



European Materials Research Society

# Spring Meeting 2022

May 30 | June 3  
Virtual Conference

## 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	<b>Welcome and Introduction to the Symposium</b>		11:00	<b>Combination of plasmonic and dielectric properties by multivariate analysis for enhanced sensing</b> Jaione Etxebarria-Elezgarai* (1), Luca Bergamini (2,3), Eneko Lopez (1), Jost Adam (4), Nerea Zabala (2,3), Javier Aizpurua (3), Andreas Seifert* (1,5) (1) CIC nanoGUNE BRTA, Tolosa Hiribidea 76, 20018 San Sebastian, Spain (2) Department of Electricity and Electronics, FCT-ZTF, UPV-EHU, 48080 Bilbao, Spain (3) Materials Physics Center, CSIC-UPV/EHU and DPIC, 20018 San Sebastian, Spain (4) University of Southern Denmark, 6400 Sønderborg, Denmark (5) IKERBASQUE, Basque Foundation for Science, Euskadi Plaza 5, 48009 Bilbao, Spain	D1 02.2
	<b>Plasmonic Nanomaterials : Jost Adam, Yogendra Kumar Mishra, Ayan Chaudhuri</b>		11:15	<b>Metal-Free Cellulose-Based Platforms for Biomolecule Detection via Fluorescence and Surface Enhanced Raman Spectroscopy</b> Agata Fularz, Sawsan Almohammed, and James H. Rice Agata Fularz - School of Physics, University College Dublin, Dublin 4, Ireland Sawsan Almohammed - School of Physics, University College Dublin, Dublin 4, Ireland, Conway Institute of Biomolecular and Biomedical Research, University College Dublin, Dublin 4, Ireland James H. Rice - School of Physics, University College Dublin, Dublin 4, Ireland	D1 02.3
08:15	<b>INV Engineering gold-based nanowires for plasmon mediated remote Raman sensor and for improving in- and out-coupling with light</b> Funes-Hernando Daniel [1], Peláez-Fernández Mario [2], Winterauer Dominik [3], Mevellec Jean-Yves[1], Arenal Raúl [2,4], Batten Tim[3], Humbert Bernard [1], Bayle Maxime [1], Duvail Jean-Luc [1] [1] Institut des Matériaux Jean Rouxel, UMR 6502 CNRS and Nantes University, Nantes, France [2] Laboratorio de Microscopias Avanzadas, Instituto de Nanociencia de Aragon, Universidad de Zaragoza, Zaragoza, Spain [3] Renishaw plc, New Mills, Wotton-under-Edge, United Kingdom [4] ARAID Foundation, 50018 Zaragoza, Spain	D1 01.1	11:30	<b>Ultra-sensitive detection of the N protein of the SARS-CoV-2 using AgNPs/SiNWs substrate</b> Sadok Kouz1,2*, Awatef Ouhibi1, Amal Raouafi3, Nathalie Lorrain2, Noureddine Raouafi3, Adel Moadhen1 and Mohammed Guendouz2 1Université de Tunis El Manar, Faculté des Sciences de Tunis, Laboratoire de Nanomatériaux Nanotechnologie et Energie (LR19ES23), 2092, Tunis El Manar, Tunisie 2UMR FOTON, CNRS, Université de Rennes 1, Enssat, BP 80518, 6 rue Kerampont, F22305, Lannion, France 3Université de Tunis El Manar, Faculté des Sciences de Tunis, Laboratoire de Chimie Analytique et Electrochimie (LR99ES15), sensor and biosensors group, 2092, Tunis El Manar, Tunisie	D1 02.4
08:45	<b>Economical, Facile Paper-based SERS Sensing Platform established by Aluminum Nanoparticles for Food Safety Analysis</b> Chiao-Jung Su, Yu-Ling Chang, Yi-Chia Hsieh, Li-Chia Lu and Dehui Wan* Institute of Biomedical Engineering and Frontier Research Center on Fundamental and Applied Sciences of Matters, National Tsing Hua University, Hsinchu, Taiwan, Department of Materials science and Engineering, National Tsing Hua University, Hsinchu, Taiwan	D1 01.1	11:45	<b>Engineering the structure and SERS enhancement factor of Au nanoparticle double layer by a sandwiched graphene flake</b> András Pálincás, György Molnár, Gábor Piszter, András Deák, Zoltán Osváth Centre for Energy Research, Institute of Technical Physics and Materials Science, Budapest, Hungary	D1 02.5
