



European Materials Research Society

Spring Meeting 2022

May 30 | June 3
Virtual Conference

SYMPOSIUM A

Nanoelectronic materials and devices

Symposium Organizers :

Akichika KUMATANI, Tokoku 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 Yurui Xue, Yuliang Li* Institute of Chemistry Chinese Academy of Sciences	A 1.1
09:30	INV Spin Quantum Physics with Carbon Based Materials Jörg Wrachtrup 3rd Institute of Physics, Centre for Applied Quantum Technologies and IQST, University of Stuttgart, Germany	A 1.2
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	A 1.3
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	A 2.1
11:30	CVD diamond film with nanodiamond seeding grown on GaN for effective thermal dissipation Liwen Sang, and Meiyong Liao International Center for Materials Nanoarchitectonics, National Institute for Materials Science (NIMS), 1-1 Namiki, Tsukuba, Ibaraki 305-0044, Japan	A 2.2
11:45	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,	A 2.3
12:00	Tailored Adamantane 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 206/1, Brussels, Belgium	A 2.4
12:15	Review on the Raman spectroscopy of boron-doped diamond V. Mortet, M. Davydova, M. Alam, A. Taylor, J. Pokorny FZU – Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic	A 2.5
12:30	Discussion	
12:45	Lunch	

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 Chen ^{1,2} , Huanying Sun ¹ , Liwen Sang ¹ , Satoshi Koizumi ¹ , Yasuo Koide ¹ , Xiaoxi Liu ² , Meiyong Liao ¹ 1 National Institute for Materials Science, Japan 2 Shinshu University, Japan	A 3.1
14:30	Selective combustion of detonation nanodiamonds: a useful approach to evaluate the undesired metallic impurities Killian Henry ¹ , Mélanie Emo ¹ , Sébastien Diliberto ¹ , Jean-Charles Arnault ² , Hughes. A. Girard ² , Valery Nesvizhevsky ³ , Brigitte Vigolo ¹ , Marc Dubois ⁴ 1 Université de Lorraine, Institut Jean Lamour, UMR 7198, allée André Guinier 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 Université Clermont Auvergne, CNRS, ICCF UMR 6296, 24 av. Blaise Pascal, F-63178 Aubière, France	A 3.3
14:45	High quality crystalline boron doped diamond growth on spherical monodisperse silica particles K.Henni (1), I. Stenger (2), J-S. Merot (3), F. Fossard (3), J. C. Arnault (1) and H. A. Girard (1) (1) Université Paris-Saclay, CEA, CNRS, NIMBE, CEDEX, 91 191 Gif sur Yvette, France (2) Université Paris-Saclay, UVSQ, CNRS, GEMaC, 78000 Versailles, France (3) Université Paris-Saclay, ONERA-CNRS, Laboratoire d'Etude des Microstructures, BP 72, 92322, Châtillon, France	A 3.2
15:00	Colloidal stability of synthetic hydrogenated nanodiamonds in water L. Saoudi, H.A. Girard, J.C. Arnault Université Paris-Saclay, CEA, CNRS, NIMBE, CEDEX, 91 191 Gif sur Yvette, France	A 3.4
15:15	Production of solvated electrons from nanostructured diamonds surface under visible light illumination Arsène Chemin, Peter Knittel, Igal Levine, Thomas Dittrich, Tristan Petit Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Albert-Einstein-Str. 15, 12489 Berlin, Germany, Fraunhofer Institute for Applied Solid State Physics, Tullastraße 72, 79108 Freiburg, Germany, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Albert-Einstein-Str. 15, 12489 Berlin, Germany, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Albert-Einstein-Str. 15, 12489 Berlin, Germany,	A 3.5
15:30	Discussion	
15:45	Coffee	
	Graphene-based Materials : A. KUMATANI, H.-M. CHENG	
16:00	Investigation of Multilayer Graphene Oxide Films Structure by NMR and XRD Panina, L.V., Efimova, O.S., Popova, A.N., Lyrschchikov, S.Yu., Ismagilov, Z.R. Federal Research Center of Coal and Coal Chemistry SB RAS, Russia	A 4.1
16:15	Using multi-probe scanning tunnelling microscopy to selectively manipulate graphene Cobley, R.J. Faculty of Science and Engineering, Swansea University, Swansea SA2 8PP UK.	A 4.2
16:30	Surface Porosity Adjustments of 3D-printed Graphene-based Aerogels Zhou, B.*(1), Chen, Z.(1), Cheng, Q.(2), Xiao, M.(1), Bae, G.(1), Liang, D.(2) & Hasan, T.(1) (1) Cambridge Graphene Centre, University of Cambridge, Cambridge, CB3 0FA, UK (2) Department of Engineering, University of Cambridge, Cambridge, CB3 0FA, UK * lead presenter	A 4.3
16:45	Facile and Economical, Single-Step Single-chemical Method for Conversion of Palm Oil Fuel Ash Waste into Graphene Nanosheets Muhammad Ayub, Mohd Hafiz Dzarfan Othman, Mohd Zamri Mohd Yusop Advanced Membrane Technology Research Centre (AMTEC), School of Chemical and Energy Engineering, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, Malaysia	A 4.4

