
Dr Adam Kerrigan, Prof Michael Weinert, Prof Keith McKenna, Prof Vlad Lazarov University of York, University of Wisconsin-Milwaukee, University of York, University of York

11:45  Nanoporous structures by reduction of single-phase Cu oxide films : in-situ time-resolved XRD study  
Claudia Cancellieri 1, Yeliz Unalumazosy 1 *, Luchan Lin 1 *, Lars P.H. Jeurgens 1 1 Emmy, Swiss Federal Laboratories for Materials Science and Technology, Laboratory for Joining Technologies & Corrosion, Überlandstrasse 129, 8600 Dübendorf, Switzerland, *Present address: Leibniz Institute for Surface Engineering, Permoserstrasse 15, 04318, Leipzig, Germany, **Present address: School of Materials Science and Engineering, Shanghai Jiaotong University, Shanghai 200240, China

O-8  O-9
12:00 Discussion

Electronics and sensing applications of thin films : Jean-François PIERSON

15:00

Upscalable nanomanufacturing of large-area thin-film electronics

Thomas D. Anthopoulos

King Abdullah University of Science and Technology (KAUST), KAUST Solar

Centre, Kingdom of Saudi Arabia

15:30

Piezolectric nanostructured o-Quartz films on Silicon: from material to new

application devices

Claire Jolly (1), David Sánchez-Fuentes (1), Dilek Cakiroglu (1), A. Gomez (1),

Raisar Ratha (1,2), Laura Picas (2), A. Carretero-Genevrier. (1) * lead presenter

(1) Institut d’Electronique et des Systemes (IE2), CNRS, Université de Montpellier,

860 Rue de Saint Priest 34095 Montpellier, France (2) Institut de Recherche en

Infectiologie de Montpellier (IRIM), CNRS UMR 9004–Université de Montpellier,

34293 Montpellier, France

15:30

Generation of Airy-like beam using laser inscribed elements

Judas Bervyys, Sergei Orlov

State research institute Center for Physical Sciences and Technology, Department

of Fundamental Research

15:45

Passivating polycrystalline copper with samarium oxide for use as a reflective

cathode in organic photovoltaics

Simon Abramachzyk, Marc Walker, Yisong Han, Steven Huband, Ross Hatton

Department of Chemistry, University of Warwick, Department of Physics, University

of Warwick, Analytical Science CDT, Senate House, University of Warwick

16:00

Controlled formation of Diketonylporphyrrole-based polymer nanowires for

high-performance Organic Field-Effect Transistors

Preetam Dacha, Mike Hambisch, Markus Löffler, Stefan C. B. Mannsfeld

Preetam Dacha, Mike Hambisch and Stefan C. B. Mannsfeld: Center for Advancing

Electronics Dresden (cfaed) and Faculty of Electrical and Computer Engineering,

Technische Universität Dresden, Dresden 01069, Germany. Markus Löffler –

Dresden Center for Nanoanalysis (DCN), Center for Advanced Electronics Dresden

(cfaed), Technische Universität Dresden, Dresden 01069, Germany.

16:15 Discussion

16:30

A novel wearable sensing device based on Ti-based nanostructured thin films

Catalino Lopes, Nelson Azevedo, Juliana Cruz, Raul Fangueiro,

Filipe Vaz

1. Centre of Physics, University of Minho, Guimarães, 4800-058, Portugal

2. IMPETUS, Estrada da Praia 1755, 4740-696 Barqueiros, Portugal

3. Centre for Textile Science and Technology (2C2T), University of Minho, Guimarães, 4800-058, Portugal

16:45

Dissolved and gaseous oxygen sensing using Organic Electrochemical

Transistors (OECT) for in-vitro monitoring and work-safety applications

Francesco Decataldo, Filippo Bonafè, Federica Mariani, Marta Serebrennikova, O. Ibrahim1, A. Fernandez1,2, P. Brault1, A. Sauldubois1, D. Hufschmidt2, M. C. Jiménez de Haro1, A. Peti1, A. Cailard1, T. Sauvage3, P. Desgardin3, Marie-Valérie POTIN1, Houssem BOUKHALFA1, Nicolas MARTIN2

1. Laboratoire Interdisciplinaire Carot de Bourgogne (ICB), UMR 6003 CNRS

Université Bourgogne Franche-Comté, 9 Av. A. Savary, BP 47 870, F-21078 Dijon Cedex, France

2. Institut Femto-ST, UMR 6174 CNRS Univ. Bourgogne Franche-Comté, 15B, Avenue des Montboucons, 25030 Besançon Cedex, France

17:00

Dissolution and gaseous oxygen sensing using Organic Electrochemical

Transistors (OECT) for in-vitro monitoring and work-safety applications

Francesco Decataldo, Filippo Bonafè, Federica Mariani, Marta Serebrennikova, Marta Tesselaro, Isacco Guaraldi, Erika Scavetta, Beatrice Fraiboni

Department of Physics and Astronomy, Alma Mater Studiorum - University of Bologna

Francesco Decataldo, Filippo Bonafè, Marta Tesselaro, Beatrice Fraiboni Department of Industrial Chemistry, Alma Mater Studiorum - University of Bologna, Viale Risorgimento 4, 40136, Bologna (Italy) Federica Mariani, Marta Serebrennikova, Isacco Guaraldi, Erika Scavetta

17:15

Nano-fabrication of gradient composition alloy nanoparticle arrays for hydrogen

sensing

Andersson, C.A.E. (1), Serebrennikova, O., Tiburksi, C. (1), Alekseeva, S., Fritzsche, (1), (1)

(1) Department of Physics – Chairners University of Technology, Sweden

17:30

Vertical few-layered 3D-MoSe2 porous nanowall thin films prepared by

sputtering for NO2 sensors

Jyoti Jaiswal

Centre of Advanced Research, Department of Physics, Rajiv Gandhi University,

Kumarchal Pradesh 791112, India

17:45

Discussion
11:30 Towards high throughput molecular layer deposition of alucone films
Hardik Jain, Mariandrea Creato, Paul Poold

11:45 Nanocomposite thin film deposition by low-pressure misty plasmas
Simone Stacchione-1,2, Maria Mironkova1, Mireille Richard-Plouet1, Antonin Gouillet1, Agnès Granier1, Luc Safford2
1 Université de Nantes, CNRS, Institut des Matériaux Jean Rouxel, IMN, F-44000 Nantes, France, 2 Département de Physique, Université de Montréal, Montréal, Québec HIC 3J7, Canada

12:00 Discussion

15:00 Large area/low deposition temperature nanocrystalline diamond films for protective optical coatings
Chaimaa Maihi, Ovidiu Brinza, Radha Issaoui, Jocelyn Achar, Fabien Bénédicte Université Sorbonne Paris Nord, LSPM, CNRS, UPR 3407, Villetaneuse, France

15:15 The effect of subvalent and isovalent impurities on the structural and optical properties of hafnia-based thin films
L. Khomenkov1,2, T. Torchynski3, K. N. Koruskas1, O. Melinchuk4, L. Melinchuk4, X. Portier5, F. Gourbielle6,7,1
1) V.Lashkaryov Institute of Semiconductor Physics at the NASU, 41 Pr. Nauky, Kyiv 03028, Ukraine, E-mail: khomen@ukr.net, 2) National University “Kyiv-Mohyla Academy”, 2 Skorovyd str., Kyiv 04170, Ukraine, 3) Politecnico Internazionale (PnI), ESFm, Mexico City, 07738, Mexico, 4) Nykola Gogol State University of Nizhny, 2 Hralska Str., Nizhny 16600, Ukraine, 5) CIMAP Normandie Univ, ENSICAEN, UNICAEN, CEA, CNRS, 6 Boulevard Maréchal Juin, 14000 Caen, France

15:30 Low temperature deposition and crystallization control of SiC thin layers for waveguide applications
Vincent Tabouret1, Alexandre Crisci (1), Magali Morais (1), Grégory Berthomé (1), Didier Chaussende(1)
(1) Univ, Grenoble Alpes, CNRS, Grenoble INP (Institute of engineering), SIMAP, 38000 Grenoble, France

15:45 Discussion

16:00 2: Jean-François PIERSON

16:45 Flexible surface-enhanced Raman spectroscopy sensors for Rapid and direct biomolecule detection
Gaidi. M (1),2, Daudoi, K (1, 2), Columbus, S (2), Ramachandran, K (2), Tilli, A (3), El Khakani, M. A (4)
(1) Department of Applied Physics and Astronomy, University of Sharjah, P. O. Box 27272 Sharjah, United Arab Emirates (2) Centre for Advanced Materials Research, Research Institute of Sciences and Engineering, University of Sharjah, P. O. Box 27272 Sharjah, United Arab Emirates (3) Department of Applied Biology, University of Sharjah, P. O. Box 27272 Sharjah, United Arab Emirates (4) Institute National de la Recherche Scientifique, INRS-Energie, Blvd. Lionel-Boulet, Varennes, QC, Canada

16:45 Bioactive coatings used for biodegradation control of magnesium-based alloys
Gabriela Juravel1,2, Alina Vladescu1, Anca C. Paraian1, Diana M. Vranceanu2, Cosmin M. Cotru2
1 National Institute of R&D for Optoelectronics INOE2000, Department for Advanced Surface Processing and Analysis by Vacuum Technologies, 409 Atomistilor St, Magurele, RO77125, Romania, gabriela.juravela@inoe.ro, alina@inoe.ro, 2 University Politehnica of Bucharest, 313 Spl. Independentei, Bucharest, RO60042, Romania, cosmin.cotrifu@upb.ro, diana.vranceanu@upb.ro * Correspondence: gabriela.juravela@inoe.ro, Tel.: +40-21-457-57-59

16:45 MAPLE Efficient Antimicrobial Platform for Extended Release of Drugs
Anita Ioana Visan1, Carmen Rostocu1, Gianna Popescu-Prelin1, Mihaia Sfinciu2, Ioana Mihai3, Ana-Maria Elena Mate1, Gabriel Chirif1, 1 National Institute for Laser, Plasma and Radiation Physics, Bucharest, Romania, 2 Department of Microbiology, Faculty of Biology, University of Bucharest, 060101 Bucharest, Romania, 3 Earth, Environmental and Life Sciences Division, Research Institute of the University of Bucharest,050507 Bucharest, Romania, 4 Stefan S. Nicolau Institute of Virology, 286 Mihai Bravu Ave, Section 3, P.O. Box 301,000054 Bucharest, Romania, 5 UFR CNRS, INP-ENSIACET Université de Toulouse, 4 allée Emile Monso, 31030 Toulouse, France, 6 CIRMAT, CNRS, Université Toulouse, 5 Paul Sabatier, 35 Chemin des Maréchaux, CEDEX 9,31062 Toulouse, France, 7 National Institute of Materials Physics, 077125 Magurele, Ilfov, Romania. * Correspondence: anita.visan@inflpr.ro

16:45 Implant coatings based on low-cost sustainable natural resources for infection prevention
Anita Ioana Visan1, Carmen Rostocu1, Gianna Popescu-Prelin1, Mariana Chirifiu2,3,3, Marcella Popa 2, George Stan 4, T Title, and Ion N. Mihai1
1 National Institute for Laser, Plasma and Radiation Physics, Bucharest, Romania, 2 Department of Microbiology, Faculty of Biology, University of Bucharest, 060101 Bucharest, Romania, 3 Earth, Environmental and Life Sciences Division, Research Institute of the University of Bucharest,050507 Bucharest, Romania, 4 National Institute of Materials Physics, 077125 Magurele, Ilfov, Romania.

16:45 Tuning the Structure of Metallic Thin Films with Pulsed Laser Deposition
Alessandro Troiglia, Roland Bliem
1) Advanced Research Center for Nanolithography (ARCNL), Science Park 106, 1098 XG Amsterdam, The Netherlands, Advanced Research Center for Nanolithography (ARCNL), Science Park 106, 1098 XG Amsterdam, The Netherlands and Institute of Physics, University of Amsterdam, Science Park 904, 1098 XH Amsterdam, The Netherlands

16:45 Flexible spin-coating deposition of crack-free TiO2 -rGO thin films for solar harnessing devices
Timur Sh. Ababau, Laura Khamkhash, Anara Molkenova
Nazarbayev University, Nur-Sultan, Kazakhstan

16:45 Polyester fiber hybrid with conductive nanowires and photocatalytic nanoparticles for air purification
Ren-Yao Zheng, Wen-Yang Lien, Gen-Wen Hsieh*
1) Department of Electrical and Computer Engineering, National Chiao Tung University, No. 301, Gaofa 3rd Rd., Guiren District, Tainan 71150, Taiwan
2) National Institute of Laser, Plasma and Radiation Physics, Bucharest, Romania, 3 Earth, Environmental and Life Sciences Division, Research Institute of the University of Bucharest,050507 Bucharest, Romania, 4 National Institute of Materials Physics, 077125 Magurele, Ilfov, Romania.