09:15	<b>Interaction Study between Luminescent Gold Nanoclusters and Lipid Membranes: Framework for Biological Applications</b> Regina M. Chiechio 1,2,8, Celia Marets 1, Pascale Even-Hernandez 1, Christelle Meriadec 3, Franck Artzner 3, , Rémi Leguevél 4, Helene Solhi 4, Marie Madeleine Gueguen4, Stephanie Dutertre 5, Xavier 5, Jean-Pierre Bazureau 1, Olivier Mignen 6,7, Paolo Musumeci 2, Maria Jose Lo Faro 2,8, Valerie Marchi 1* 1) Université Rennes 1, CNRS UMR 6226, Institut des Sciences Chimiques de Rennes, 35042 Rennes Cedex, France, 2) Dipartimento di Fisica e Astronomia "Ettore Majorana", Università degli Studi di Catania, Via S. Sofia 64, 95123 Catania, Italy. 3) CNRS, Institut de Physique de Rennes, UMR 6251, Université de Rennes 1, F-35000, Rennes, France 4) ImpACcell platform, Biosit, Université de Rennes 1, F-35043 Rennes, France, 5) Microscopy Rennes Imaging Centre, SFR Biosit, UMS CNRS 3480—US INSERM 018, Université de Rennes, 35000 Rennes, France 6) University of Brest, INSERM, Canalopathies et Signalisation Calcique, Brest, France, 7) University of Brest, INSERM, Lymphocytes B et auto-immunité, Brest, France. 8) Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerche (CNR-IMM) UoS Catania, Via S. Sofia 64, 95123 Catania, Italy.	D1 01.2	12:00	<b>SERS performance of laser-ablated magneto-plasmonic nanoparticles</b> Adomaviciute-Grabusove, S.*(1), Sablinskas, V. (1), Ceponkus, J. (1), Stankevicius, E. (2), Petrikaite,V (2)., Trusovas, R. (2) Zdaniauskiene, A. (2), Selskis, A. (2), Niaura, G. (1,2) (1) Institute of Chemical Physics, Faculty of Physics, Vilnius University, Lithuania, (2) Center for Physical Sciences and Technology (FTMC), Lithuania, * lead presenter	D1 02.6
09:30	<b>Plasmonic properties of nanocavities in patterned aluminum on suspended graphene</b> Kenan Elibol and Peter A. van Aken Max Planck Institute for Solid State Research, D-70569 Stuttgart, Germany	D1 01.3	12:15	<b>Discussion</b>	
09:45	<b>Ultrasmall Au6 nanoclusters displaying coherent photophysical behaviour</b> Alice Sciortino, Sourav Chandra, Faisal Ahmed, Diao Li, Arijit Jana, Ville Liljeström, Hua Jiang, Leena-Sisko Johansson, Xi Chen, Nonappa, Thalappil Pradeep, Marco Cannas, Zhipei Sun, Olli Ikkala, Fabrizio Messina University of Palermo, Aalto University, Aalto University, Aalto University, Indian Institute of Technology, Aalto University, Aalto University, Aalto University, Aalto University, Aalto University, Aalto University, Indian Institute of Technology, University of Palermo, Aalto University, Aalto University, University of Palermo,	D1 01.4	12:30	<b>Lunch</b>	
10:00	<b>A symmetry-based kinematic theory for designing chiral Au nanoparticles</b> Bing Ni University of Konstanz	D1 01.5	13:00	<b>Solution approaches for the fabrication of all-inorganic halide perovskites: from-diketonate precursors to CsPbBr3 and CsCaF3</b> Anna Lucia Pellegrino, Francesca Lo Presti, Lorenzo Sirna, Graziella Malandrino Dipartimento di Scienze Chimiche, Università degli Studi di Catania, INSTM UdR Catania, Viale Andrea Doria 6, I-95125 Catania, Italy.	D1 03.1
10:15	<b>Discussion</b>		13:15	<b>Quantum dot surface functionalization and characterization for temperature sensing</b> Fanglei Guo1, Stijn Jooken1, Olivier Deschaume1, Wei Yu1, Wim Thielemans2, Carmen Bartic1 1 Soft Matter and Biophysics, Department of Physics and Astronomy, KU Leuven, 3001 Heverlee, Belgium, 2 Chemical Engineering, Kulak Kortrijk Campus, KU Leuven, 8500 Kortrijk, Belgium	D1 03.2
10:30	<b>SERS Sensing : Yogendra Kumar Mishra, Duvail Jean-Luc, Dawid Janas</b>		13:30	<b>Lanthanum nickelate films deposited from a novel heterobimetallic La- Ni complex as single-source precursor</b> Matteo Bombaci, Francesca Lo Presti, Anna Lucia Pellegrino, and Graziella Malandrino Dipartimento di Scienze Chimiche, Università degli studi di Catania V.le A. Doria 6, 95125 Catania Italy.	D1 03.3
10:45	<b>Self-assembly of Gold Nanoparticles on Porphyrin Monolayers Anchored on Inorganic Substrates</b> Spitaleri, L.*(1) & Gulino, A. (1) (1) Department of Chemical Sciences, University of Catania, and INSTM UdR of Catania, V.le A. Doria 6, 95125 Catania, Italy	D1 02.1			

13:45	<b>Strain control of the anomalous Hall conductivity in the chiral antiferromagnet Mn<sub>3</sub>NiN antiperovskite</b> D. Torres-Amaris[1], Rafael González-Hernández[2], Aldo. H. Romero[3], and, A. C. Garcia-Castro[1] [1]School of Physics, Universidad Industrial de Santander, Bucaramanga, Colombia, [2]Departamento de Física y Geociencias, Universidad del Norte, Barranquilla, Colombia, [3]Department of Physics and Astronomy, West Virginia University, Morgantown, United States.	D1 03.4