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	A 4.5
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 Emo (2) A.R Mohamed (1) B. Vigolo (2) 1 School of Chemical Engineering, Engineering Campus, Universiti Sains Malaysia, 14300 Nibong Tebal, Seberang Perai Selatan, P. Pinang, Malaysia 2 Université de Lorraine, CNRS, IJL, 54000 Nancy, France	A 4.6
17:30	Discussion	

Tuesday may 31

Carbon Dots : N. YANG, Y. CHI

09:00	INV Complete degradation of grassy carbon spheres into nanostructures Yun Huang, Jie Chen, Jingcheng Zheng, Yuwu Chi College of Chemistry, Fuzhou University	A 5.1
09:30	Fluorescence photobleaching and recovery kinetics of blue, green, red and white carbon nanodots probed by in situ spectroscopy Terracina, A.* (1), Armano, A.(1), Meloni, M.(2), Panniello, A.(3), Minervini, G.(3)(4), Madonia, A.(3), Cannas, M.(1), Striccoli, M.(3), Malfatti, L.(2) & Messina, F.(1). (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 ‡Chemistry Department, University of Bari "Aldo Moro", Via E. Orabona 4, 70126 Bari, Italy, (4) Department of Electrical and Information Engineering, Polytechnic of Bari, Via E. Orabona, 4, 70126 Bari, Italy. * lead presenter	A 5.2
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,	A 5.3
10:00	Insights into the Synthesis of Red-Emitting Carbon Dots Madonia, A.*(1), Minervini, G.(1)(2), Comparelli, R.(1), Panniello, A.(1) & Striccoli, M.(1). (1) CNR-IPCF-Bari Division, c/o Chemistry Department, University of Bari, Via E. Orabona 4, 70125 Bari, Italy, (2) Department of Electrical and Information Engineering, Polytechnic of Bari, Via E. Orabona, 4, 70125 Bari, Italy.	A 5.4
10:15	Resorcinol Synthesized Carbon Dots in Open Reactor: Investigation on Fluorescence and Photobleaching Mechanism Minervini, G.*(1)(2)(3), Madonia, A.(3), Carbonaro, C. M.(4), Mucci, F.(5), Sibillano, T.(6), Giannini, C.(6), Fanizza, E.(2)(3), Agostiano, A.(2)(3), Curri M. L.(2)(3), Striccoli, M.(3) & Panniello, A.(3) (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	A 5.5
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 Hirotomo Nishihara Advanced Institute for Materials Research (WPI-AIMR), Tohoku University	A 6.1
11:45	Single-Walled Carbon Nanotubes Networks Embedded within Liquid Crystalline Mesophases of Cellulose Nanocrystals David Attia 1, Evgenee Yekymov 1, Yulia Shmidov 1, Yael Levi-Kalisman 2, Orit Mendelson 3, Ronit Bitton 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.	A 6.2