16:45 Antibacterial activity, cytotoxicity, and biocorrosion behavior of high-entropy alloy coating doped with immobilized AgNPs
Timur Sh. Atabaev, Laura Khamkhash, Anara Molkenova
Nazarbayev University, Nur-Sultan, Kazakhstan

16:45 Enhancing the activity of photocatalytic coatings by addition of 2D g-C3N4 nanoparticles for air purification
Abhijeet Das, Sanjeev Kumar
1) Department of Physics, Aruna Chandra Pratap College, University of Delhi, New Delhi 110007, India
2) Advanced Research Center for Nanolithography, 5656 AE Eindhoven, Netherlands and Department of Applied Physics, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands

16:45 Facile spin-coating deposition of crack-free TiO2 -rGO thin films for solar harnessing devices
Timur Sh. Ababau, Laura Khamkhash, Anara Molkenova
Nazarbayev University, Nur-Sultan, Kazakhstan

16:45 Dynamic of kinetic roughening and wettability in two-dimensional materials
Abhijeet Das, Sanjeev Kumar
Centre for Advanced Research, Department of Physics, Rajiv Gandhi University, Arunachal Pradesh – 791112, India

16:45 Anticancer activity, cytotoxicity, and biocorrosion behavior of high-entropy alloy coating doped with immobilized AgNPs
Armin Asghari Alamand, Saman Hendessi, Ugur Ural, Amir Motalebzadeh*
1) Materials Science and Engineering, Koç University, Istanbul 34450, Istanbul, Turkey, 2) University Surface Science and Technology Center (KUYTAM), Koç University, Istanbul, 34450, Istanbul, Turkey
3) Department of Chemistry, Koç University, Istanbul, 34450 Istanbul, Turkey

16:45 Enhancing the activity of photocatalytic coatings by addition of 2D g-C3N4 nanoparticles for air purification
Abhijeet Das, Sanjeev Kumar
1) Department of Physics, Aruna Chandra Pratap College, University of Delhi, New Delhi 110007, India
2) Advanced Research Center for Nanolithography, 5656 AE Eindhoven, Netherlands and Department of Applied Physics, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands

O.8.3

O.8.4

O.8.5

O.8.6

O.8.7

O.8.8

O.8.9

O.8.10

O.8.11
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Location</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine-derived hydroxyapatite coatings synthesized by Pulsed laser</td>
<td>L. Dutá, G.E Stanţ, V. Grumezescu, G. Dorociom, E. Mătei, I. Zgura, O.</td>
<td>Romania, 050095 Bucharest,</td>
<td>Hydroxyapatite, coatings, Bioactive, implants, Laser technology</td>
</tr>
<tr>
<td>deposition</td>
<td>Gherasim, I.G. Popescu-Pein, F.N. Octăra.</td>
<td>(2)Department of Biochemistry and Molecular Biology, University of Bucharest, 077125 Bucharest, Romania</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INational Institute for Lasers, Plasma and Radiation Physics, Lasers Department, Magurele, Romania 2National Institute of Materials Physics, Magurele, Romania 3Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Applied Chemistry and Materials Science, Politehnica University of Bucharest, Bucharest, Romania 4Department of Bioengineering, Faculty of Engineering, University of Marmara, Istanbul, Turkey 5Advanced Nanomaterials Research Laboratory (ANRL), University of Marmara, Istanbul, Turkey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-melanoma activity of Doxorubicin loaded superparamagnetic iron oxide nanoparticles</td>
<td>JINGJIA L. (1, 3), POPESCU-PULIN, G. (1), IDONITA, P. (3), ANTOHE, I. (1)</td>
<td>Romania 2Department of Biotechnology, Faculty of Biology, University of Bucharest, Bucharest, Romania 3Research Institute of the University of Bucharest (ICUB), Earth, Environmental and Life Sciences Division, Bucharest, Romania</td>
<td>Hydroxyapatite, Doxorubicin, melanoma, coatings</td>
</tr>
<tr>
<td>Hydroxyapatite of various biological origin: from powders to thin film cytocompatibility assessment</td>
<td>L. Dută, V. Grumezescu, M.C. Chițiriciu, G.E. Stanț, O. Gherasim, I. Zgura, F.N. Octăra.</td>
<td>Romania 2Department of Microbiology, Faculty of Biology, University of Bucharest, Bucharest, Romania 3Research Institute of the University of Bucharest (ICUB), Earth, Environmental and Life Sciences Division, Bucharest, Romania</td>
<td>Hydroxyapatite, coatings, biological origin</td>
</tr>
<tr>
<td>Visible-light photocatalytic activity of atomic layer deposited TiO2 inverse opal films doped with preformed Au nanoparticles</td>
<td>P. BIRNAL (a), C. MARCO DE LUCAS (a), I. POCHARD (b), F. HERBST (b), O. HEINZT (b), L. SAVIOT (b), A. DOMENICHINI (a), L. IMHOFF (a)</td>
<td>France 2Laboratoire des Sciences pour l’Environnement et l’Energie, Département de Physique, Université de Poitiers, Poitiers, France</td>
<td>Photocatalysis, TiO2, Au nanoparticles</td>
</tr>
<tr>
<td>Block Copolymer Assisted Fabrication of Gallium Nanofilms for Ortophedic Implant Coatings</td>
<td>Murphy, Bríd (1,2), Crowle, Tim (3) &amp; Morris, Michael (1,2)</td>
<td>Ireland 2School of Chemistry, Trinity College Dublin, Dublin 2, Ireland</td>
<td>Nanofilms, Gallium, Orthopedic implants</td>
</tr>
<tr>
<td>Bioactive coatings based on hydroxyapatite for improved implantable devices</td>
<td>Grumezescu, V. (1), Dută, L. (1), Gherasim, O. (1), Holban, A.M. (2), Grumezescu, A.M. (3), Ficai, A. (3), Hudită, A. (4)</td>
<td>Romania 2Department of Microbiology and Immunology, Faculty of Biology, University of Bucharest, Bucharest, Romania</td>
<td>Hydroxyapatite, coatings, bioactivity</td>
</tr>
<tr>
<td>The development of new magnetic bio-nanomaterials based on plant virus for biomedical applications</td>
<td>Sendos Darwish, Souad Ammar, Nguyễn-Thành Hau DUONG</td>
<td>Romania</td>
<td>Magnetic bio-nanomaterials, plant virus, biomedical applications</td>
</tr>
</tbody>
</table>
Thursday June 2

09:00

AV Design of weakly interacting heterostructures via selective surfactant deployment

Andreas Jamnig1, Nikolaos Platikas2, Gregory Abadiss1, and Kostas Sarakinos3

1Institut de Physique de Paris, Département Physique et Mécanique des Matériaux, UPR 3346 CNRS, Université de Poitiers, ENSMa, 11 Boulevard Marie et Pierre Curie, TSA 41123, F-86073 Poitiers cedex 9, France 2Department of Physics, Aristotle University of Thessaloniki, GR-54124 Thessaloniki, Greece 3Department of Physics, University of Helsinki, P.O. Box 43, FI-00014, Helsinki, Finland

09:30

Effect of the temperature substrate on the properties of a new ternary nitride semiconductor with a wide bandgap energy: MiGaN2

A. Virvel, F. Ainjman, S. Dilberto, J. Ghabrava, E. Haye, S. Migot, J.F. Pierson A. Virvel, F. Ainjman, S. Dilberto, J. Ghabrava, S. Migot, J.F. Pierson, Institut Jean Lamour (UMR CNRS 7198), Université de Lorraine, Nancy, France. F. Ainjman, Department of Physics and Astronomy at College of Science, King Saud University at Riyadh, Saudi Arabia E. Haye, Laboratoire d'Analyse par Réactions Nucléaires (LARN), Nanum Institute of Structured Matter (NISM), University of Namur, 5000 Namur, Belgium

09:45

Coarse-grained approach in growth simulations of metal oxides and polymers on planar and nanostructured substrates

Jorge Budagosky, Xabier García-Casas, Juan R. Sánchez-Valencia, Angel Barranco, Ana Borrás

Nanotechnology on Surfaces and Plasma Group, Materials Science Institute of Seville (CSIC-US), C/Américo Vespucio 49, Seville 41092, Spain.

10:00

Study of Crystallization of Amorphous Metals through Molecular Dynamics Simulations

P. Devriendt, A., Fraeye, T. Polcar 1

1Department of Control Engineering, Faculty of Electrical Engineering, Czech Technical University in Prague, Karlovo náměstí 13, 121 35, Czech Republic. 2 Nuclear Futures Institute, Bangor University, Gwynedd, LL57 2DQ, United Kingdom.

10:15

Atomistic study of early growth stages of Cu thin film growth by Kinetic Monte Carlo simulations

Nita, F.1(1),2, Furgeaud, C.1(1), Michel, A.1, Abadiss, G.1, Mastai, C.1(1),2(1)

1Institut Jean Lamour (UMR CNRS 7198), Université de Lorraine, Nancy, France. 2Laboratoire d'Analyse par Réactions Nucléaires (LARN), Nanum Institute of Structured Matter (NISM), University of Namur, Namur, 5000 Namur, Belgium, Namur, Belgium

10:30

Discussion

10:45

Self-assembly of bis-salphen metal-organic polymer networks: atomistic simulation of assembly and deformation processes

Sergey Pyr'lin, Marta Ramos

Center of Physics of the Universities of Minho and Porto

11:00

Deposition and study of the superhydrophilic diamond-like carbon films

S. Mešková, A. Vasiliauskas, V. Kupšiūnaitė, A. Gabulevičiūtė, A. Guobienė, Institute of Materials Science of Kaunas University of Technology, K. Baršausko g. 59, Kaunas, Lithuania

11:15

Discussion

11:30

From tensile to compressive stress in Cu/W multilayers: impact on thermal conductivity and microstructure

Giacomo Lorenzin1, M. M. Shafaii-Bin-Hoque2, Daniel Ariosa3, Patrick E. Hopkins2, (4), (5), Eric R. Houglund2, John A. Tomko2, Sean W. King6, Lars P.H. Jeurgens1

1Empa, Swiss Federal Laboratories for Materials Science and Technology, Laboratory for Joining Technologies and Corrosion, Überlandstrasse 129, 8600 Sissendorf, Switzerland. 2Department of Mechanical and Aerospace Engineering, University of Virginia, Charlottesville, VA 22904, USA. 3Department of Engineering of Materials Science and Engineering, University of Virginia, Charlottesville, Virginia 22904, USA. 4Department of Materials Science and Engineering, University of Virginia, Charlottesville, Virginia 22904, USA. 5Department of Physics, University of Virginia, Charlottesville, Virginia 22904, USA. 6The Center Institute of Materials Science Institute of State Physic, Virginia, USA. 7United States.

11:45

Structural and magnetic properties of MBE grown Co2FeSi/Si(111) films

I. Azaceta, S.A. Cavill and V.K. Lazarov

Department of Physics and Astronomy, University of York, Heslington, York, YO10 5DD, UK

12:00

Discussion

15:00

Elaboration of Bi-based Nanoparticles by reactive magnetron sputtering on Ironic Liquid for photocatalytic applications

Vitalis Nomproukridis1(1), Jean-Michel Andonsson1(1), Pierre Bonnet1(1), Angélique Boussquit1(1)

1Institut de Chimie de Clermont-Ferrand (ICCF), University Clermont Auvergne, France

15:15

Photocatalytic properties of thin film TiO2 deposited by HIPIMS

David F. Fernandes, Lars Österlund, Tomas Kubart

3Department of Electrical Engineering, Ångström Laboratory, Uppsala University, P.O. Box 65, 751 03, Uppsala, Sweden. Email: david.f.fernandes@angstrom.uu.se (T. Kubart); tomas.kubart@angstrom.uu.se (L. Österlund). Department of Materials Science and Engineering, Ångström Laboratory, Uppsala University, P.O. Box 534, SE-751 21 Uppsala, Sweden E-mail: lars.osterlund@angstrom.uu.se

15:30

pd and rh atomic layer deposition by using ozone as the only co-reactant

Yiming Zou, Yuanquan Guo, Chunyu Cheng, Ronel Goei, Alfred ling YoonJok School of Materials Science and Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798

15:45

Characterization of galvanic silver dispersion coatings with optimized electrical and tribological behavior

Kajla Johnson, Robin Amet, Dr. Ann-Kathrin Eggenmeyer

Research Institute for Precious Metals and Metals Chemistry

16:00

low temperature deposition of crystalline V2O3 thin films by high power impulse magnetron sputtering

Wahyu Dayatma1, Martin Rudolph1, Gargi Kodgirwar1, Yeliz Unutulmosay1, and André Ander1

1Leibniz Institute of Surface Engineering (IOM), Permoserstraße 15, 04318 Leipzig, Germany. 2Faculty of Physics and Earth Science, Leipzig University, Linnéstraße 5, 04103 Leipzig, Germany. 3Felix Bloch Institute of Solid State Physics, Leipzig University, Linnéstraße 5, 04103 Leipzig, Germany

16:15

Discussion

16:45

Bi-phasic calcium phosphate coatings of natural grown synthesized by pulsed laser deposition

G. Popescu-Pelev1, C. Ristoscu1, L. Dut1, G.E. Stanz1, M. Popa1, M.C. Cîliriu2,4, F.N. Oktar5,6, and I.N. Mihalescu1

1National Institute for Lasers, Plasma and Radiation Physics, Magurele 077125, Romania 2National Institute of Materials Physics, Magurele 077125, Romania 3Microbiology Department, Faculty of Biology, University of Bucharest, Bucharest 060101, Romania 4Research Institute of the University of Bucharest (ICUB), University of Bucharest, Bucharest 050095, Romania 5Department of Bioengineering, Faculty of Engineering, University of Marmara, Kadıköy 34722, Istanbul, Turkey 6Center for Nanotechnology & Biomaterials Research, University of Marmara, Kadıköy 34722, Istanbul, Turkey