14:00	<b>Influence of varied pH on the photoluminescence properties of glutathione-coated AgInS<sub>2</sub>/ZnS quantum dots</b> L. Borkovska1, T. Stara1, K. Kozoriz1, E. Nesterenko2, A. Rachkov2, J.-L. Doualan3, T. Kryshab4 1 V. Lashkaryov Institute of Semiconductor Physics of NASU, 45 Pr. Nauky, Kyiv, Ukraine, 2 Institute of Molecular Biology and Genetics of NASU, 150 Zabolotnogo Str., Kyiv, Ukraine, 3 CIMAP, CEA-CNRS-ENSICAEN, Normandie Université, 6 Blvd Maréchal Juin, Caen, France, 4 Instituto Politécnico Nacional ? ESFM, Av. IPN, Ed.9 U.P.A.L.M., 07738 Mexico D.F., Mexico	D1 03.5
14:15	<b>Discussion</b>	
<b>Thin Films Nanotechnology : Yogendra Kumar Mishra, Sugato Hajra, Jost Adam</b>		
15:00	<b>Excitation of traveling guided modes and mode hybridization in the thin films</b> Ashish Prajapati Gil Shalev 1 School of Electrical and Computer Engineering, Ben-Gurion University of the Negev, Israel 2 The Ilse-Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, POB 653, Beer-Sheva 8410501, Israel	D1 04.1
15:15	<b>A statistical approach for by-process segregation in Ge-rich GST</b> Petroni, E. *(1), Serafini, A. (2), Codegoni, D. (2), Targa, P. (2), Mariani, L. (2), Scuderi, M. (3), Nicotra, G. (3) & Redaelli, A. (1) (1) STMicroelectronics, TR&D, Agrate Brianza, Italy (2) STMicroelectronics, R2 Physical Lab, Agrate Brianza, Italy (3) CNR-IMM, Catania Headquarter, Strada VIII n.5 Zona Industriale, Catania 95121, Italy * lead presenter	D1 04.2
15:30	<b>Molecular simulation for the prediction of residual stress of (ultra-thin) films during deposition</b> Germain Clavier, Shivraj Karewar, Olfa van den Sluis, Johan Hoefnagels Eindhoven University of Technology (TUe), Mechanical engineering department	D1 04.3
15:45	<b>Defect segregation on silicon grain boundary : insight from topological analysis</b> Rita Maji Julia Contreras-García Elena Degoli Eleonora Luppi 1. Dipartimento di Scienze e Metodi dell'Ingegneria, Università di Modena e Reggio Emilia, Via Amendola 2 Padiglione Tamburini, I-42122 Reggio Emilia, Italy 2. Laboratoire de Chimie Théorique, Sorbonne Université and CNRS, F-75005 Paris, France 3. Dipartimento di Scienze e Metodi dell'Ingegneria, Università di Modena e Reggio Emilia, Via Amendola 2 Padiglione Morselli, I-42122 Reggio Emilia, Italy Centro Interdipartimentale En & Tech, Via Amendola 2 Padiglione Morselli, I-42122 Reggio Emilia, Italy Centro S3, Istituto Nanoscienze-Consiglio Nazionale delle Ricerche (CNR-NANO), Via Campi 213/A, 41125 Modena, Italy 4. Laboratoire de Chimie Théorique, Sorbonne Université and CNRS, F-75005 Paris, France	D1 04.4
16:00	<b>Fabrication of silicon carbide trenches by an inductively coupled plasma reactive ion etching process</b> Perricelli, F.* (1), Fragalà, M. E. (1) & Gulino, A. (1) (1) Department of Chemical Sciences, University of Catania, and INSTM UdR of Catania, V.le A. Doria 6, 95125 Catania, Italy	D1 04.5
16:15	<b>Formation of InAs Islands on the InP(001) surface during annealing in an arsenic flux</b> Kolosovsky, D.A., Dmitriev, D.V., Ponomarev, S.A., Toropov A.I., Zhuravlev K.S. Rzhanov Institute of Semiconductor Physics, Novosibirsk 630090, Russian Federation	D1 04.6
16:30	<b>Effects of etching depth on crack generation in strained SiGe films on mesa-patterned Ge</b> Youya Wagatsuma1, Rena Kanesawa1, Md. Mahfuz Alam1,2, Kazuya Okada1, Michihiro Yamada3, Kohei Hamaya3, and Kentarou Sawano1 1Advanced Research Laboratories, Tokyo City University, 8-15-1 Todoroki, Setagaya-Ku, Tokyo 158-0082, Japan, 2Department of Physics, University of Barishal, Barishal-8254, Bangladesh, 3Center for Spintronics Research Network, Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka 560-8531, Japan	D1 04.7
16:45	<b>Discussion</b>	

Tuesday may 31

Photonics : Jost Adam, Yogendra Kumar Mishra, Ayan Chaudhuri