12:00	Optical properties of SWCNT membranes: towards new applications for study and imaging of single nanoparticles Zhigunov D.M., Shilkin D.A., Kokareva N.G., Bessonov V.O., Dyakov S.A., Chermoshentsev D.A., Mkrtychyan A.A., Gladush Yu.G., Fedyanin A.A., Nasibulin A.G. Zhigunov D.M., Dyakov S.A., Chermoshentsev D.A., Mkrtychyan A.A., Gladush Yu.G., Nasibulin A.G. ? Skolkovo Institute of Science and Technology, Moscow, Russia, Shilkin D.A., Kokareva N.G., Bessonov V.O., Fedyanin A.A. ? Faculty of Physics, M. V. Lomonosov Moscow State University, Moscow, Russia, Bessonov V.O. ? Frumkin Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Russia, Chermoshentsev D.A. ? Moscow Institute of Physics and Technology, Russia, Nasibulin A.G. ? Department of Chemistry and Materials Science, Aalto University, Finland.	A 6.3	15:30	Solvent-free Self-template Synthesis of Cobalt-Embedded Nitrogen-Rich Carbon 2D Nanosheets for Efficient Oxygen Reduction Reacti Shuai Chen, Qingchao Xu, Haizhen Sun, Dongmei Huang, Xili Tong* tongxili@sxicc.ac.cn, shuaichen@sxicc.ac.cn	A P1.9
			15:30	MnOOH nanorods decorated expanded graphite toward enhanced electrochemical monitoring of metronidazole Xiaomin Hu,a Yuanyuan Zhang,a Ting Zeng,a Qijin Wan,a Nianjun Yang,b a School of Chemistry and Environmental Engineering, Key Laboratory of Green Chemical Engineering Process of Ministry of Education, Hubei Key Lab of Novel Reactor and Green Chemical Technology, Wuhan Institute of Technology, Wuhan 430073, China□ b Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany * Corresponding Author, * E-mail address: yzhang@wit.edu.cn	A P1.10
12:15	Non-covalent functionalization of Double-Walled Carbon Nanotubes to improve their electro co-deposition within copper Mauricio Pavia, Mélanie Emo, Fahad Alnjiman, Jean-François Pierson, Emmanuel Flahaut, Brigitte Vigolo, Ewa Kazimierska Université de Lorraine, CNRS, Institut Jean Lamour, F-54000 Nancy, France, Université de Lorraine, CNRS, Institut Jean Lamour, F-54000 Nancy, France, Université de Lorraine, CNRS, Institut Jean Lamour, F-54000 Nancy, France, Université de Lorraine, CNRS, Institut Jean Lamour, F-54000 Nancy, France, CIRIMAT, Université de Toulouse, CNRS, F-31062 Toulouse, France, Université de Lorraine, CNRS, Institut Jean Lamour, F-54000 Nancy, France, Swansea University, Energy Safety Research Institute (ESRI), SA1 8EN Swansea, Wales, UK.	A 6.4	15:30	Atomistic Insights into Electrochemical Metallization Jad Jaafar Imperial College London	A P1.11
12:30	Discussion		15:30	A diamond/grapene/diamond electrode for waste water treatment Yibao Wang,Fengxiang Guo,Mei Zhang,Lili Zhang,Guangsen Xia,,Xueyu.Zhang*,Zhigang Gai*,Xin Jiang Faculty of Ocean Technology Sciences Qilu University of Technology (Shandong Academy of Sciences) Qingdao 266100, P. R. China	A P1.12
12:45	Lunch and Plenary		15:30	Graphene multilayers produced by magnetron sputtering technique B. Bitai,2, F. Baiasu,1,2, C.E.A. Grigorescu3, S. Iordache3, A. Groza1 1 National Institute for Laser, Plasma and Radiation Physics, Magurele, 077125, Romania 2 University of Bucharest, Faculty of Physics, Magurele, 077125, Romania 3 National Institute of R&D for Optoelectronics, INOE 2000, 409 Atomistilor, 077125, Magurele, Jud. Ilfov, Romania	A P1.13
15:00	Coffee		15:30	Enhanced capacitive deionization performance of activated carbon derived from sucrose with low content carbon nanotube additive Plakantonaki, N. *(1, 2), Vagenas, M.(1), Todorova, N.(1), Giannakopoulou, T.(1), Karakassides, M.(2), Trapalis, C.(1) (1) Institute of Nanoscience and Nanotechnology, National Centre for Scientific Research "Demokritos", 15341, Greece (2) Department of Materials Science and Engineering, University of Ioannina, 45110, Greece * lead presenter	A P1.14