17:00

Micro/nanostructured piezoelectric a-quartz thin films on silicon

David Sánchez-Fuentes1,2, T. Polcar1,2,3, T. Kubart1,2, A. Virfeu, F. Alnjiman, S. Diliberto, J. Ghanbaja, S. Migot, J.F. Pierson

Institut Jean Lamour (UMR CNRS 7198), Université de Lorraine, Nancy, France. 2Laboratoire d'Analyse par Réactions Nucléaires (LARN), Nanum Institute of Structured Matter (NISM), University of Namur, Namur, 5000 Namur, Belgium. 3FELIX Bloch Institute of Solid State Physics, Leipzig University, Linnéstraße 5, 04103 Leipzig, Germany.
11:30 Ne and Al ion implantation effects on the microstructure, thermal and electrical properties of CrSi2 thin films
M. Timm1,2,3, E. Oliviero2,3, W. Sun4, S. Gomes4, G. Hamaoui5, P. F. P. Fichtner6, N. Fréty2
1 Instituto de Física, Universidade Federal Do Rio Grande Do Sul, Porto Alegre, RS, Brazil  2 ICGM, CNRS, Univ. Montpellier, Montpellier, France  3 MEA, CNRS, Univ. Montpellier, Montpellier, France  4 CNRS, INSa Lyon, CETIHL, Univ Lyon, UMR5008, 69621 Villeurbanne, France  5 ESYCOM Laboratory, CNRS, Université Gustave Eiffel, 77454 Marne-la-Vallée, France  6 Escola de Engenharia, Universidade Federal Do Rio Grande Do Sul, Porto Alegre, RS, Brazil

11:45 Formation of Phosphorus-Doped N-type Silicon Films Using Sputter Epitaxy Method
Hiroya Esaki* (1), Nobumitsu Hirose (2), Akifumi Kasamatsu (2), Toshiaki Matsui (2), Yoshiyuki Suda (3) and Takahiro Tsukamoto (1)
(1)The University of Electro-Communications, Japan  (2)National Institute of Information and Communications Technology, Japan  (3)Tokyo University of Agriculture and Technology, Japan

12:00 Discussion and Closing
SYMPOSIUM P

Cultural heritage at risk - perspectives on technologies, materials, modelling and digitalization

Symposium Organizers:

Anne BOUQUILLON, C2RMF

Giuseppina PADELETTI, CNR - Consiglio Nazionale delle Ricerche, ISMN—Instituto per lo Studio dei Materiali Nanostrutturati

João Pedro VEIGA, Universidade Nova de Lisboa
11:00 Invited Public Lecture: "A Late Iron Age gold earring in the context of Proto-historic gold and silver characterization and synthesis of black glazes"
11:45 Cryogels with tailored cleaning abilities to restore Modern and Contemporary heritage
13:00 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
14:00 The degradation of concrete used by Sir Arthur Evans in the reconstruction of the Palace of Knossos
16:15 Transient absorption study on Red Vermilion darkening in presence of chlorine ions and after UV exposure
09:30 Structural - J.P. Veiga
10:45 Discussion
15:30 Unveiling historical recipes for the production of yellow silver stained glass
15:45 Transient absorption study on Red Vermillion darkening in presence of chlorine ions and after UV exposure
16:00 Pigments and pictorial works of Fleury Richard (1777 - 1852): physico-chemical analyses for the study of artistic practices
11:00 Preventive - G. Padeletti
11:45 Cryogens with tailored cleaning abilities to restore Modern and Contemporary heritage
12:00 Single sensor-based electronic nose for preventive conservation of cultural heritage
12:15 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
12:45 Lunch
15:00 Welcome Afternoon - J.P. Veiga
15:15 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
15:20 Unveiling historical recipes for the production of yellow silver stained glass
15:30 Unveiling historical recipes for the production of yellow silver stained glass
15:45 Transient absorption study on Red Vermillion darkening in presence of chlorine ions and after UV exposure
16:00 Pigments and pictorial works of Fleury Richard (1777 - 1852): physico-chemical analyses for the study of artistic practices
11:00 Preventive - G. Padeletti
11:45 Cryogens with tailored cleaning abilities to restore Modern and Contemporary heritage
12:00 Single sensor-based electronic nose for preventive conservation of cultural heritage
12:15 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
12:45 Lunch
15:00 Welcome Afternoon - J.P. Veiga
15:15 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
15:20 Unveiling historical recipes for the production of yellow silver stained glass
15:30 Unveiling historical recipes for the production of yellow silver stained glass
15:45 Transient absorption study on Red Vermillion darkening in presence of chlorine ions and after UV exposure
16:00 Pigments and pictorial works of Fleury Richard (1777 - 1852): physico-chemical analyses for the study of artistic practices
11:00 Preventive - G. Padeletti
11:45 Cryogens with tailored cleaning abilities to restore Modern and Contemporary heritage
12:00 Single sensor-based electronic nose for preventive conservation of cultural heritage
12:15 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
12:45 Lunch
15:00 Welcome Afternoon - J.P. Veiga
15:15 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
15:20 Unveiling historical recipes for the production of yellow silver stained glass
15:30 Unveiling historical recipes for the production of yellow silver stained glass
15:45 Transient absorption study on Red Vermillion darkening in presence of chlorine ions and after UV exposure
16:00 Pigments and pictorial works of Fleury Richard (1777 - 1852): physico-chemical analyses for the study of artistic practices
11:00 Preventive - G. Padeletti
11:45 Cryogens with tailored cleaning abilities to restore Modern and Contemporary heritage
12:00 Single sensor-based electronic nose for preventive conservation of cultural heritage
12:15 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
12:45 Lunch
15:00 Welcome Afternoon - J.P. Veiga
15:15 Environmentally friendly ZnO/Castor oil polyurethane composites for the gas-phase adsorption of acetic acid
15:20 Unveiling historical recipes for the production of yellow silver stained glass
15:30 Unveiling historical recipes for the production of yellow silver stained glass
15:45 Transient absorption study on Red Vermillion darkening in presence of chlorine ions and after UV exposure
16:00 Pigments and pictorial works of Fleury Richard (1777 - 1852): physico-chemical analyses for the study of artistic practices
SYMPOSIUM Q

Fundamental and applicative research in laser-material interactions

Symposium Organizers:

Alexandra PALLA-PAPAVLU, National Institute for Lasers, Plasma, and Radiation Physics

Anne-Patricia ALLONCLE, Centre National de la Recherche Scientifique LP3 - CNRS

Evgeny GUREVICH, University of Applied Science Munster

Maria KANDYLA, National Hellenic Research Foundation

Selected papers will be published in Applied Phys. A [Springer].
Monday may 30

08:45 Welcome and introduction to the Symposium

Pulsed laser deposition and ablation-based growth of materials: Palla-Papavlu Alexandra

09:00 Thin Films prepared by PLD: model systems for studies using large facilities techniques
Thomas Lippert
1 - Division for Research with Neutrons and Muons, Paul Scherrer Institute, 5232 Villigen, Switzerland
2 - International Center for Nuclear-Heavy Ion Research (WPI-ICNMR), Kyushu University, Fukuoka 819-0895, Japan
3 - Laboratory of Inorganic Chemistry, Department of Chemistry and Applied Biosciences, ETH Zürich, 8093 Zürich, Switzerland

09:30 PLD of ferroelectric HIO2 thin films
I.A. Bercea1, A. M. L. Curea2, A.M. Lepata2, D. Dragoman3, M. Filipescu1, V. Ion1, A. Moldovan1, V.A. Mararci2, V.S. Teodorescu2, Maria Dinescu1
1 - National Institute for Laser, Plasma and Radiation Physics, Atomistilor 409, 77125 Magurele, Romania
2 - National Institute of Materials Physics, Calea 405, Sector 2, 77125 Magurele, Romania
3 - National Institute for Research and Development in Microtechnologies - IMT, Str. Erou Iancu Nicolae, Nr. 126 A, Voluntari, Ilfov, Romania

09:45 Langmuir Probe as Deposition Sensor for Pulsed Laser Deposition: implementation for copper halide systems
Stefan Andrei Irimiciuc1,2, Sergiu Chertopalov2, Michal Novotný2,3, Maricel Apog5
1 - Laboratoire de Photovoltaïque, Centre de Recherches et des Technologies de l’Energie, 80143 Abbeville, France
2 - Centre Énergie Matériaux et Télécommunications (INRS-EMT), Institut National de la Recherche Scientifique, 2000 St-Jean Boulevard, Varennes, QC JX1 1S2, Canada
3 - Université de Montréal, 2920 University Street, Montreal, QC H3C 3J7, Canada
4 - École Polytechnique, 10, rue polytechnique, Vélizy Villacoublay, 78140, France
5 - The University of Bucharest, Faculty of Physics, 14 Academiei Street, Bucharest 010010, Romania

10:00 Study of the bioactivity of glass/polymer biphasic scaffolds obtained by conjugating electrospinning and PLD techniques
1 - Dipartimento di Scienze, Università della Basilicata, V.le dell’Ateneo Lucano 10, 85100 Potenza, Italy
2 - ISM-CNRS, UOS Tito Scalo, Zona Industriale, 85050 Tito Scalo (PZ), Italy
3 - ISM-CNRS, Via dal Fosso del Cavaliere, 100-1103 Rome, Italy

10:15 Effect of surface characteristics of activated PbS-NPs/ TiO2-NTs on the adsorption of Butane-2-3-dione from indoor air
Anwar Haji1,2, S. Jema1, Mabrouk Liaib1,2, Khaled Trabelsi, Mounir Gaid4, Aymen Amine Assad4, Ibrahim Bessais4, and My Ali ElKhekan4
1 - Laboratoire de Photovoltaïque, Centre de Recherches et des Technologies de l’Energie, Technopôle de Borj-Cédria, BP 95 Hammam-Lil, 2050 Tunis, Tunisia
2 - Centre Energie Materiaux et Telecommunications (CNRS-EMT), Institut National de la Recherche Scientifique (INRS), 1650 Boulevard Lionel Boulet, Varennes, QC JX1 1S2, Canada
3 - Université de Rennes, ENSCR, I2R (Institut des Sciences Chimiques de Rennes), UMR 6266, F-35000, Rennes, France
4 - Center of Advanced Research Materials, Research Institute of Science and Engineering, University of Sharjah, Sharjah P.O. Box 27272, United Arab Emirates

10:45 Coffee

MAPLE, Nanoparticle Generation and Applications: Evgeny Gurevich

11:00 Sensors processed by MAPLE technique for contaminants detection
C. Craciun1,2, F. Andrei1,3, A. Bonciu1,2, S. Branicioiu1, M. Filipescu1, A. Papavlu1, M. Dinescu1
1 - National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania
2 - University of Bucharest, Faculty of Physics, 4011 MG-11, Bucharest, Romania
3 - University of Bucharest, Faculty of Physics, 4011 MG-11, Bucharest, Romania

11:15 Catheters coating through Matrix-Assisted Pulsed Laser Evaporation with new-concept biocompatible graphic materials
Istituto di Scienze e Tecnologie per l’Energia e la Mobilità Sostenibili (CNR-STEMS), 80125 Naples, Italy

11:30 MAPLE deposited organic thin films based on P3HT and PC70BM on nanopatterned substrate
M. Socol1, N. Preda1, C. Breauz1, G. Petre1, A. Stanoeacu2, A. Stochiociu2, G. Socot2, S. Ilmien3, C. Thannier4, O. Rasoga1
1 - National Institute of Materials Physics, 4011 MG-11, Bucharest, Romania
2 - National Institute for Lasers, Plasma and Radiation Physics, 4011 MG-11, Bucharest, Romania
3 - University of Bucharest, Faculty of Physics, 4011 MG-11, Bucharest, Romania

12:00 Laser synthesis of MoS2/SWCNT composites
Averchenko A.V.1, Salimon I.A.1, Zharkova E. V. (1), Abbas O.A. (1), Lagoudakis P. G. (1), Gladush Y. (1), Mitrichyan A. A. (1), Nasibulin A. G. (1), and Mailis S. (1)
1 - Skolkovo Institute of Science and Technology, Moscow, 121025, Russian Federation

12:45 Lunch

Nano particle Generation and Applications: Patricia Alonci

13:40 Application of matrix-assisted pulsed laser evaporation for the realization of superhydrophobic polymer surfaces
S. Branicioiu, A. Pappa-Papavlu, M. Filipescu, V. Satolu, T. Tozar, M. Dinescu
National Institute for Lasers, Plasma, and Radiation Physics, Atomiistor Str. 409, Magurele, ZIP 077125, Romania

14:45 Palladium-based theranostic nanoplatforms for antitumor applications
1 - Department of Chemical Sciences, University of Catania, Italy
2 - Department of Pharmacy, University of Pisa, Italy
3 - Department of Sciences, University of Catania, Italy
4 - Centre for Biomedical Technology, Université de Sherbrooke Quebec, Canada
5 - Department of Chemical Sciences, University of Catania, Italy
6 - Laboratory of Inorganic Chemistry, Department of Chemistry and Applied Biosciences, ETH Zürich, 8093 Zürich, Switzerland