08:00	<b>Azopolymer-based reconfigurable diffractive optical elements</b> Francesco Reda *(1), Marcella Salvatore (1,2), Fabio Borbone (3,4), Pasqualino Maddalena (1,2,4), Antonio Ambrosio (4), Stefano Luigi Oscurato (1,2,4) (1) Department of Physics "E. Pancini", University of Naples "Federico II", Complesso Universitario di Monte Sant'Angelo, Via Cintia, 80126 Naples, Italy, (2) Centro Servizi Metrologici e tecnologici Avanzati (CeSMA), University of Naples "Federico II", Complesso Universitario di Monte Sant'Angelo, Via Cintia 21, 80126, Naples, Italy, (3) Department of Chemical Sciences, University of Naples "Federico II", Complesso Universitario di Monte Sant'Angelo, Via Cintia, 80126 Naples, Italy, (4) CNST@POLIMI—Fondazione Istituto Italiano di Tecnologia, Via Pascoli 70, 20133 Milan, Italy,	D1 05.1
08:15	<b>Complex characterization of butterfly wing scale structural color and color modification for applications</b> Kertész, K.*(1), Piszter, G.(1), Baji, Zs.(1), Bálint, Zs.(2) & Biró, L.P(1) (1)Institute of Technical Physics and Materials Science, Centre for Energy Research, Konkoly-Thege Miklós út 29-33., 1121 Budapest, Hungary, (2)Hungarian Natural History Museum, Baross utca 13., 1088 Budapest, Hungary, * lead presenter	D1 05.2
08:30	<b>Photonic structures for tuning nanophosphor films emission</b> Elena Cabello-Olmo, Gabriel Lozano, Hernán Míguez Institute of Materials Science of Seville (Spanish National Research Council - University of Seville)	D1 05.3
09:00	<b>Nanocube epitaxy for the realisation of printable monocrystalline nanophotonic surfaces</b> Anna Capitaine, Beniamino Sciacca Aix-Marseille Univ, CINaM, CNRS, CINaM	D1 05.4
09:15	<b>Characterization of Carbazole based polymer and Polyfluorene derivatives for blue emitting flexible OLED devices</b> K. Papadopoulos 1, D. Tselekidou 1, V. Kyriazopoulos 1,2, S. Kassavetis 1, A. K. Andreopoulou 3, K. Andrikopoulos 3, J. K. Kallitsis 3, M. Gioti 1 1 Nanotechnology Lab LTFN (Lab for Thin Films – Nanobiomaterials – Nanosystems – Nanometrology) Aristotle University of Thessaloniki, 54124, Thessaloniki, Greece, 2 Organic Electronic Technologies P.C. (OET), Antoni Tritsi 21B, GR-57001 Thessaloniki, Greece, 3 Department of Chemistry University of Patras, University Campus, Rio-Patras GR-26504, Greece	D1 05.5
09:30	<b>Ultrafast laser-based fabrication of Efficient Anti-reflective Silicon Nitride nano/microstructures for Optoelectronics applications</b> Pariksha Malik, Santanu Ghosh, G.V. Prakash, Pankaj Srivastava Department of Physics, Indian Institute of Technology Delhi, New Delhi, India	D1 05.6
09:45	<b>Discussion</b>	
<b>Advanced Electronic Devices : Yogendra Kumar Mishra, Veronika Zadin, Dawid Janas</b>		
10:00	<b>INV Molecular Building Blocks for the Next Generation of Computing</b> Sreetosh Goswami Centre for Nanoscience and Engineering (CeNSE), Indian Institute of Science (IISc), Bangalore	D1 06.1
10:30	<b>INV Self-compliance multilevel resistive switching in CMOS compatible WO<sub>3</sub>-x thin films</b> Krishna Rudrapal, Venimadhav Adyam and Ayan Roy Chaudhuri Materials Science Centre, Indian Institute of Technology Kharagpur, 721302 Kharagpur, West Bengal, India	D1 06.2
11:00	<b>Titanium carbide MXene thin film for resistive switching application</b> Anamika Ashok, Subin P S, M K Jayaraj, Asha A S Anamika Ashok - Nanomaterials for Emerging Solid state technology (NEST) laboratory, Department of Physics, Cochin University of Science and Technology, Subin P S- NanoPhotonic and OptoElectronic Devices (NPOED) laboratory, Department of Physics, Cochin University of Science and Technology, Dr. Asha A S- Nanomaterials for Emerging Solid state technology (NEST) laboratory, Department of Physics, Cochin University of Science and Technology, Centre of Excellence in Advanced Materials, Cochin University of Science and Technology, Prof M K Jayaraj - Calicut University	D1 06.3