	1 : N. YANG, J.-C. ARNAULT, A. KUMATANI, H.-M. CHENG		15:30	Laser-synthesised micro-structured MoS2 nanolayers Salimon I.A *(1), Averchenko A.V. (1), Zharkova E. V. (1), Abbas O.A. (1), Lagoudakis P. G. (1), and Mailis S. (1) (1) Skolkovo Institute of Science and Technology, Moscow, 121205, Russian Federation	A P1.15
15:30	Tracking the oxidation processes of triclosan in the environmental samples by electrochemical studies at boron doped electrodes Iwona Kaczmarzyk*(1), Paweł Jakóbczy(1), Paweł Rostkowski(2), Jacek Ryl(1), Robert Bogdanowicz(1) (1) Gdansk University of Technology, Narutowicza 11/12, 80-233 Gdansk, Poland (2) Norwegian Institute for Air Research, Instituttveien 18, 2007 Kjeller, Norway	A P1.1	15:30	PLD of ferroelectric HfO2 thin films I.A. Bercea1, M. L. Ciurea2, A.M. Lepadatu2, M. Dragoman3. M. Filipescu1, V. Ion1, A. Moldovan1, G. Dinescu1, V.A. Maraloiu2, V.S. Teodorescu2, Maria Dinescu1* 1 National Institute for Laser, Plasma and Radiation Physics, Atomistilor 409, 77125 Magurele, Romania 2National Institute of Material Physics, Atomistilor 405 A, 77125 Magurele, Romania 3National Institute for Research and Development in Microtechnologies - IMT, Str. Erou Iancu Nicolae, Nr. 126 A, Voluntari, Ilfov, Romania	A P1.16
15:30	Fabrication and activation of 3D printed poly(lactic acid) structures supplied with carbon fillers for electroanalytical appli Mateusz Cieslik1*, Krzysztof Formela1, Robert Bogdanowicz1, Mariusz Banasiak1, Srinivasu Kunuku, and Jacek Ryl1 1 Gdansk University of Technology, Narutowicza 11/12, 80-233 Gdansk, Poland *mateusz.cieslik@pg.edu.pl	A P1.2	15:30	Green synthesis of paper-like nanohybrids: graphene oxide and carbon nanotubes decorated with silver nanoparticles Rodríguez-Otamendi, D.I.*(1), Basiuk, V.A. (2), Rudolf, P. (1) & Basiuk, E.V. (3). (1) Zernike Institute for Advanced Materials, University of Groningen, The Netherlands, (2) Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, Mexico, (3) Instituto de Ciencias Aplicadas y Tecnología, Universidad Nacional Autónoma de México, Mexico.	A P1.18
15:30	Laser-Scribed Graphene Electrodes on Nail Polish for Electrochemical Sensing Applications Na Zhang, Chengguo Hu* College of Chemistry and Molecular Sciences, Wuhan University, Wuhan 430072, China	A P1.3	15:30	Carbon-based monoliths with improved thermal and mechanical properties for methane storage Snezana Reljic, Manuel Martinez Escandell, Joaquin Silvestre-Albero Laboratory of Advanced Materials, Department of Inorganic Chemistry, University of Alicante, Spain	A P1.19
15:30	RPNSs/SWNTs network architecture based paper sensor array and analytical application Lingbo Liu, Kangbing Wu* Key Laboratory for Material Chemistry of Energy Conversion and Storage, Ministry of Education, School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan 430074, China	A P1.5	15:30	Nanoscale Thermometry for Theranostic with Fluorescent Nanodiamonds Yingke Wu, Md Noor A Alam, Priyadarshini Balasubramanian, Fedor Jelezko, Tanja Weil Yingke Wu, Md Noor A Alam, Tanja Weil Max Planck Institute for Polymer Research, Ackermannweg 10, 55128 Mainz, Germany, Priyadarshini Balasubramanian, Fedor Jelezko Institute for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, 89081 Ulm, Germany	A P1.20
15:30	Electrochemically Functionalized Graphene for Highly-sensitive detection of Nitrofurazone Jiaxi Yin, Kangbing Wu* Hubei Key Laboratory of Bioinorganic Chemistry and Materia Medica, School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan 430074, China	A P1.6			
15:30	Exfoliated preparation and sensing application of Ti3C2Tx MXenes by different quaternary ammonium hydroxide Ling Lei, Kangbing Wu Hubei Key Laboratory of Bioinorganic Chemistry and Materia Medica, School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan 430074, China.	A P1.8			