15:00 Hyaluronic acid coated gold nanorods for antimalar plasmocin photothermal therapy Foti, A. (1), Domingo, J. (2), Serrano Olmedo, J. J. (2), Ramos, M. (2), Santinello, S. (1), Satriano, C. (1)
1 - Department of Chemical Sciences, University of Catania, Italy
2 - Centre for Biomedical Technology, Polytechnic University of Madrid (UPM), Spain
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00</td>
<td>Direct laser writing of photonic arrays for vapor-responsive sensing</td>
<td>Jing Qian(1), Colin Delaney(2), Xia Zhang(1), Larisa Florea(2), A. Louise Bradley(1), (1)School of Physics and AMBER, Trinity College Dublin, College Green, Dublin 2, Ireland, (2)School of Chemistry and AMBER, the SFI Research Centre for Advanced Materials and BioEngineering Research, Trinity College Dublin, the University of Dublin, College Green, Dublin 2, Ireland.</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>High repetition rate laser-induced printing of biopolymers: time-resolved study of multiple jet dynamics</td>
<td>Lucas Duvert 1, Adrien Casanova 1, Jérôme D Robin 2, Frédérique Maglinier 2, Anne-Patricia Aloncle 1 1) Aix-Marseille University, CNRS, LP3 UMR 7341, Campus de Luminy. Case 917, 13286, Marseille cedex 9, France 2) Aix-Marseille University, INSERM, MMS, Marseille Medical Genetics, 13385 Marseille, France</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Viscoelastic properties of stored red blood cells using single beam optical tweezers</td>
<td>T. Giannakis, M. Kandyla National Hellenic Research Foundation, Theoretical and Physical Chemistry Institute,</td>
<td>Q XII.18</td>
</tr>
<tr>
<td>16:00</td>
<td>Effect of composition on the MAPLE prepared polymer based organic heterostructures for photovoltaic applications</td>
<td>F. Stanculescu(1), M. Socol(2), C. Breazu(2), G. Socol(3), G. Popescu-Pelin(2), O. Rasogoi(2), G. Petre(2,1), N. Preda(2), A. M. Solonaru(4), M. Girtan(5), A. Stanculescu(2) (1) University of Bucharest, Faculty of Physics, 405 Atomistilor Street, P.O. Box MG-11, Bucharest-Magurele, 077125 Romania (2) National Institute of Materials Physics, 405A Atomistilor Street, P.O. Box MG-7, Bucharest-Magurele, 077125 Romania, <a href="mailto:sanca@infim.ro">sanca@infim.ro</a> (3)National Institute for Laser, Plasma and Radiation Physics, Str. Atomistilor Nr. 409, PO Box MG-36, Magurele, Bucharest, 077125, Romania (4) P. Poni Institute of Macromolecular Chemistry, 41 A Gr. Ghica Voda Alley, 700487-Iasi, Romania (5)University of Angers, Photonics Laboratory, University 2, Bd. Lavoisier 49045, Angers, France</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Investigation of laser-ablated Si phase elements for generation of THz Bessel beams</td>
<td>Paulius Kizevicius, Ernestas Nacius, Rusne Ivaskenvalute-Povilaukienė, Domas Jakubauskas, Linas Minkevičius, Sergej Orlov, Gintaras Valiušis Paulius Elevation State research institute Center for Physical Sciences and Technology Saulutekiave 3, LT-10257 Vilnius, Lithuania</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Fabrication of ultrathin sensors via laser-forward transfer</td>
<td>A. Bercea, M. Filipescu, S. Brăjinicov, A. Palla-Papavu National Institute for Lasers, Plasma and Radiation Physics, Lasers Department, Atomistilor Street 409, Magurele, ZIP 077125, Romania</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Ultra-short laser ablation of aluminium nitride and silicon nitride ceramics</td>
<td>N. Nedyalkov1, Al. Daskalova1, L. Kovachev1 1) Institute of Electronics, Bulgarian Academy of Sciences, 72, Tsarigradsko Chaussee Blvd, 1784, Sofia, Bulgaria</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Surface structuring of Si3N4 ceramic by nanosecond laser pulses</td>
<td>N. Nedyalkov1*, A. Đikovska1, Ru. Nikov1, Ro. Nikov1, G. Atanasova2, M. Koleva1, L. Aleksandrov2, M. Terakawa3 1) Institute of Electronics, Bulgarian Academy of Sciences, 72, Tsarigradsko Chaussee Blvd, 1784, Sofia, Bulgaria 2) Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences, bl. 11, Acad. Georgi Bonchev Str., 1113, Sofia, Bulgaria 3) Department of Electronics and Electrical Engineering, Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama 223-8522, Japan</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>Nanosecond laser processing of AlN and Si3N4 ceramics in water at different wavelengths</td>
<td>Ro Nikov1, N Nedyalkov1, D Karashanova2 1) E. Dajkov Institute of Electronics, Bulgarian Academy of Sciences, 72, Tsarigradsko Chaussee, 1784 Sofia, Bulgaria 2) Institute of Optical Materials and Technologies, Bulgarian Academy of Sciences, G. Bonchev Street, bl. 109, Sofia 1113, Bulgaria</td>
<td></td>
</tr>
</tbody>
</table>
Tuesday may 31

LIPSS I : Evgeny Gurevich

09:00 INV Bio-inspired Laser Micro- and Nanopatterning of Materials
Johannes Heitz, Gerda Buchberger, Cristina Plamadeala, Marina Muck, Werner Baugartner, Achim Walter Hassel, Dominik Knapic
Institutes of Applied Physics, of Biomedical Mechatronics, and for Chemical Technology of Inorganic Materials, Johannes Kepler University Linz, Austria

09:30 LIPSS formation by picosecond laser irradiation of magnetron sputtered gadolinium-doped ceria thin films
W. Karren1, A. Pettil1, M. Tabba2, A. Thomann1 and N. Semmar1
1 GREMl-UMR 7344-CNRS-University of Orleans, 14 rue d'Issoudun, 45071 Orleans Cedex2, France 2 Department of Physics, American University of Beirut, Beirut, Lebanon 1107 2020.

09:45 Reducing Escherichia coli adhesion to PET by modulating spatial periods of laser-induced surface nanostructures
1 Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany (2) Institute of Applied Physics, Johannes Kepler University Linz, Austria (3) Center for Surface and Nanoanalytics, Johannes Kepler University Linz, Austria * lead presenter

10:00 Laser Induced Periodic Surface Structures on conductive polymer films generated with nanosecond laser vector beams
Javier Prada-Rodríguez (1 2), Jijii JJ Nivas (3), Melin Hu (3), Marcella Salvatore (3), Stefano Ossurato (3), Salvatore Amoruso (3), Tiberio A. Ezquerra (4), Pablo Moreno (1), Esther Rebollar (2)
1 Grupo de Aplicaciones del Laser y Fotónica (ALF-USAL), Universidad de Salamanca, Pl. de la Merced s/n, 37008 Salamanca, Spain, 2 Instituto de Química Física Rocasolano (IQFR-CSIC), C/Serrano 119, 28006 Madrid, Spain, 3 Dipartimento di Fisica «Ettore Pancini», Università degli Studi di Napoli “Federico II” Complesso Universitario di Monte S. Angelo Via Cintia 1-00126 Napoli, Italy, 4 Instituto de Estructura de la Materia, Consejo Superior de Investigaciones Científicas (ICM-CSIC), Serrano 121, 28006 Madrid, Spain

10:15 Laser surface structuring of intrinsic Si, in vacuum and air, with fs pulse sequences at repetition rates from 10 Hz to 200 kHz
M. Hu (1), J. JJ Nivas (1,2), M. Valadian (1), R. Fillipiaki (3), A. Vecchione (3), R. Bruzzese (1,2), C. Allucci (4), and S. Amoruso (1,2)
1 Dipartimento di Fisica «Ettore Pancini», Università di Napoli Federico II, Complesso Universitario di Monte S. Angelo, Via Cintia, I-80126 Napoli, Italy, 2 CNR-SPIN, UOS Napoli, Complesso Universitario di Monte S. Angelo, Via Cintia, I-80126 Napoli, Italy, 3 CNR-SPIN, UOS Salerno, Via Giovanni Paolo II 132, I-84084 Fisciano, Italy, 4 Dipartimento di Scienze biomediche avanzate, Università di Napoli Federico II, Via Pansini 5, 80131 Napoli, Italy

10:30 Q&A

10:45 Coffee

11:15 A brief survey on open questions about laser-induced periodic surface structures
J. Bonse (1), C. Florian (1,2), M. Mezera (1), K. Wasmuth (1, A.M. Richter (1), K. Schwiibbert (1), J. Krüger (1), F.A. Müller (3), S. Gräf (3)
1 Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany (2) Institute of Applied Physics, Johannes Kepler University Linz, Austria (3) Center for Surface and Nanoanalytics, Johannes Kepler University Linz, Austria

11:30 INV Laser surface irradiation of a topological insulator crystal with femtosecond laser pulses
Jijii JJ Nivas (1,2), Melin Hu (1), Rosalba Fittipaldi (3), Antonio Vecchione (3), Riccardo Bruzzese (1,2), and Salvatore Amoruso (1,2)
1 Dipartimento di Fisica «Ettore Pancini», Università di Napoli Federico II, Complesso Universitario di Monte S. Angelo, Via Cintia, I-80126 Napoli, Italy, 2 CNR-SPIN, UOS Napoli, Complesso Universitario di Monte S. Angelo, Via Cintia, I-80126 Napoli, Italy, 3 CNR-SPIN, UOS Salerno, Via Giovanni Paolo II 132, I-84084 Fisciano, Italy

12:30 Q&A

12:45 Lunch

13:45 Plenary I

14:45 Coffee

15:00 INV Laser-induced Forward Transfer (LIFT) of silver-nanoparticle inks
Gert-willem Römer, Justinas Mikšys, Matthias Feinaugel, Gert Arutinov
Gert-willem Römer: Chair of Laser Processing, Department of Mechanics of Solids, Surfaces & Systems, Faculty of Engineering Technology, University of Twente, Drienerloaan 5, 7522NB Enschede, The Netherlands, Justinas Mikšys: Chair of Laser Processing, Department of Mechanics of Solids, Surfaces & Systems, Faculty of Engineering Technology, University of Twente, Drienerloaan 5, 7522NB Enschede, The Netherlands AND Holst Centre/TNO, High Tech Campus 31, 5566AE Eindhoven, The Netherlands

15:30 OPTIMIZATION OF THE LASER-INDUCED FORWARD TRANSFER PROCESS FOR THE PRINTING OF LIVING CELLS
A. Casanova 1, L. Duver 1, J. D. Robin 2, F. Magdiner 2, P. Delaporte 1, A. P. Aloni 1
1 Aix-Marseille University, CNRS, LP3 UMR 7341, Campus de Luminy, Case 917, 13288, Marseille cedex 9, France 2 Aix-Marseille University, INSERM, MMG, Marseille Medical Genetics, 13385 Marseille, France

16:00 Conformal laser printing and sintering of Ag nanoparticle inks for the fabrication of micro-conductive patterns K. Andritsos a, I. Theodorakos a, F. Zacharatos a, A. Kabia b, S. Melamed b, F. de la Vega b, Y. Porto c, P. Too c and I. Zergioti a a. School of Applied Mathematical and Physical Sciences, National Technical University of Athens, Iroon Polytechniou 9, 15780, Athens, Greece b. JV Nano Cell Ltd., 8 Hamasger st., P.O. Box 236 Migdal HaEmek, Migdal Haemek 2310102, Israel, c. FlexEnable Ltd, 34 Cambridge Science Park, Cambridge, CB4 0FX, United Kingdom

16:15 Laser printing of alf-a-fetoprotein monoclonal antibody functionalized graphene for surface acoustic wave biosensors
Voicu, S.I.1,2, Pajević, D.1,2, Pandele, A.M.1,2, Oprea, M.1,2 & Tuncel, C.2.
1(1)Advanced Polymers Materials Group, Gheorghe Polizu 1-7, 01061 Bucharest, Romania 2(Faculty of Chemical Engineering and Biotechnologies, University Politehnica of Bucharest, Gheorghe Polizu 1-7, 01061 Bucharest, Romania

16:30 Q&A
**Wednesday June 1**

**10:00 Invited Talk**

- **10:00 - 10:45** Ultrasound laser processing: Evgeny Gurevich
  - Petro Gruherne
  - Extreme Light Infrastructure - Nuclear Physics (ELI-NP), Horia Hulubei - National Institute for Physics and Nuclear Engineering (IFN-IH)

**10:45 Q&A**

**10:45 - 11:00** Challenges and opportunities of multi-PW laser experiments
  - Nader E. Demagh
  - Sylvain Leclerc

**11:00 Coffee**

**11:15 Invited Talk**

- **11:15 - 11:50** High power micro-lens power tolerance for silicon submicron marking
  - Thierry J-Y. Derrien
  - HiLASE Centre, Institute of Optics and Laser Technology, University of Innsbruck, Austria

**11:50 Q&A**

**11:50 - 12:15** Nanosecond laser irradiation of Zeonex polymer: Time-resolved photoluminescence of a new organic material
  - Marinela P. Martin
  - Institute of Analytical and Bioanalytical Chemistry, University of Ulm, Germany

**12:15 Lunch**

**12:30 Q&A**

**12:30 - 13:05** Multiscale atomistic modelling of ultrafast melting in laser annealing
  - Tobias Voss
  - Institute for Semiconductor Technology and Laboratory for Emerging Nanometrology LENA, Technische Universität Braunschweig, Braunschweig, Germany

**13:05 Plenary II**

**13:45 Coffee**

**13:45 - 14:20** Laser surface structuring and direct writing: Patricia Aloncic

**14:20 - 15:00** Light-Matter Interaction in GaN-based Micro- and Nano-LEDs: using femtosecond lasers for device processing and analyzing the charge-carrier dynamics
  - Empresa de Investigación Científica y Técnica de Aragón, Zaragoza, Spain