11:15	<b>Novel Back gate-Field effect transistor (BG-FET) based on curcumin functionalized zinc oxide nanorods for detection of Arsenic(I)</b> Avik Sett, Shatavisha Biswas, Tarun Kanti Bhattacharyya Department of Electronics and Electrical Communication Engineering, IIT Kharagpur, Kharagpur, India, Department of Electronics and Electrical Communication Engineering, IIT Kharagpur, Kharagpur, India, Department of Electronics and Electrical Communication Engineering, IIT Kharagpur, Kharagpur, India	D1 06.4			<b>Electronic Materials : Sreetosh Goswami, Yogendra Kumar Mishra, Dawid Janas</b>
11:30	<b>Discussion</b>			16:00	<b>Wearable microneedle-based extended gate transistor for real-time detection of sodium in interstitial fluids</b> Youbin Zheng, Rawan Omar, Rongjun Zhang, Ning Tang, Muhammad Khatib, Qi Xu, Yana Milyutin, Walaa Saliba, Yoav Y Broza, Weiwei Wu, Miaomiaoyuan*, and Hossam Haick* Department of Chemical Engineering and Russell Berrie Nanotechnology Institute, Technion-Israel Institute of Technology, Haifa 3200003, Israel
	<b>2D Materials and Devices : Sreetosh Goswami, Yogendra Kumar Mishra, Dawid Janas</b>			16:15	<b>Molecular polarizability is a key parameter for electronic transport in hybrid materials</b> Simon Tricard LPCNO, INSA, CNRS, Université de Toulouse, France
13:00	<b>Charge transport mechanisms in inkjet-printed thin-film transistors based on two-dimensional materials</b> Erik Piatti, Adrees Arbab, Francesco Galanti, Tian Carey, Luca Anzi, Dahnhan Spurling, Ahin Roy, Ainur Zhussupbekova, Kishan A. Patel, Jong M. Kim, Dario Daghero, Roman Sordan, Valeria Nicolosi, Renato S. Gonnelli, Felice Torrisi Erik Piatti, Francesco Galanti, Dario Daghero, Renato S. Gonnelli, Department of Applied Science and Technology, Politecnico di Torino, I-10129 Torino, Italy. Adrees Arbab, Jong M. Kim, Department of Engineering, University of Cambridge, Cambridge CB3 0FA, UK. Adrees Arbab, Tian Carey, Felice Torrisi, Department of Chemistry, Molecular Sciences Research Hub, Imperial College London, White City Campus, Wood Lane, London, W12 0BZ, UK. Luca Anzi, Kishan A. Patel, Roman Sordan, L-NESS, Department of Physics, Politecnico di Milano, I-22100 Como, Italy Dahnhan Spurling, Ahin Roy, Ainur Zhussupbekova, Valeria Nicolosi, Trinity College Dublin, Dublin 2, Ireland. Felice Torrisi, Dipartimento di Fisica e Astronomia, Università di Catania, 95123, Catania, Italy.	D1 05.1		16:30	<b>Quantitative Measurements of Anisotropic Thermal Transport in vdW Materials via Cross-Sectional Scanning Thermal Microscopy</b> Sergio Gonzalez-Munoz, Khushboo Agarwal, Eli Castanon, Zakhar Kudrynskiy, Zakhar D. Kovalyuk, Jean Spièce, Olga Kazakova, Amalia Patane, Oleg Kolosov Sergio Gonzalez-Munoz, Lancaster University, Khushboo Agarwal, Lancaster University, Eli Castanon, National Physical Laboratory, Zakhar Kudrynskiy, University of Nottingham, Zakhar D. Kovalyuk, Institute for Problems of Materials Science (NAS of Ukraine), Jean Spièce, Université catholique de Louvain, Olga Kazakova, National Physical Laboratory, Amalia Patane, University of Nottingham, Oleg Kolosov, Lancaster University
13:30	<b>Study of the impact of the use of bow-tie antennas on the response of Graphene-FETs Terahertz detectors</b> E. Abidi, J. A. Delgado-Notario, V. Clericò, J. Salvador-Sanchez, J. E. Velazquez-Perez, J. Calvo-Gallego, E. Díez, T. Taniguchi, K. Watanabe, W. Knap, T. Otsuji, Y. M. Meziani USAL-NanoLab University of Salamanca (Spain), CENTERA Laboratories, Institute of High Pressure Physics, Polish Academy of Sciences (Poland), USAL-NanoLab University of Salamanca (Spain), USAL-NanoLab University of Salamanca (Spain), USAL-NanoLab University of Salamanca (Spain), USAL-NanoLab University of Salamanca (Spain), National Institute of Material Sciences (Japan), National Institute of Material Sciences (Japan), CENTERA Laboratories, Institute of High Pressure Physics, Polish Academy of Sciences (Poland), Research Institute of Electrical Communication, Tohoku University (Japan), USAL-NanoLab University of Salamanca (Spain),	D1 05.2		16:45	<b>Study of Current flow in a single crystal of SmB6 from a minimal tight-binding type model</b> L. G. Mesa, C. J. Páez Universidad Industrial de Santander