15:30	Solvothermal synthesis of graphene oxide-lanthanide nanohybrids Acevedo-Guzmán, D.A.*(1),(2), Basiuk, E.V.(1), Rudolf, P.(2) & Basiuk, V.A.(3). (1)Instituto de Ciencias Aplicadas y Tecnología, Universidad Nacional Autónoma de México, Mexico, (2)Zernike Institute for Advanced Materials, University of Groningen, The Netherlands, Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, Mexico, (3)Instituto de Ciencias Nucleares, Universidad Autónoma de México, Mexico	A P1.21
15:30	Phosphorene-gold nanopartilces based aptasensor for the detection of bisphenol analogues in complicated environment Siqi Wu, Siyao Liu, Guohua Zhao* School of Chemical Science and Engineering, Tongji University	A P1.22
15:30	Boron-doped Diamond Anode Coupled High-index Co3O4 Cathode for Boosting Photoelectrochemical Degradation of Dimethyl Phthalates Junzhuo Cai, Guohua Zhao School of Chemical Science and Engineering, Shanghai Key Lab of Chemical Assessment and Sustainability, Tongji University, Shanghai 200092, China	A P1.23
15:30	Highly efficient and selective electrooxidation of Tetrahydroisoquinoline and simultaneous hydrogen production Yanan Xie, Zhaoyu Zhou, Lingzhi Sun, Xun Pan, Guohua Zhao* Yanan Xie, Zhaoyu Zhou, Lingzhi Sun, Xun Pan, Guohua Zhao* School of Chemical Science and Engineering Shanghai Key Lab of Chemical Assessment and Sustainability Tongji University Shanghai 200092, China	A P1.24
15:30	MOF-derived Fe-Ni bimetallic site catalysts for efficient electrocatalysis of NRR Jie Sun, Weiqi Gao, Honghan Fei*, Guohua Zhao* School of Chemical Science and Engineering, Shanghai Key Lab of Chemical Assessment and Sustainability, Tongji University, Shanghai 200092, People's Republic of China.	A P1.25
15:30	Coupling of Single-crystal Diamond Resonators with Various Interlayers for High-performance Magnetic Sensor Zilong Zhang*, Liwen Sang, Yasuo Koide, Satoshi Koizumi and Meiyong Liao National Institute for Materials Science, Japan	A P1.26
15:30	Green synthesis of paper-like nanohybrids: graphene oxide and carbon nanotubes decorated with silver nanoparticles Rodríguez-Otamendi, D.I.*(1), Basiuk, V.A. (2), Rudolf, P. (1) & Basiuk, E.V. (3). (1) Zernike Institute for Advanced Materials, University of Groningen, The Netherlands, (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	A P1.27
15:30	Nitrogen doped Carbon Nanowalls as Microporous Layers in PEM Fuel Cells Alexandra M.I. Trefilov 1, Bogdan I. Bită 1, Sorin Vizireanu 1, Adriana Andronie 2, Gheorghe Dinescu 1 1. National Institute for Laser, Plasma and Radiation Physics - INFLPR, Magurele-Ilfov, Romania 2. University of Bucharest, 3 Nano-SAE Research Centre, Bucharest, Romania	A P1.28
15:30	Study of residual hydrogen in carbon films and nanoclusters synthesised by pulsed laser deposition Petr Shvets, Alexey Grunin, Alexander Goikhman REC «Functional Nanomaterials» Immanuel Kant Baltic Federal University	A P1.29