**15:00 Coffee**

**15:15 Q&A**

**15:15 - 15:30** Multiscale atomic modelling of ultrafast melting in laser annealing processes
  - G. Calogero [1], D. Racioli [1], P. Acosta-Alba [2], F. Cristiano [3], I. Deretzi [1], G. Fischio [1]

**15:30 UV-Laser crystalization of TiO2 deposited by Low Temperature ALD on polymeric substrate: applications in photocatalysis Massimo Zimbone
  - Enrico Napolitani
  - University of Salerno, Italy

**15:45 Reusable and Reusable Smart Textile based Dry Electrodes for Biopotential Sensing
  - Robert Heinke
  - Leibniz Institute of Surface Engineering (IOM), Permoserstraße 15, 04318 Leipzig, Germany
Thursday June 2

09:00 Study of microstructure, optical behaviors of Rare earth doped Ba0.85Ca0.12RE0.03Ti0.90Zr0.04Nb0.042O3ceramics(RE=Ce3+ and Pr3+) 
Q X.1
1/ Zeineb Raddaoui 2/ Marwa Bourguiba 3/ Pascal Marchet 4/ Jemal Dhahri 5/ Moez Chafia 

1/ Laboratory of Condensed Matter and Nanosciences, Faculty of Sciences of Monastir, University of Monastir, Avenue of the environment , 5019 Monastir, Tunisia. 
- Institute for Research on Ceramics, University of Limoges, UMR 7315, 87068 Limoges, France. 
2/ - Laboratory of Applied Mechanics and systems, School Polytechnic of Tunisia, University of Carthage, La Marsa, Tunisia. 
- Faculty of Sciences Tunis, University of Tunis el Manar, Tunis 2092. 
3/ Institute for Research on Ceramics, University of Limoges, UMR 7315, 87068 Limoges, France. 
4/ Laboratory of Condensed Matter and Nanosciences, Faculty of Sciences of Monastir, University of Monastir, Avenue of the environment , 5019 Monastir, Tunisia. 
5/ Laboratory of Applied Mechanics and systems, School Polytechnic of Tunisia, University of Carthage, La Marsa, Tunisia.

09:15 Laser-assisted molecular beam epitaxy of hexagonal boron nitride 
Q X.2
L. Stagi, J. Zhang, C. Hilbrunner, J. Malindretos, A. Rizzi 

Department of Chemistry, Laboratory of Materials Science and Nanotechnology, CR-INSTM, University of Sassari, Via Vienna 2, 10700, Sassari, Italy, IV. Physikalisches Institut, Georg-August Universität Göttingen, D-37077 Göttingen, Germany. 
- IV. Physikalisches Institut, Georg-August Universität Göttingen, D-37077 Göttingen, Germany. 
- IV. Physikalisches Institut, Georg-August Universität Göttingen, D-37077 Göttingen, Germany. 
- IV. Physikalisches Institut, Georg-August Universität Göttingen, D-37077 Göttingen, Germany. 

09:30 Compositionally tuneable laser synthesised WxMo(1-x)Si2 alloys
Q X.3

1/ Skolkovo Institute of Science and Technology, Moscow, 121205, Russian Federation. 
2/ Optoelectronics Research Centre, University of Southampton, Southampton, SO17 1BJ, United Kingdom.

09:45 Oxygen-deficient niobium oxide layers with improved conductivity formed by powder bed selective ultrafast laser processing 
Q X.4
B. Solitro, R. Ariza, P. Fernandez, J. Solis 

B.S., R.A., P.F.: Department of Materials Physics, Faculty of Physics, Complutense of Madrid, Madrid, 28040, Spain. 

10:00 Tuning Semiconductor Dopant Concentration: +++ Gas Immersion Laser Doping of p+++ Emitters in Phosphorus Oxycarbide Atmosphere 
Q X.5

Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade de Lisboa, 1749-016, Lisboa, Portugal. 
Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade de Lisboa, 1749-016, Lisboa, Portugal. 
Centro de Química Estrutural, Faculdade de Ciências (CQE), Universidade de Lisboa, 1749-016, Lisboa, Portugal. 
Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade de Lisboa, 1749-016, Lisboa, Portugal. 
Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade de Lisboa, 1749-016, Lisboa, Portugal. 
Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade de Lisboa, 1749-016, Lisboa, Portugal. 
Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade de Lisboa, 1749-016, Lisboa, Portugal. 
Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade de Lisboa, 1749-016, Lisboa, Portugal. 
Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade de Lisboa, 1749-016, Lisboa, Portugal.

10:15 Advanced manufacturing of dense ceramic materials using industrially scalable Laser Furnace technology 
Q X.6
C. Ozpekin1, H. Amaveda1, M. Mora1, E. Martinez1, B. Ozpekin2, G.F. de la Fuentel1, L. A. Angurel1 

1/ Instituto de Nanociencia y Materiales de Aragón (CSIC-University of Zaragoza), Zaragoza, Spain 2 Department of Physics, Faculty of Sciences and Letters, Çukurova University, Adana, Turkey.

10:30 Selective Laser Melting of various lunar soil simulants 
Q X.7
Danijela Ignjatovic Stupar, Grigore Robert Chabrol, Thierry Cutard, Sylvain Ledier, Jocelyne Brendel 

International Space University, ECAM Strasbourg-Europe, IMT Mines Abri-Carmaux, INSIA of Strasbourg, IS2M.

10:45 Q&A
SYMPOSIUM S

Polymer and hybrid thin films deposited from the vapor phase for functional (bio-devices)

Symposium Organizers:

Anna Maria COCLITE, Graz University of Technology
Meike KOENIG, Karlsruhe Institute of Technology
Nicolas BOSCHER, Luxembourg Institute of Science and Technology (LIST)
Rong YANG, Cornell University, USA
Mail: ryang@cornell.edu

To be published in ???
Monday May 30

08:45 Welcome and Introduction to the Symposium

Biomaterials part I: Anna Maria Cocillo

09:00 Surface Hydrophobicity Modulates the Key Characteristics of Cancer Spheroids through the Interaction with the Adsorbed Proteins
Sung Gap Kim
Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST)

09:30 Amino-hydrosols via initiated Chemical Vapor Deposition for application as cell scaffolds
Tonge Hartig¹, Wiebe Reichstein¹, Margaretha Hauck¹, Daniel Chan¹, Mohammadreza Taal², Christine Arnold³, Florian Rasch³, Maximilian Burkh³, Thomas Strunkus³, Christine Selhuber-Unkel³, Rainer Adelung³, Franz Fapet³, Stefan Schröder³, Fabian Schütz³
Chair for Multicomponent Materials, Institute of Materials Science, Kiel University, Kiel, Germany ²Functional Nanomaterials Chair, Institute of Materials Science, Kiel University, Kiel, Germany ³Institute for Molecular Systems Engineering, Heidelberg University, Heidelberg, Germany

09:45 Coating of functional patches for use in biomedical applications
Eda Güney¹*, Beril Üstünkaya¹, Bengül Süeda Şengül¹, Gozde Ozaydin Ince¹, ²
(1) Materials Science and Nanoengineering Department, Faculty of Engineering and Natural Sciences, Sabanci University, 34956, Istanbul, Turkey (2) Sabanci University Nanotechnology Research and Application Center (SUNUM), Sabanci University, 34956, Istanbul, Turkey

10:00 Innovative polyethylene-based multilayers using low temperature CVD technologies
Sebastien Buchwander¹*, Juan Jose Diaz Leon², (1) Jérôme Steinhauser (3), Aurelio Borzì (4), Antonia Neels (4), Andreas Hogg (3), Jürgen Burger (1)
(1) Center for Translation Medical and Biomedical Entrepreneurship, University of Bern, Switzerland. (2) CSEM PV-Center, Neuchâtel, Switzerland. (3) Coat-X SA, Switzerland. (4) Empa Center for X-ray Analytics, Swiss Federal Laboratories for Materials Science and Technology, Switzerland, * lead presenter

10:15 Discussion 1

10:30 Coffee

Biomaterials part II: Meike Koenig

10:45 Atmospheric-pressure plasma deposition of functional silicon-based thin films and their application in biomaterials
Matteo Gherardi, Vittorio Colombot, Romolo Laurita, Giulia Laghi
Industrial Engineering Department (DIN) & Industrial Research Centre for Advanced Mechanics and Materials (CIRI-MAM) at Alma Mater Studiorum-University of Bologna, Industrial Engineering Department (DIN) & Industrial Research Centre for Advanced Mechanics and Materials (CIRI-MAM) at Alma Mater Studiorum-University of Bologna, Industrial Engineering Department (DIN) & Industrial Research Centre for Health and Technology (CIRI-SDV) at Alma Mater Studiorum-University of Bologna, Industrial Engineering Department (DIN) at Alma Mater Studiorum-University of Bologna,

11:15 Plasma polymers as a versatile platform for cell attachment and proliferation
Lenka Zajíčková, Lucie Blahová, Martina Buchtelová, David Nečas, Jitka Medatllová, Petra Krejčková, Anton Manahov, Anastasiya O. Solovieva, Zdenka Koliska, Dirk Hegemann
CEITEC Brno University of Technology & Masaryk University, Brno, Czech Republic, CEITEC Brno University of Technology, Czech Republic, CEITEC Brno University of Technology, Czech Republic, CEITEC Brno University of Technology, Czech Republic, CEITEC Brno University of Technology, Czech Republic, Masaryk University, Brno, Czech Republic, Masaryk University, Brno, Czech Republic, Research Institute of Clinical and Experimental Pathology – Branch of the ICG SB RAS, Novosibirsk, Russia, Research Institute of Clinical and Experimental Pathology – Branch of the ICG SB RAS, Novosibirsk, Russia, J.E. Purkyňe University, Usti nad Labem, Czech Republic, Empa, St. Gallen, Switzerland

11:45 Discussion 2

12:00 Lunch Break

13:00 Novel aerosol assisted plasma deposition of PEG containing coatings for non-fouling application
Annalisa Treglia, Fabio Palumbo, Roberto Grisini, Pietro Favia
Annalisa Treglia, Pietro Favia Department of Chemistry, University of Bari “Aldo Moro”, Bari, Italy Fabio Palumbo, Roberto Grisini Instituto di Nanotecnologia, National Research Council, Bari, Italy

13:45 Rapid antibacterial activity by plasma-deposited AgOx-doped TiOx catalysts
Dirk Hegemann, Qun Ren, Patrick Rupper
Empa, Swiss Federal Laboratories for Materials Science and Technology, St.Gallen, Switzerland

14:00 Plasma-assisted deposition of fluorinated silane thin films for antimicrobial applications
Laghi G.*, Colombo V (1),(2), (3),(4), Condorelli G.G, (5), Conoci S,(6), (7), Franco D,(6), (7), Gallani R.1, (1), Guigiluminio S,(6), Lauria R,(1),(2),(8), Mongardi D,(7), Traina F,(7), (9), & Gherardi M.*, (1),(2), (3), (4)
(1) Department of Industrial Engineering, Alma Mater Studiorum-University of Bologna, Bologna, Italy (2) AlmaPlasma s.r.l., Viale G. Fanin 48, 40127 Bologna, Italy (3) Interdepartmental Centre for Industrial Research Advanced Mechanical Engineering Applications and Technologies, Alma Mater Studiorum-University of Bologna, Bologna, Italy (4) Interdepartmental Centre for Industrial Research Agrifood, Alma Mater Studiorum-University of Bologna, Bologna, Italy (5) Department of Chemical Science, University of Catania, Catania, Italy (6) Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina, Messina, Italy (7) IBBTech s.r.l., Via Napoli 116, 95127 Catania, Italy (8) Interdepartmental Centre for Industrial Research Health Sciences and Technologies, Alma Mater Studiorum-University of Bologna, Bologna, Italy (9) Department of Biomedical and Neuromotor Sciences, Alma Mater Studiorum-University of Bologna, Bologna, Italy

14:30 Addressing Biosensor Fouling with Thin Polymer Films Created via Photoinitiated Chemical Vapor Deposition
Trisha L. Andrew, Ruolan Fan, Kwang-Won Park, Peiyao Zhao
University of Massachusetts Amherst

14:45 Initiated Chemical Vapor Deposition on microstructures to inhibit biofilm formation
Amelia Whiteley, Guillaume Nouglares, Vincent Joussaume
Univ. Grenoble Alpes, CEA, LETI, F-38000 Grenoble, Univ. Grenoble Alpes, CEA, LETI, F-38000 Grenoble, Univ. Grenoble Alpes, CEA, LETI, F-38000 Grenoble

15:00 MAKING POLYMERS FROM VAPORS: TOWARDS CHEMICAL, TOPOLOGICAL AND BIOLOGICAL CONTROLLED BIOMATERIALS
Joerg Lahann
Biointerfaces Institute, University of Michigan, Ann Arbor, MI 48109, USA

15:30 Discussion 3

15:45 Coffee

Thin films for energy : Nicolas Boscher

Chemical vapor deposition of polymers for biomedical and energy applications
Alshin Dianatdar, Adrivid Mukherjee, Giovanni Fortunato, Ranjita K. Bose
University of Groningen

Chemical Vapor Deposition of Organic Frameworks and Networks
Siaran Najati, Syed Ibrahim Gnani Peer Mohammad
University of Nebraska

Hybrid Ceramic-Polymer Materials for Energy, Sensing, and Sustainability
B. Rhee-Jayan
Department of Mechanical Engineering, Carnegie Mellon University