13:45	<b>Large-Scale Electronic Structure Simulations of Semiconductor Materials, Interfaces and Gate Stacks with LCAO Hybrid DFT</b> Khomyakov, P. A. (1), Wellendorff, J. (1), Palsgaard, M. (1), Gunst, T. (1), Miyagi, H. (1), Verstichel, B. (1), Arcisauskaitė, V. (1), Martínez, U.* (1), Blom, A. (1) & Smidstrup, S. (1). (1) Synopsys QuantumATK, Fruebjergvej 3, 2100 Copenhagen, Denmark * lead presenter	D1 05.3		17:00	<b>Optical and photothermal response in 2D Silicene–Stanene Heterostructures</b> E. Bonaventura (1-2), D. Dhungana (1), S. Macis (3), C. Grazianetti (1), C. Martella (1), E. Bonera (2), S. Lupi (3), A. Molle (1). 1 - CNR-IMM Unit of Agrate Brianza, via C. Olivetti 2, Agrate Brianza, Italy 2 - Department of Material Science, University of Milano-Bicocca, Via Cozzi 53, Milan, Italy 3 - Department of Physics, Sapienza University, Piazzale Aldo Moro 5, 00185 Rome, Italy
14:00	<b>First-Principles Simulations of Vacancies and Grain Boundaries in MoS2-Au Interfaces for Unconventional Computing Paradigm</b> Gabriele Boschetto*(1), Stefania Carapezzi(1), Corentin Delacour(1), Madeleine Abernot(1), Thierry Gil(1), Aida Todri-Sanial(1) (1) LIRMM, University of Montpellier, CNRS, 34095 Montpellier, France *Lead presenter	D1 05.4		17:15	<b>Mechanisms of oxide removal from InP surface during annealing in As flux</b> Dmitriev D.V., Kolosovsky D.A., Toropov A.I. & Zhuravlev K.S. Rzhanov Institute of Semiconductor Physics, Novosibirsk 630090, Russian Federation
14:15	<b>Lateral Hybrid van der Waals Heterostructures of Layered MoS2: Facile Growth and Self-Powered Wide Range Photodetection</b> Navaneeth Krishnan K*, Anjusree S, Srikrishna Sagar, Litty Thomas Manamel, Arka Mukherjee and Bikas C. Das Emerging Nanoelectronic Devices Research Laboratory (eNDR Lab), School of Physics, Indian Institute of Science Education and Research Thiruvananthapuram (IISER TVM), Maruthamala PO, Vithura, Thiruvananthapuram 695551, Kerala, India.	D1 05.5		17:30	<b>Discussion</b>
14:30	<b>FEMOCS – a multiscale simulation tool for investigating and designing nanoscale metal structures under high electric fields</b> Veronika Zadin, Andreas Kyriakis, Flyura Djurabekova, Tauno Tiirats, Mihkel Veske University of Tartu, Estonia, University of Tartu, Estonia, University of Helsinki, Finland, University of Tartu, Estonia, University of Helsinki, Finland.	D1 05.6			
14:45	<b>Discussion</b>				



Wednesday June 1

**Carbon Nanomaterials : Ayan Chaudhuri, Yogendra Kumar Mishra, Sugato Hajra**

- 08:00 **INV** **How to tailor the properties of carbon nanotubes?** D1 09.1  
Dawid Janas  
Silesian University of Technology, Department of Organic Chemistry, Bioorganic Chemistry and Biotechnology, Krzywoustego 4, 44-100 Gliwice
- 08:30 **Carbon fibre-based piezoelectric smart composite for energy harvesting** D1 09.2  
Qinrong He, Han Zhang, Joe Briscoe\*  
School of Engineering and Material Science and Materials Research Institute, Queen Mary University of London, London, E1 4NS
- 08:45 **Graphene nanogap electrodes for molecular electronic and spintronic applications** D1 09.3  
Rossella Zaffino\*, Raphael Pfattner\*, Daniel Riba\*, Teresa Cardona\*, Daniel Herrera\*, Arántzantzu González-Campo\*, Herre S. J. van der Zant\*\*, Núria-Aliaga Alcalde\*  
\*Institut de Ciència de Materials de Barcelona ICMAB-CSIC, Carrer dels Til·lers Campus Universitat Autònoma de Barcelona, Bellaterra, Spain, \*\*Kavli Institute of Nanoscience, Delft University of Technology, Lorentzweg 1, Delft 2628 CJ, The Netherlands, \*ICREA – Institució Catalana de Recerca i Estudis Avançats, Passeig Lluís Companys 23, 08010 Barcelona, Spain,
- 09:00 **Development of a graphene-based sensor for antibiotic determination** D1 09.4  
Pepper Yang (1), Martin Holicky (1), Benji Fenech Salerno(1), David M. E. Freeman (1), Anthony E. G. Cass (1), Felice Torrisi (1)  
Imperial College London, United Kingdom
- 09:15 **Electron-phonon interaction toward engineering carrier mobility of periodic edge structured Graphene nanoribbons** D1 09.5  
Teng-Chin Hsu1, Bi-Xian Wu1, Rong-Teng Lin1, Chia-Jen Chien1, Chien-Yu Yeh1, Tzu-Hsuan Chang1\*  