Wednesday June 1

Physical Properties of Carbon Materials : H.-M. CHENG, N. YANG, A. Kumatani

09:00	INV High-Performance Graphene and h-BN Materials for Thermal Management Hui-Ming Cheng 1 Shenyang National Laboratory for Materials Sciences, Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, P. R. China 2 Faculty of Materials Science and Engineering / Institute of Technology for Carbon Neutrality, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen 518055, P. R. China	A 7.1
09:30	Charge transport physics of a unique class of high-performance rigid-rod conjugated polymers M. Xiao, R. L. Carey, H. Chen, X. Jiao, V. Lemaire, S. Schott, M. Nikolka, C. Jellett, A. Sadhanala, S. Rogers, S. P. Senanayak, A. Onwubiko, S. Han, Z. Zhang, M. Abdi-Jalebi, Y. Zhang, T. H. Thomas, N. Mahmoudi, L. Lai, E. Selezneva, X. Ren, M. Nguyen, Q. Wang, I. Jacobs, W. Yue, C. R. McNeill, G. Liu, D. Beljonne, I. McCulloch, H. Sirringhaus Optoelectronics Group, Cavendish Laboratory, JJ Thomson Avenue, Cambridge CB3 0HE, UK.	A 7.2
09:45	Direct-write Formation of Integrated Bottom Contacts to Laser-Induced Graphene-like Carbon Richard Murray, Orla O'Neill, Eoghan Vaughan, Daniela Iacopino, Alan Blake, Colin Lyons, Dan O'Connell, Joe O'Brien and Aidan J. Quinn Tyndall National Institute	A 7.3
10:00	INV Quantum sensing with hyperpolarized nuclei Ashok Ajoy University of California, Berkeley	A 7.4
10:30	Discussion	
10:45	Coffee	
	Bioapplications I : J.-C. ARNAULT, Q. LI	
11:00	INV Nanothermometry—sensing with nitrogen vacancy centers in diamond Quan Li Department of Physics, The Chinese University of Hong Kong	A 8.1
11:30	Detection and Manipulation of Intracellular Motion at Nanoscale Precision Using Nanodiamond Complexes Yingke Wu, Zuyuan Wang, Priyadharshini Balasubramanian, Md Noor A Alam, Fedor Jelezko, Tanja Weil Dr. Y. Wu, M. N. A. Alam, Prof. Dr. T. Weil Max Planck Institute for Polymer Research, Ackermannweg 10, 55128 Mainz, Germany, Dr. Z. Wang Institute for Measurement and Automation, Division of Sensor Technology and Measurement Systems, Bundeswehr University Munich, Werner-Heisenberg-Weg 39, 85579 Neubiberg, Germany, Dr. P. Balasubramanian, Prof. Dr. F. Jelezko Institute for Quantum Optics, Ulm University, Albert-Einstein-Allee 11, 89081 Ulm, Germany	A 8.2
11:45	Nanodiamond modified membranes for virus capture Henry A. Bland ¹ , Isabella A. Centeleghe ² , Soumen Mandal ¹ , Evan L. H. Thomas ¹ , Jean-Yves Maillard ² , and Oliver A. Williams ¹ ¹ School of Physics and Astronomy, Cardiff University, Cardiff CF24 3AA, United Kingdom ² School of Pharmacy and Pharmaceutical Sciences, Cardiff University, Cardiff CF10 3NB, United Kingdom	A 8.3
12:00	INV Design and Application of Nanodiamond Sensors in Biology Wu, Y., Liang, J., Ender, C.P., Weil, T.* Max Planck Institute for Polymer Research, Mainz, Germany	A 8.4
12:30	Discussion	
12:45	Lunch and Plenary	
15:00	Coffee	