16:00 Discusson 4

16:45 S-2 S-3
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenters</th>
<th>Location/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td><strong>INV</strong> Vapor-Phase Fabrication of Polymer Coatings, Device, Particles, and Porous Scaffolds</td>
<td>Helen-Yeh Chen, Department of Chemical Engineering, National Taiwan University</td>
<td>S 5.1</td>
</tr>
<tr>
<td>09:30</td>
<td><strong>INV</strong> Tough, Stretchable and Recyclable Copolymer with High Stability, Transparency and Processability for Wearable Bio-electronics</td>
<td>Gargi Ghosh, Nae-Eung Lee, Gargi Ghosh, Nae-Eung Lee School of Advanced Materials Science &amp; Engineering, Sungkyunkwan University, Suwon, Gyeonggi-do 16419, Republic of Korea</td>
<td>S 5.2</td>
</tr>
<tr>
<td>09:45</td>
<td><strong>INV</strong> Triboelectric hybrid PVDF-Nylon membrane for enhancing efficiency of particulate matter filtration with sustaining pressure drop</td>
<td>Dong Hee Kang, Hyun Wook Kang, Advanced Fluidics &amp; Nano Technology Lab, Department of Mechanical Engineering, Chonnam National University, Gwangju, Korea</td>
<td>S 5.3</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>INV</strong> Investigating the conformality of organosilicate polymers by iCVD: Challenges and opportunities</td>
<td>Chara Zavvou, Chloé Guérin, Aude Leleu, Vincent Jousseaume, Univ. Grenoble Alpes, CEA, Leti, F-38000 Grenoble</td>
<td>S 6.1</td>
</tr>
<tr>
<td>10:45</td>
<td><strong>INV</strong> Can we tune the mechanical properties of plasma polymer films by controlling their growth temperature?</td>
<td>Rony Snyders, Nathanael Vinx, Pascal Damman, Philippe Leclère, Damien Coismon, Damien Thy, Chimie des Interactions Plasma-Surface (ChiPS), University of Mons and Materia Nova Research Center, Parc Initialis, Mons</td>
<td>S 6.4</td>
</tr>
<tr>
<td>15:00</td>
<td><strong>INV</strong> Recent advances in the aerosol-assisted atmospheric pressure plasma deposition of hybrid nanocomposite coatings</td>
<td>Fiorenza Fanelli, Antonella Urloch, Teresa Lasalandra, Gaël Plantard, Françoise Massines, National Research Council (CNR), Institute of Nanotechnology (NANOTEC), Bari, Italy</td>
<td>S 7.1</td>
</tr>
</tbody>
</table>
### Wednesday June 1

**10:00**
**INV**
* A Change of Perspective: from Avoiding to Exploiting Porosity in Organic and Inorganic Thin Films
Alberto Ferronta
National Research Council (CNR) - Institute of Nanotechnology (NANOTECH)

**10:30**
**INV**
* Tailored Polymer Thin Films via Initiated Chemical Vapor Deposition: From Fundamentals to Functional Applications
Stefan Schröder
Institute for Materials Science, Kiel University, Kiel, Germany

**10:00**
**Deposition and Evaluation of Gradient Polymers via Initiated Chemical Vapor Deposition (iCVD) for Anti-Icing Applications
Hernandez Rodriguez, G., Cocile, A.M. ghermanezrodriguez@lugraz.at, anna.cocile@lugraz.at
Institute of Solid State Physics, Graz University of Technology, Graz, Austria

**10:15**
**Discussion 8**

**10:30**
Coffee

**10:45**
**Initiated Chemical Vapor Deposition (iCVD) of Photoswitchable Thin Films and Freestanding Polymer Structures**
Maximilian H. Burk (1), Stefan Schröder (1), Stefan Rehders (1), Thomas Strunskus (1), Rainer Herges (2) and Franz Faupel (1)
(1) Faculty of Engineering, Kiel University, Kaiserstr. 2, 24143 Kiel, Germany. (2) Otto-Diels-Institute for Organic Chemistry, Kiel University, 24118 Kiel, Germany.

**11:00**
**Multiresponsive Soft Actuators Based on a Thermoresponsive Hydrogel and Embedded Laser-Induced Graphene**
Alexander Dallinger, Paul Kindhofer, Francesco Greco, Anna Maria Cocile

**11:15**
**Smart Core-Shell Nanostructures for Force, Humidity and Temperature Sensing**
Taher Abu Ali, Dr. Barbara Stadlober, Prof. Anna Maria Cocile

**11:30**
**Oxidative Chemical Vapor Deposition of Conductive Polymers for Flexible Piezoresistive Polymer Composites**
Adriilt Mukherjee, Sara Selenica, Dr. Ayaj G. P. Kattapalli, Prof. Marleen Kamperman, Dr. Ranjita K. Bose
Product Technology, Department of Chemical Engineering, Engineering and Technology Institute (ETE), University of Groningen, The Netherlands. Product Technology, Department of Chemical Engineering, Engineering and Technology Institute (ETE), University of Groningen, The Netherlands. Advanced Production Engineering (APE), Engineering and Technology Institute Groningen (ENTEG), University of Groningen, The Netherlands. Polymer Science, Zernike Institute for Advanced Materials (ZIAM), University of Groningen, The Netherlands. Product Technology, Department of Chemical Engineering, Engineering and Technology Institute (ETE), University of Groningen, The Netherlands

**11:45**
**Hydrogen Gas Monitoring using a Polymer-Based Conductometric Sensor**
Iulia ANTOHE1*, Andrei Stochioiu1, Luiza-Izabela JINGA1, Andreia MIHAILESCU1, Gianna POPESCU-PHELIN1, Vlad-Andre ANTOHE2,3 and Gabriel SOCOL1*
1 National Institute for Lasers, Plasma and Radiation Physics, Atomistilor 409, 077125 Magurele, Romania 2 Institute of Condensed Matter and Nanosciences (IMCN), Université Catholique de Louvain, 1348 Louvain-la-Neuve, Belgium. 3 Research and Development Center for Materials and Electronics & Optoelectronic Devices, Faculty of Physics, University of Bucharest, 077125 Măgurele, Romania
* Corresponding authors: iulia.antohe@inflpr.ro, gabriel.socol@inflpr.ro
Thursday June 2

09:00 Detection of SARS-CoV-2 Antigens and Antibodies Using OFET Biosensors Based on a Soft and Stretchable Semiconducting Polymers
Ditte, K.(1,2), Nguyen Le, T.A.(3,4), Ditzer, O.(1,2), Sandoval Bojorquez, D. I.(3), Chae, S.(1), Bachmann M.(3,4), Baraban, L.(5), Lissel, F.(1,2)
(1)Leibnitz Institute of Polymer Research Dresden e.V., Germany, (2)Faculty of Chemistry and Food Chemistry, Dresden Technical University, Germany (3) Institute of Radiopharmaceutical Cancer Research, Helmholtz-Zentrum Dresden-Rossendorf, Germany (4)Faculty of Medicine Carl Gustav Carus, Dresden Technical University, Germany

09:15 Modelling Crystallisation in Polymers
Rasha Algerhami, Nigel Clarke
Physics and Astronomy Department, University of Sheffield, United Kingdom

09:30 A Solid, Conductive Microfiber for Biodegradable Stretchable Electronics
Gargi Ghosh, Na-Eung Lee
School of Advanced Materials Science and Engineering, Sungkyunkwan University (SKKU), Suwon, Gyeonggi-do 16419, Republic of Korea

09:45 The influence of electron beam irradiations on the mechanical properties of magnesium-doped hydroxyapatite/chitosan coatings
A.Groza1, B.Bita1, E.Stancu1, C.Staicu1, D.Pompilian1, C.Ciobanu2, S.Iconaru2, D.Predoi2
1National Institute for Laser, Plasma and Radiation Physics, P.O. Box MG 36, Magurele, 077125 Bucharest, Romania 2National Institute of Materials Physics, Atomistilor Street, No. 405A, P.O. Box MG 07, 077125 Magurele

10:00 Improving the degradation rate of AZ31B alloy coated with Mg and Si doped hydroxyapatite
Alina Vladescu1, Anca C. Parau1, Diana M. Vranceanu2, Iulian Pana1, Gabriela A. Jururea1, Gianfranco Palumbo3, Giuseppina Ambrigo4, Cosmin M. Cotrut2
1National Institute of Research and Development for Optoelectronics - INOE 2000, 409 Atomistilor St., R077125, Magurele, Romania 2University Politehnica of Bucharest, Faculty of Materials Science and Engineering, 313 Spl. Independentei, Bucharest, RO60042, Romania 3Department of Mechanics, Mathematics and Management, Politecnico di Bari, Via Orabona4, 70128, Bari, Italy 4Department of Mechanical, Energy and Management Engineering - University of Calabria, P. Bucci, 87036 Rende (CS), Italy

10:15 Multilayer transparent conductive electrode based on guanine
M. Socol1, N. Preda1, C. Breazu1, A. Costa1, G. Petre1, A. Stanculescu1, I. Stavracache1, A. Stoicius2, G. Socol2, M. Girtan3
1National Institute of Material Physics, 405A Atomistilor Street, 077125, Magurele, Romania 2National Institute for Lasers, Plasma and Radiation Physics, 409 Atomistilor Street, 077125, Magurele, Romania 3Photonics Laboratory, (LPhIA) E.A. 4464, SFR Matrix, Université d’Angers, Faculté des Sciences, 2 Bd Lavoisier, 49045 Angers, France

10:20 Discussion 11 and Closing remarks
SYMPOSIUM U

Advanced characterization of organic and hybrid materials

Symposium Organizers:

Emanuele ORGIU, Institut national de la recherche scientifique – University of Québec
Ingo SALZMANN, Concordia University
Natalie BANERJI, University of Bern
Steffen DUHM, Soochow University
Monday May 30  

08:45  Welcome and Introduction to the Symposium  

**Doping phenomena I : Natalie Banerji - Steffen Duhm**  

09:00  **INV CHARGE TRANSPORT AND THERMOELECTRIC PROPERTIES OF HIGH CONDUCTIVITY OF CONJUGATED POLYMERS**  
Hennes Srinighaus  
Cavendish Laboratory, University of Cambridge  

09:30  **Electrochemical doping mechanisms in the ordered and disordered phases of P3HT**  
Priscilla Cavassin, Isabelle Holzer, Olivier Bardagot, Julien Réhault, Natalie Banerji  
University of Bern  

09:45  **Bipolarons role for high conductivities in electrochemically doped P3HT probed via in-situ THz spectroscopy**  
Demetra Tsokkou, Priscilla Cavassin and Natalie Banerji  
Department of Chemistry, Biochemistry and Pharmacy (DCBP), University of Bern, Freiestrasse 3, 3012 Bern, Switzerland.  

10:00  **Dopant-induced broadening of the density of states governs ion-pair formation in molecularly doped P3HT**  
Hannes Hase, Michael Berbeau-Rainville, Somaieyeh Charoughchi, Wolfgang Bodlos, Roland Resel, Emanuele Orgiu, Ingo Salzmann  
Department of Physics, Concordia University, Montreal, Canada, Institut national de la recherche scientifique (INRS), Varennes, Canada, Department of Chemistry and Biochemistry, Concordia University, Montreal, Canada, Institute of Solid State Physics, TU Graz, Graz, Austria, and Materials Science and Engineering, Stanford University, Stanford, California 94305, USA, Institute of Solid State Physics, TU Graz, Graz, Austria, Institut national de la recherche scientifique (INRS), Varennes, Canada, Department of Physics, Department of Chemistry and Biochemistry, Centre for Research in Molecular Modeling (CERMM), and Centre for NanoScience and NanoEngineering (CeNSR), Concordia University, Montreal, Canada  

10:15  Discussion  

10:30  **Advanced Microscopies I : Roland Resel**  

11:00  **INV Advanced characterisation of conjugated polymers by high-resolution STM imaging**  
Giovanni Costantini  
Department of Chemistry, University of Warwick  

11:30  **Direct assessment of charge transport ability of organic semiconductor by secondary electron spectrum**  
Wen-Shan Zhang, Rasmus R. Schröder  
Centre for Advanced Materials, Universitat Heidelberg & Bioquant, University Hospital Heidelberg, D-69120 Heidelberg, Germany  

11:45  **Hyperspectral mid-infrared single-pixel microscopy**  
Alexander Einer, Paul Gattinger, Ivan Zorin, Christian Ränkle, Markus Brandstetter  

12:00  Discussion  

12:15  Lunch  

**Doping phenomena II : Ingo Salzmann**  

13:45  **INV Towards a unified understanding of charge transfer, release and transport in doped organic semiconductors**  
Gabriele D’Avino  
Grenoble Alpes University, CNRS, Grenoble INP, Institut Ne?l, 25 rue des Martyrs, 38042 Grenoble, France  

14:15  **Molecular Quadrupole Moments Promote Ground State Charge Generation in Doped Organic Semiconductors**  
Alberto Privitera(1), Giacomo Loni(2), Moritz K. Riedel(3), Gabriele d’Avino(3) and David Beljonne(2)  
(1) Clarendon Laboratory, Department of Physics, University of Oxford, Oxford, OX1 3PU UK, (2) Laboratory for Chemistry of Novel Materials, University of Mons, Mons, B-7700 Belgium (3) Institut Néel, CNRS and Grenoble Alpes University, Grenoble, F-38042 France  