1 Graduate Institute of Electronics Engineering, National Taiwan University, Taiwan, 2 Department of Materials Science and Engineering, National Taiwan University, Taiwan, \*email: tchang9@ntu.edu.tw
- 09:30 **Peroxidase-like activity of Fe species/ZnO@graphitic carbon composite for colorimetric detection of hydrogen peroxide** D1 09.6  
Anteneh Fufa Baye, Hern Kim\* Lead presenter : Anteneh Fufa Baye, Email: antenehfufa63@gmail.com Corresponding author\*: Hern Kim, Email: hernkim@mju.ac.kr  
Environmental Waste Recycle Institute, Department of Energy Science and Technology, Myongji University, Yongin, Gyeonggi-do 17058, Republic of Korea
- 09:45 **Discussion**
- Hybrid Materials : Yogendra Kumar Mishra, Sugato Hajra, Jost Adam**
- 10:00 **Computationally predictive gas sensing from inkjet-printed rGO/binary metal oxide sensor** D1 10.1  
Ogbeide, O. (1), Bae, G. (1), Yu, W. (1, 2), Morrin, E. (1), Song, Y. (1), Song, W. (3), Li, Y. (2), Su, B.-L. (2), An, K.-S. (3), Hasan, T. (1)  
(1) Cambridge Graphene Centre, University of Cambridge, United Kingdom, (2) State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, China, (3) Thin Film Materials Research Center, Korea Research Institute of Chemical Technology (KRICT), Republic of Korea
- 10:15 **Energy Level Modulation of Small Molecules Enhances Thermoelectric Performance of Non-doped Carbon Nanotube-based Hybrids** D1 10.2  
Tae-hoon Kim (1), Jong-In Hong\*(1)  
(1) Department of Chemistry, Seoul National University, Seoul 08826, Republic of Korea
- 10:30 **Polymer-based Ternary Electrically Conductive Luminescent Hybrid Materials** D1 10.3  
1. A.V. Kukhta, A.G. Paddubskaya, T.A. Kulahava, S.A. Maksimenko 2. T.A. Pavich 3. P.Ciambelli, P. Lamberti  
1. Institute for Nuclear Problems, Belarusian State University, Babruiskaya Str. 11, 220006 Minsk, Belarus 2. B.I.Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus 3. University of Salerno, Fisciano, Italy

- 10:45 **Zinc oxide tetrapods and carbon dots based hybrid composite for efficient photocatalytic dyes degradation** D1 10.4  
Mariia Stepanova1, Reza Abolhassani2, Jacek Fiutowski2, Horst-Gunter Rubahn2, Anna Orlova1, Yogendra Kumar Mishra2  
1 ITMO University, Russia 2 Mads Clausen Institute, University of Southern Denmark, Alsion 2, DK-6400, Sønderborg, Denmark
- 11:00 **Feasibility of p-doped molecular crystals as transparent conductive electrodes via virtual screening** D1 10.5  
Tahereh Nematiamar Alessandro Troisi  
University of Liverpool
- 11:15 **Hybrid photo-rechargeable structures rGO/Fe2O3/Si which combine benefits of the photo-thermo-electric effect and super capacitor** D1 10.6  
Rada Savkina, Oleksij Smirnov, Tetyana ?ryshtab  
V. Lashkaryov Institute of Semiconductors Physics, NAS of Ukraine, Nauky av.41, 03028 Kyiv, Ukraine V. Lashkaryov Institute of Semiconductors Physics, NAS of Ukraine, Nauky av.41, 03028 Kyiv, Ukraine Instituto Politécnico Nacional - ESFM, Department of Physics, 07738 Mexico D.F., Mexico
- 11:30 **Discussion**
- Energy Materials : Dawid Janas, Yogendra Kumar Mishra, Reza Abolhassani**
- 13:00 **INV** **Interfacial properties in composite nano-systems for energy harvesting** D1 11.1  
Alberto Vomiero  
1) Division of Materials Science, Department of Engineering Sciences and Mathematics, Luleå University of Technology, SE-971 87 Luleå, Sweden. E - mail alberto.vomiero@ltu.se 2) Department of Molecular Sciences and Nanosystems, Ca' Foscari University of Venice, Via Torino 155, 30172 Venezia Mestre, Italy. E - mail alberto.vomiero@unive.it
- 13:30 **Patterning of 3D Nanoparticle-Based Aerogel-Like Networks for Photoelectrochemical Applications** D1 11.2  
F. Lübckemann, J. F. Miethe, D. Zámbo, R. Anselmann, P. Rusch, A. Schlosser, T. Kodanek, D. Dorfs, 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
- 13:45 **Zeolite Imidazole framework (ZIF 67) based triboelectric nanogenerator and robotics applications** D1 11.3  
Sugato Hajra\* (1), Manisha Sahu (1), Hoe Joon Kim (1)  
(1) Daegu Gyeongbuk Institute of Science and Technology, Republic of Korea.