15:30	INV Carbon-Based Nanoparticles for Cancer Theranostics: From Fundamental Chemistry to Advanced Biomedicine Naoki Komatsu Kyoto University	A 9.1
16:00	Fluorescent Carbon Dots for bio-imaging and enhanced light harvesting Jingyi Wang (1,2), Luz Carime Gil Herrera (1,2), Ayse Ay(3), Isik Arel(3), Ozge Akbulut(3) and Ahu Gümrah Dumanli(1,2) 1 Department of Materials, The University of Manchester, Manchester, M13 9PL, 2 Henry Royce Institute, The University of Manchester, Oxford Road, Manchester, M13 9PL, 3 Faculty of Engineering and Natural Sciences, Sabanci University, Tuzla, Istanbul 34956, Turkey.	A 9.2
16:15	One-pot preparation of amino acids-doped carbon nanostructures as fluorescent pH sensors Giovanni Ferraro, Vanessa Susini, Veronica Lucia Rossi, Antonio Sanesi, Emiliano Fratini Giovanni Ferraro: Department of Chemistry "Ugo Schiff" and CSGI, University of Florence, via della Lastruccia 3-Sesto Fiorentino, Florence, Italy Vanessa Susini: Department of Translational Research and of New Surgical and Medical Technologies, University of Pisa, via Savi 10, Pisa, Italy Veronica Lucia Rossi: bioMérieux Italia Spa, Via di Campigliano, 58, 50012, Bagno a Ripoli, Florence, Italy Antonio Sanesi: bioMérieux Italia Spa, Via di Campigliano, 58, 50012, Bagno a Ripoli, Florence, Italy Emiliano Fratini: Department of Chemistry "Ugo Schiff" and CSGI, University of Florence, via della Lastruccia 3-Sesto Fiorentino, Florence, Italy	A 9.3
16:30	Tailored Carbon Nanomaterial Interfaces for Electrocatalysis, Electroanalysis and Microbial Fuel Cell Applications James A. Behan, Adam Myles, Alessandro Iannaci, Eoin M. Scanlan, Paula E. Colavita and Frédéric Barrière 1 - Institut des Sciences Chimiques de Rennes, Université de Rennes 1, Rennes, France 2 - School of Chemistry and CRANN, Trinity College Dublin, Ireland	A 9.4
16:45	Applying NV center-based quantum sensing to study intracellular free radical response upon viral infections Kaiqi Wu, Thea A. Vedelaar, Viraj G. Damle, Izabella Rodenhuis- Zybterd and Romana Schirhagl 1. Department of Biomedical Engineering, University of Groningen, University Medical Center Groningen, Groningen, 9713AV The Netherlands 2. Department of Medical Microbiology and Infection Prevention, University of Groningen, University Medical Center, Groningen, 9713AV The Netherlands	A 9.5
17:00	INV Carbon Quantum Dots for Nanomedical Applications: Inhibition of Viral Infections to Treatment of Eye Diseases Sabine Szunerits Institut d'Electronique, de Microélectronique et de Nanotechnologie (IEMN), UMR CNRS 8520, University of Lille, Avenue Poincaré-BP 60069, 59652 Villeneuve d'Ascq, France	A 9.6
17:30	Discussion	
18:00	E-MRS EU-40 Materials Prize & MRS Mid-Career Researcher Award Presentations	

09:00	INV Fabrication of Carbon-based Functional Materials with Tuning Structures for High-performance Energy Storage Devices Juan Yang1*, Siyu Liu1, and Jiashan Qiu2 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.	A 10.1
09:30	Processing of CNT/inorganic hybrid electrodes via rapid Joule heating Upama, Shegufita T.* (1, 2), Mikhailchan, Anastasiia (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	A 10.2
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	A 10.3
10:00	Copper sulphide-reduced graphene oxide aerogels for rechargeable batteries María 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	A 10.4
10:15	Fast Generation of Hydroxyl Radicals by Rerouting the Electron Transfer Pathway via Constructed Chemical Channels during the Pho Jinxing Zhang, Zhaoyu Zhou, Zhiyuan Feng, Hongying Zhao, Guohua Zhao Tongji University	A 10.5
10:30	Discussion	
10:45	Coffee	
	Photo(electro)catalysis I : A. KUMATANI, Z. KANG	
11:00	INV Carbon Dots Promise New Photoelectrocatalysts Zhenhui Kang 1Institute of Functional Nano and Soft Materials (FUNSOM), Soochow University, Suzhou 215123, China. 2Macao Institute of Materials Science and Engineering, Macau University of Science and Technology, Taipa 999078, Macau SAR, China.	A 11.1
11:30	Photoinduced charge separation in self-assembled Carbon dot-Plasmonic functional nano hybrids 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,	A 11.2
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	A 11.3
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	A 11.4