14:30  **Controlling the surface and interface properties of Pb-free perovskites/charge transport materials by lattice engineering**  
Pingping JIAANG (1), Boubacar TRAORE (2), Mikael KEPENEKIAN (2), George VOLONAKIS (2), Claudine KATAN (2), Laurent PEDESSEAU (1), and Jacky EVEN (1)  
(1) Univ Rennes, INSA Rennes, CNRS, Institut FOTON - UMR 6082, F-35000 Rennes, France (2) Univ Rennes, ENSCR. INSA Rennes, CNRS, ISCR (Institut des Sciences Chimiques de Rennes) - UMR 6226, F-35000 Rennes, France  

14:45  Discussion  

15:00  **INV**  

15:30  **4: Photophysics I : Emanuele Orgiu**  

16:15  Discussion  

16:30  **INV**  

16:45  **Dielectric Tensor of Micro-Textured Organic Thin Films obtained by Imaging Mueller Matrix Ellipsometry**  
Manuela Schiek (1), S. Funke (2), M. Duwe (2), P.H. Thiessen (2), K. Hingerl (1), F. Balzer (3)  
(1) Johannes Kepler University of Linz, Austria, (2) Accurion GmbH Göttingen, Germany, (3) University of Southern Denmark, DK  

16:45  **Environmental stability of an amine-doped rigid polymer for printed electronics**  
(1) Laboratory of Organic Electronics, Department of Science and Technology, Linköping University, Norrköping, Sweden (2) Department of Chemical Engineering and Department of Chemistry, University of Washington, Seattle, WA, USA (3) Department of Chemistry, College of Science, Korea University, Seoul, 136-713, Republic of Korea (4) Department of Physics, Chemistry and Biology, Linköping University, Linköping, Sweden  

16:45  **Enhancing the stability of Cs-based perovskites by mixing the Sn-Pb cations**  
Julia Mari-Gualta, Amal Bouich, Bernabé Mari  
Institut de Diesen / Fabricació, Universitat Politècnica,València, Spain  

17:15  **INV**  

17:30  **INV**  

18:00  **INV**
17:15 The Added Value of Circular Dichroism to Study Excitons in Photoactive Organic Semiconductor Thin Films
M. F. Schumacher (1), T. G. Nguyen (1), J. Zablocki (1), A. Lützen (1), N. J. Hestand (2), F. Balzer (3), K. Hingerl (4), M. Schiek (4), (1) University of Bonn, Germany, (2) Evangel University, Springfield Missouri, USA, (3) University of Southern Denmark, Sonderborg, Denmark, (4) Johannes Kepler University Linz, Austria.

17:30 Linking microstructure to transport in soft materials: the importance of length scales
Alberto Salleo
Stanford University, Dept. of Materials Science and Engineering

09:00 Thermal conductivity measurement in thin organic and perovskite films
Dr Oliver Fenwick
School of Engineering and Materials Science, Queen Mary University of London, UK.

09:30 Improving the thermoelectric performance of polymer semiconductors through mixing.
Osnat Zapata-Arteaga (1), Sara Marins2, Guangzheng Zuo3, Kai Xu1, Bernhard Döring1, Luis Alberto Perez1, Juan Sebastian Reparaz1, Jaine Martin2,4,5, Martin Kemerinik6,7, and Mariano Campoy-Quiles.1
1 Institute of Materials Science of Barcelona (ICMAB-CSIC), Campus UAB08193 Bellaterra, Spain, 2 POLYMAT and University of the Basque Country, Av Tolosa 72, 2018, Spain, 3 Institute for Physics and Astronomy, University of Potsdam. 14476 Potsdam-Golm, Germany, 4 Grupo de Polímeros, Centro de Investigaciones Tecnológicas (CIT). Universidade da Coruña, Esteiro, 15471 Ferrol, Spain, 5 Ikertagarte. Basque Foundation for Science. 48013 Bilbao, Spain, 6 Centre for Advanced Materials, Heidelberg University. Im Neuenheimer Feld 225, 69120 Heidelberg, Germany., 7 Division of Electronics and Photonic Materials, Department of Physics, Chemistry and Biology. Linköping University, Linköping, Sweden.

09:45 In-situ investigation of thermoelectric thin films based on ionic liquid post-treated PEDOT:PSS
Anna Lena Oechsle (1), Julian E. Heger (1), Nian Li (1), Shanshan Yin (1), Sigrid Bernstorff (2) & Peter Müller-Buschbaum (1,3)
(1) Technische Universität München, Physik-Department, Lehrstuhl für Funktionelle Materialien, James-Franck-Str. 1, Garching, Germany (2) Elettra-Sincrotrone Trieste, Strada Statale 14 km 163.5, AREA Science Park, Basovizza 34149, Italy (3) Heinz Maier-Leibnitz Zentrum (MLZ), Lichtenbergstr. 1, 85748 Garching, Germany

10:00 Discussion U.9 & U.10

10:15 Advanced Devices: Oliver Fenwick

11:00 2D layered perovskite micro-crystalline flexible films as direct X-ray radiation detectors
Andrea Ciavatti(1,2), Ferdinanld Lédée (1), Matteo Verdi (1,2), Laura Basirico (1,2), and Beatrice Fraboni (1,2)
1- Department of Physics and Astronomy, University of Bologna, Viale Berti Pichat 6/2, 40127 Bologna, Italy  2 - National Institute for Nuclear Physics ? INFN section of Bologna, Viale Berti-Pichat 6/2, Bologna 40127, Italy

11:30 New composite based on SnO2 nanoparticles-P3HT:PC71BM co-polymer blend, as absorber in bulk heterojunction photovoltaic cells
Alina Irina RADU (1,2), Vlad-Andrei ANTOHE (2,3), Sorina IFTIMIE (2), Iulia ANTOHE (1), Mihaela FILIPESCU (1), Adrian RADU (2), Laura Basirico (1,2), Elena-Isabela BANCU (1), Maria Luiza STINGESCU (2), Maria DINESCU (1), Stefan ANTOHE (2,4,*).
(1) National Institute for Lasers, Plasma and Radiation Physics (INFLPR), Atomistilor Street 409, 077125 Magurele, Ilfov, Romania, (2) University of Bucharest, Faculty of Physics, R&D Center for Materials and Electronic & Optoelectronic Devices (MEDD), Atomistilor Street 405, 077125 Magurele, Ilfov, Romania, (3) Université catholique de Louvain (UCLouvain), Institute of Condensed Matter and Nanosciences (IMCN), Place Croix du Sud 1, B-1348 Louvain-la-Neuve, Belgium, (4) Academy of Romanian Scientists (AOSR), Splaiul Independentei 54, 050094 Bucharest, Romania, *Corresponding author: sanctohe@fizica.unibuc.ro (S. ANTOHE), Contact author: vlad.antohae@fizica.unibuc.ro (V. A. ANTOHE).

11:45 Chemical doping of a porous n-type polymeric film prepared by a Langmuir-Schaefer approach
(1) Laboratory of Organic Electronics, Department of Science and Technology, Linköping University, Norrköping, Sweden  (2) Beijing National Laboratory for Molecular Sciences (BNLMS), Key Laboratory of Bioorganic Chemistry and Molecular Engineering of Ministry of Education, Key Laboratory of Polymer Chemistry and Physics of Ministry of Education, Center of Soft Matter Science and Engineering, College of Chemistry and Molecular Engineering, Peking University, Beijing, 100871 China (3) Department of Chemistry, College of Science, Korea University, Seoul, 136-713, Republic of Korea
15:00 **Panel Discussion**

**Disentangling the excited state dynamics of conjugated polyelectrolytes self-assembled with ss-DNA with a direct molecular probe**

Eliana Nicolaidou, Anthony W. Parker, Mike Towrie, Sophia C. Hayes*
Dept. of Chemistry, Univ. of Cyprus, Central Laser Facility, Rutherford Appleton Laboratory

**Understanding Photocapacitive and Photofaradaic Processes at the Organic Semiconductor/Water Interface for Biophotomodulation**

Luca Bondi, Beatrice Fraboni, Tobias Cramer
University of Bologna, University of Bologna, University of Bologna

**Multilayer thickness evaluation of semiconductor and display structures by picosecond ultrasonics**

Frederic FAESE, Julien MICHELON, Xavier TRIDON
Neta, Neta, Neta

**A new bulky molecular p-dopant for organic semiconductors**

Somaye Charoughchi, Hannes Hase, Jiang Tian Lu, Mohammad Askari, Venelin Petkov, Pat Forgione, Ingo Salzmann
Department of Chemistry and Biochemistry, Concordia University, Montreal, Canada, Department of Physics, Concordia University, Montreal, Canada, Department of Chemistry and Biochemistry, Concordia University, Montreal, Canada, Department of Chemistry, University of Toronto, Toronto, Canada, Department of Chemistry and Biochemistry, Concordia University, Montreal, Canada, Department of Chemistry and Biochemistry, Concordia University, Montreal, Canada, Department of Physics, Department of Chemistry and Biochemistry, Concordia University, Montreal, Canada,

16:15 **Discussion**

---

**Photophysics III : Andrew Musser**

09:00 **Invited talk**

**12.1 Full description of the electronic structure of organic single crystal: rubrene**

Satoshi Kera
Institute for Molecular Science, Okazaki, Japan

**Invited talk**

09:30 **U 12.2 Operando XPS Investigation of Chemical State and Electronic Structure of MoTe2 Field-effect-transistor Depending on Channel Char**

Seungwook Choi, Guen Hyung Oh, Songwong Hong, TaeWan Kim, Ansoon Kim
Rutherford Appleton Laboratory

**Materials Authoring and Relationship Analysis System for High-Performance Properties Material Discovery**

Imran, Do-Hyeon Kim, Bong Seon Jong, Su-Young Chi, and Choi Yo Han
Department of Computer Engineering, Jeju National University, Jeju 63243, Korea, Korea University of Science and Technology, 21 7, Gageoong-ro, Yuseong-gu, Daejeon, Korea, Electronics and Telecommunications Research Institute, Daejeon,305-370, Korea,

10:00 **Advanced Microscopies 2 : Steffen Duhm**

11:00 **Invited talk**

**U 14.1 Investigating dopant intercalation into polymer semiconductors by TEM, Rutherford Backscattering and polarized spectroscopy**

Yuhan Zhong (1,2), Shubhradip Guchait (1), Viktoria Urličiova (1), Laurent Herrmann (1), Dominique Müller (2), Céline Kiefer (3), Thomas Heiser (2), Martin Brinkmann (1)

(1) Université de Strasbourg, CNRS, UPR 22, F-67000 Strasbourg, France, (2) Université de Strasbourg, CNRS, IPCMS UMR 7504, F-67000, Strasbourg, France, (3) Université de Strasbourg, CNRS, IPCMS UMR 7504, F-67087 Strasbourg, France

**Advanced scanning probe microscopy to probe early-stage degradation mechanisms in tri-cation organic-inorganic halide perovskite**

Filip Richtermeier1,2, David Toth3,4, Bekete Hailegnaw5,6, Mark A. Baker2, Robert A. Doery2, Ferry Kienberger3, Fernando A. Cazot1, Martin Kallentbrunner6, Markus C. Scharber5, Georg Gramse3,4, Sebastian Wood1

1) National Physical Laboratory, Teddington, Middlesex, TW11 0LW, UK, 2Centre for Engineering Materials, University of Surrey, Guildford, GU2 7XH, UK, 3KeySight Technologies GmbH, Linz, 4020, Austria, 4Applied Experimental Biophysics, Johannes Kepler University, Linz, 4020, Austria, 5Linse Institute for Organic Solar Cells, Johannes Kepler University, Linz, 4040, Austria, 6Department Soft Matter Physics, Johannes Kepler University Linz, 4040, Austria

**Advanced microscopy methods for structural characterization of soft materials**

Nadezda Prochukhan, Michael A. Morris
Nadezda Prochukhan - School of Chemistry, CRANN and AMBER Research Centres, Trinity College Dublin, College Green, Dublin 2, Ireland, BIOBIC/Bioeconomy SFI Research Centre, University College Dublin, Belfield, Dublin 4, Ireland, Michael A. Morris - School of Chemistry, CRANN and AMBER Research Centres, Trinity College Dublin, College Green, Dublin 2, Ireland, BIOBIC/Bioeconomy SFI Research Centre, University College Dublin, Belfield, Dublin 4, Ireland.

12:00 **Discussion and Closing Remarks**
SYMPOSIUM V

New trends in advanced lithography and pattern transfer methods

Symposium Organizers:

Flavio CARSUGHI, Forschungszentrum Jülich GmbH, Jülich
Centre for Neutron Science at MLZ

Francesc PEREZ-MURANO, Institute of Microelectronics of Barcelona (IMB-CNM, CSIC)

Ivan MAXIMOV, Advanced Lithography Group, Lund Nano Lab, Division of Solid State Physics

Yasin EKINCI, Laboratory for Micro and Nanotechnology

To be published in ???
Monday May 30

13:15 Welcome and introduction to the Symposium

Presentation 1: Yasin Ekinci, Ivan Maximov

13:30 NV NFRA-Europe Pilot: a great research and innovation opportunity for the European and worldwide nanoscience community.