- 14:00 **Influence of topography on the spontaneous flow of DNA molecules in nanofluidic channels** D1 11.4  
Tim Erichlandwehr, Franziska M. Esmek, Dennis Mors, Irene Fernandez-Cuesta  
Institut für Nanostruktur- und Festkörperphysik, Universität Hamburg, Germany: Tim Erichlandwehr, Franziska M. Esmek, Dennis Mors, Irene Fernandez-Cuesta Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany: Tim Erichlandwehr
- 14:15 **Ethylene glycol doped PEDOT:PSS for p-n junction based ZnO piezoelectric nanogenerator** D1 11.5  
YUAN ZHANG, QINRONG HE, JOE BRISCOE  
School of Engineering and Material Science and Materials Research Institute, Queen Mary University of London, London, E1 4NS
- 14:30 **Significant enhancement in dielectric, piezoelectric, and ferroelectric properties of PVDF-TrFE through amine-functionalized graphene oxide** D1 11.6  
Hamed Abdolmaleki, Shweta Agarwala  
Electrical Engineering Department, Aarhus University
- 14:45 **Discussion**
- Energy Technologies : Yogendra Kumar Mishra, Dawid Janas, Vomiero Alberto**
- 15:00 **Liquid metal nanoparticle-water ink fabricated by emulsification-induced self-assembly of conjugated polymer** D1 11.7  
Jiwon Park, Eunji Lee\*  
School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju 61005, Republic of Korea

15:15	<p><b>Versatile biogenic electrolyte for highly performing and self-stable light-emitting electrochemical cells</b></p> <p>Cavinato, L.M.* (1), Millán, G. (2), Dr. Fresta, E. (1), Dr. Fernández-Cestau, J. (1) Prof. Dr. Laliñe, E. (2), Prof. Dr. Berenguer, J.R. (2), Prof. Dr. Costa, R.D. (1) * lead presenter</p> <p>(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</p>	D1 12.2
15:30	<p><b>A novel heterostructure architecture for photodetection and photo-enhanced electron emission applications</b></p> <p>Harikrishnan G.*(1), Arijit Kayal (1), K. Bandopadhyay (2), K. Kolodziejak (2), Dorota A. Pawlak (2,3), Joy Mitra (1)</p> <p>(1) Indian Institute of Science Education and Research, Thiruvananthapuram, India, (2) ENSEMBLE3 Centre of Excellence, Warsaw, Poland, (3) Łukasiewicz – Institute of Microelectronics and Photonics, Warsaw, Poland</p>	D1 12.3
15:45	<p><b>Ionic Liquid Functionalized Gel-polymer electrolytes for lithium battery applications</b></p> <p>Debalina Deb</p> <p>CSIR Research Associate, The Solid State and Structural Chemistry Unit – SSCU, IISc, Bengaluru</p>	D1 12.4
16:00	<p><b>Microlenses of AlN for solar cells covering</b></p> <p>Redko R.1,2, Milenin G.1, Zayac M.1, Boiko V.1, Lytvyn P.1, Redko S.1</p> <p>1V. Lashkaryov Institute of Semiconductor Physics of the National Academy of Sciences of Ukraine, 2State University of Telecommunications</p>	D1 12.5
16:15	<p><b>THE PHYSICAL ASPECTS OF COMPLEXING PROPERTIES OF 1D-, 2D-COORDINATION POLYMERS BASED ON ARENDIYL-BISPHOSPHINIC ACIDS</b></p> <p>O.O. Bondarenko, R.M. Balabai, I.V. Bilynskyi</p> <p>Kryvyi Rih State Pedagogical University</p>	D1 12.6
16:45	<p><b>Evidence for the band edge exciton of CuInS<sub>2</sub> Nanocrystals enables record efficient large-area Luminescent Solar Concentrators</b></p> <p>Anand, Abhinav * a, L. Zaffalon, Matteo a, Gariano, Graziella b, Camellini, Andrea c, Gandini, Marina b, Brescia, Rosaria d, Capitani, Chiara b, Bruni, Francesco b, Pinchetti, Valerio a, Zavelani-Rossi, Margherita c, Meinardi, Francesco * a, A. Crooker, Scott e, Brovelli, Sergio * a</p> <p>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</p>	D1 12.7
17:00	<p><b>Discussion and Closing</b></p>	