Flavio Carusghi
Forschungszentrum Jülich, Germany

13:45 NV Fully Automated Thermal Scanning Probe Lithography for FET Batch Fabrication

A. Knoll, T. U. Chaaban 2, N. Hendricks 2, E. Cagin 2, P. Nicoller 1, H. Wolf 1, D. Widmer 1, U. Drechsler 1
1) IBM Research Europe – Zurich, Säumerstrasse 4, 8803 Rüschlikon, Switzerland
2) Heidelberg Instruments Nano AG, Bändliweg 30, 8048 Zürich, Switzerland

14:15 Towards the fabrication of Silicon Nanowires with Quantum Dot as a Platform for experimentation in Quantum Technologies

Institute of Microelectronics of Barcelona (IMB-CNM CSIC), Bellaterra, 08193, Catalonia, Spain
Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Bellaterra, 08193, Catalonia, Spain

14:30 Molecular Gates: Unlocking the Path to High-Resolution Patterning of Doping in Molecular Semiconductor Films

Aksandt Pereredvestevic, Mariano Campoy-Quiles
Institute of Materials Science of Barcelona (ICMAB-CSIC), 08193 Bellaterra, Spain

14:45 Q&A

15:00 NV Beyond Gallium: FIB based local materials property tuning with advanced ion sources

Gregor Hawakew
Institute for Ion Beam Physics and Materials Research Helmholtz—Zentrum Dresden—Rossendorf 01328 Dresden, Germany

15:30 NV Using a Liquid Metal Alloy Ion Source for FIB patterning of noble metal plasmonic nanostructures.

D. Giuberti (a), A. Cian (a), E. Scattolo (a), R. Dell’Anna (a), G. Paternoster (a), J. Rodríguez-Alvarez (b,c), A. Guerrero (d), X. Borrisé (e), F. Pérez-Murano (d)
(a) Sensors and Devices Center, Bruno Kessler Foundation, Trento, I-38123, Italy
(b) Department of Physica de la Materia Condensada, Universitat de Barcelona, 08028 Barcelona, Spain
(c) Institut de Nanociència i Nanotecnologia (IN2UB), 08028 Barcelona, Spain
(d) Instituto de Microelectrónica de Barcelona (IMB-CNM-CSIC), Bellaterra, 08193, Spain
(e) Institut Catalá de Nanociència i Nanotecnologia, Bellaterra, 08193, Spain

16:00 Fabrication of X-ray optical elements by two-photon polymerization 3D printing

1) Paul Scherrer Institute, Forschungsstrasse 111, 5232 Villigen PSI, Switzerland
2) Xnanotech GmbH, Forschungsstrasse 111, 5232 Villigen PSI, Switzerland
3) Cons - Center for X-ray and Nano Science, Deutsches Elektronen-Synchrotron DESY, Notkestraße 85, 22607 Hamburg, Germany.
* Lead presenter. † Project received funding from European Union’s Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 884104 (PSI-FELLOWSHIPS-3i) ‡ Industry partner: https://www.xnanotech.com/

16:15 Latest results on radiation assisted nanomaterials synthesis and patterning using Deep X-ray lithography

B. Marmoeco, A. Turchet (B), Sartori (A), B. Ahrati (H), Amenitsch (T)
1) Institute of Inorganic Chemistry, Graz University of Technology, Graz, Austria
2) Diepra-Sironotro Treiste, Trieste, Italy

16:30 Diamond optics for X-ray free-electron laser applications

1) Paul Scherrer Institute, 5232 Villigen PSI, Switzerland
2) Linac Coherent Light Source, SLAC National Accelerator Laboratory, Menlo Park, California 94025, USA
3) European XFEL GmbH, Holzkoppel 4, 22869 Schenefeld, Germany

16:45 Q&A
17:15 Single-digit nanometer EUV interference lithography
I. Giannopoulos, Y. Ekinici, D. Kazazis
Laboratory for X-ray Nanoscience and Technologies, Paul Scherrer Institute, 5232 Villigen PSI, Switzerland

17:15 Dopant patterning using monolayer doping and EUV interference lithography
Prajith Karadan, Dimitrios Kazazis, Yasin Ekinici
Paul Scherrer Institute, 5232 Villigen PSI, Switzerland

17:15 Fabrication of 1T-TaS2 devices by electron beam lithography for investigation of non-equilibrium phase switching
C. Burri *(1),(2), J. Ravnik (1), D. Kazazis (1), D. Mihailovic (3), Y. Ekinici (1), S. Gerber (1)
(1)Laboratory for X-ray Nanoscience and Technology, Paul Scherrer Institut, Villigen PSI, Switzerland
(2)Laboratory for Solid State Physics, ETH Zurich, Zurich, Switzerland
(3)Department of Complex Matter, Jožef Stefan Institute, Ljubljana, Slovenia

17:15 Formulating a Dose Insufficiency Model for High-Resolution 50 kV Electron-Beam Lithography on Thick Resist Layers
Mattias Åstrand, Thomas Frisk, Hanna Ohlin, Ulrich Vogt
KTH Royal Institute of Technology

17:15 Metal Cuprates as Novel High Resolution Molecular Resists for Electron Beam and Extreme Ultraviolet Lithographies
M. S. M. Saifullah, D. Kazazis, V. A. Guzenko, M. Vockenhuber, Y. Ekinici
Paul Scherrer Institute, 5232 Villigen, Switzerland
12:15 Bringing electrochemical 3D printing to the nanoscale
Dmitry Momotenko
Department of Chemistry, Carl von Ossietzky University of Oldenburg, Oldenburg, D-26129, Germany

12:30 Q&A and closing remarks
SYMPOSIUM W

WiRE: Women in Renewable Energy

Symposium Organizers:

Monica LIRA-CANTU, Catalan Institute of Nanoscience and Nanotechnology

Zakya H. KAFIFI, Lehigh University
08:15 Welcome to WiRE 2022 - Monica Lira-Cantu

08:45 Optical property, photoexcited carrier dynamics and application to solar cells of phase stable and less-defect perovskite nanorod
Qing Shen*, Chao Ding, Hua Li, Yusheng Li, Shota Yajima
1. The University of Electro-Communications, Tokyo, 182-8585, Japan.
Email: shen@pc.ucc.ac.jp

09:15 Efficient and stable metal halide perovskite solar cells
Huangping Zhou
1. School of Materials Science and Engineering, Peking University, Beijing 100871, P. R. China. Email: happy_zhou@pku.edu.cn

09:45 Reversible Pressure-Dependent Mechanochromism in Layered Hybrid Perovskites
Loretta A. Muscarella,1, 1 Aliginda Duóñikas,2,2.5 M Mathias Dankl,3 Michal Andrzejejowski,4 Nicola Pietro Maria Casati,4 Ursula Rothlisberger,3 Joachim Maier,5 Michael Graetzel,2 Bruno Ehrler,1,* "Jovana V. Miljković,6* 1. Center for Nanophotonics, AMOLF, Science Park 104, 1098 XG Amsterdam, the Netherlands 2. Laboratory of Photonics and Interfaces, Institute of Chemical Sciences and Engineering, École Polytechnique Fédérale de Lausanne, CH-1015 Lausanne, Switzerland 3. Laboratory of Computational Chemistry and Biochemistry, Institute of Chemical Sciences and Engineering, École Polytechnique Fédérale de Lausanne, CH-1015 Lausanne, Switzerland 4. Paul Scherrer Institute, Forschungstrasse 111, CH-5232 Villigen, Switzerland 5. Max Planck Institute for Solid State Research, Heisenbergstr. 1, 70569 Stuttgart, Germany 6. Adolphe Merkle Institute, University of Fribourg, CH-1700 Fribourg, Switzerland Email: jovana.miljkovic@unifr.ch

10:00 Discussion

10:15 Coffee

10:30 Colored, Stable and Flexible Co-evaporated perovskites solar cells and minimodules
Anna Bruno*
Energy Research Institute @ NTU (ERI@N), Nanyang Technological University, 637553, Singapore
Annalisa Bruno*
Energy Research Institute @ NTU (ERI@N), Nanyang Technological University, 637553, Singapore
Email: annalisa@ntu.edu.sg

11:00 Printed perovskite solar cells and modules on flexible substrates and their integration with energy storage systems
Francesca Brunetti1*, Francesca De Ross1, Giuseppina Polino1, Babak Taher1, Harmed Lommer1, Matteo Bonomo2, Thomas Meredith Brown1, Aldo Di Carlo1,3, Claudia Barolo2*
1. CHOICE, Department of Electronic Engineering, University of Rome Tor Vergata, via del Politecnico 1, 00133 Rome, Italy. Email: francesca.brunetti@uniroma2.it 2. Department of Chemistry, NIS Interdepartmental Centre and INSTEM Reference Centre, Università degli Studi di Torino, Via G. Quarello 15 A, 10135 Turin, Italy. 3. CNR-ISM Institute di Struttura della Materia, via del Fosso del Cavaliere 100, 00133 Rome, Italy

11:30 Innovative Approaches to Improve Stability of Perovskite Solar Cells
I. García-Benito,1 J. Urieta,1 A. Molina-Ontoria,1 G. Grancini,2,3 M. K. Nazarenuddin,2 N. Martin1 1. Universidad Complutense de Madrid (Av. Complutense, s/n, 28040, Madrid, Spain) and IMDEA nanoscience (c/Faraday, 9, 28049, Madrid, Spain) 2. EPFL (Rue de l'Industrie 17, 1950 Sion, Switzerland) 3. University of Pavia (via Taramelli, 16, 27100 Pavia, Italy). Email: ingarcio1@icmab.es

11:45 Engineering 2D TMD nanoflake films for solar energy conversion applications
Rebekah A. Wells, Marina C. Caretti, Charles R. Lhermitte, Kevin Sivula 1. CHOSE, Department of Electronic Engineering, University of Rome Tor Vergata, Via G. Quarello 15 A, 10135 Turin, Italy 3. Laboratory of Computational Chemistry and Biochemistry, Institute of Chemical Sciences and Engineering, École Polytechnique Fédérale de Lausanne, CH-1015 Lausanne, Switzerland 4. Paul Scherrer Institute, Forschungstrasse 111, CH-5232 Villigen, Switzerland 5. Max Planck Institute for Solid State Research, Heisenbergstr. 1, 70569 Stuttgart, Germany 6. Adolphe Merkle Institute, University of Fribourg, CH-1700 Fribourg, Switzerland Email: jovana.miljkovic@unifr.ch

12:00 Discussion

12:15 Lunch

13:00 Advanced modelling in electrochemical CO2 reduction
Núria López1*, 1. Institute of Chemical Research of Catalonia, The Barcelona Institute of Science and Technology (BIST), Av. Paisos Catalans 16, 43007 Tarragona, Spain. Email: nripez@iqoi.es

13:30 Development of new battery chemistries: Ca metal as case example
M. Rosa Palaci1, 1. Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Campus UAB, 08193 Bellaterra, Catalonia, Spain. Email: rosa.palacin@icmab.es

13:45 Exploring how battery materials function and fail - new characterisation approaches and new insights
Clare Gray

14:15 Establishing structure/property interrelations of organic semiconductor materials using fast calorimetry
Natalie Stingelin

14:30 Discussion

14:45 Coffee

15:00 Welcome to WiRE 2022: Zakya H. Kafafi

15:15 Design of Solid State Battery Materials and Prototypes
Jennifer L.M. Rupp
Technical University of Munich & TUM International Energy, Germany jrupp@tum.de

15:45 Antimony based materials as non toxic alternative for photovoltaic conversion and electrochemical energy storage
Marina E. Rincón1, 1 Renewable Energy Institute (IER), National University of Mexico (UNAM). Privada Xochicalco S/N, Col. Centro, Temisico, Morelos, Mexico. Email: m.rincon@ier.unam.mx

16:15 3D Nanoarchitectures as building blocks for single and hybrid energy harvesters
Xavier García-Casas, Javier Castillo-Soane, Francisco J. Aparicio, Al Mundo, Lidia Contreras-Bernal, Jorge Budzgowski, M. Carmen Lopez-Santos, Angel Barranco, Juan R. Sanchez-Valencia, Ana Borrás*
1. Nanotechnology on Surfaces and Interfaces Laboratory, CNM, CSIC-UPC, c/Almeria, 36-38, 08034 Barcelona, Spain 2. EPFL (Rue de l'Industrie 17, 1950 Sion, Switzerland) 3. Centro de Investigación en Energía (CIEMAT), Madrid, Spain 4. EPFL (Rue de l'Industrie 17, 1950 Sion, Switzerland)

16:45 Defect Chemistry and Impact on Thermoelectric Properties of the Yb2–EuxCdSb2 Layered Zintl Phase
Ashlee K. Hauble1, Kasey P. Devlin1 and Susan M. Kauzlarich1*
1. Chemistry Department, One Shields Ave, University of California, Davis, CA, USA. Email: smkauzlarich@ucdavis.edu

17:15 Discussion

17:30 ROUND TABLE: The Role of Women Scientists in Renewable Energy - Zakya Kafafi / Misha Bonn - Debra Rolinson

18:30 Recycling of Electric Vehicle batteries: Recycling methods, Challenges and International practices of battery recycling
Tony Zhvornik1, Bhagyasree2, Shanmuga Kalyani1 , Saha Lina 1 1. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)GmbH, GIZ India, 110029, New Delhi, India

18:30 Study of Two Novel Dyes as Efficient Photosensitizers in DSSC: DFT Investigation
Ankit Kargeti*(1), Shamoon Ahmad Siddiqui(2,3), Tabish Rasheed(1)
1. School of Engineering and Technology BML, Mumbai University, Gurugram, Haryana, India 121423 (2) Promising Centre for Sensors and Electronic Devices, Najran University, Najran, KSA 11001 (3) Department of Physics, Najran University, Najran University, KSA 11001.