12:15	Construction of 3D TiO₂ with multilevel facet heterojunction for High Efficient Photoelectrocatalytic Oxidation of Bisphenol A Yiqiong Hu, Yanan 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	
	Photo(electro)catalysis II : A. KUMATANI, C. A. MARTINEZ-HUITLE	
15:30	INV Electrosynthesis of sulfate-based oxidizing species using boron doped diamond with simultaneous green hydrogen production Jéssica P. P. Barreto, Marco A. Quiroz, Danyelle M. de Araújo, Djalma R. da Silva, Edney Rafael Viana Pinheiro Galvão, Elisama Vieira dos Santos, Carlos A. Martínez-Huitle Instituto de Química, Universidade Federal do Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil	A 12.1
16:00	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
16:15	Materials based on carbon dots for photocatalytical and photoelectrocatalytical applications GUREL, A* (1), SCHAMING, D (1) (1) Université de Paris ITODYS CNRS UMR 7086, France * lead presenter	A 12.3
16:30	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
16:45	Nanoscale Electrochemical Imaging on Carbon Nanomolecular Structures C. Miura, A. Kumatani, Y. Horiguchi, Hida, T. Matsue, J. Umeda, K. Kondoh Tohoku University, Osaka University	A 12.5
17:00	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), Mas-Marzá, E (1). (1) Group of Advances Materials and Energy, Institute of Advanced Materials, Universitat Jaume I, Spain.	A 12.6
17:15	Discussion	

Friday June 3

Electrochemistry and Sensing Applications : H.-M. CHENG, A. KUMATANI

09:00	INV 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 Giridharan Krishnamurthy, ^b Xin Jiang, ^a Ken Haenen, [*] Nianjun Yang ^{*,a} ^a Institute of Materials Engineering, University of Siegen, 57076 Siegen, Germany ^b Institute for Materials Research (IMO), 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 Filcroft, J. M. (1,2), Nagaraja, T. (3), Das, S.(3), Chauvet, A.(1), Martsinovich, 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	Photosensitive stamp inspired scalable fabrication strategy of wearable sensing arrays for noninvasive real-time sweat analysis Junxing Hao ¹ , Zeqiang Zhu ³ , Chengguo Hu ² , Zhihong Liu ^{1,2,*} ¹ College of Chemistry and Chemical Engineering, Hubei University, 430062 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	β-cyclodextrin Functionalization of rGO for development of chemiresistive Lead (II) Sensing Madhurima Deb, Sumit Saxena, Rajdip Bandyopadhyaya and Shobha 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, Nanostructures Engineering and Modeling Laboratory, Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, MH 400076, 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, Nanostructures Engineering and Modeling Laboratory, Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, MH 400076, 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 Buijnsters Laboratoire PIIM, Aix-Marseille Université, CNRS, IM2NP, Universités d'Aix Marseille et de Toulon, CNRS, Department of Precision and Microsystems Engineering, Delft University of Technology,	A 14.1

- 11:15** **Non-destructive methodologies based on Raman spectroscopy for monitoring the graphene oxide hydrogenation process** **A 14.2**
 Robert Fonoll-Rubio, Rafael Mayer, 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, Graphenea SA, Mikeletegi 83, 20009, San Sebastián, Spain, Graphenea SA, Mikeletegi 83, 20009, San Sebastián, Spain, ICFO - Institut de Ciències Fotòniques, The Barcelona Institute of Science and Technology, 08860 Castelldefels, 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.** **A 14.3**
 R. Meyer 1, F. Stock 1, F. Antoni 1, F.Z. Lahboub 1, S. Hajjar-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** **A 14.4**
 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** **A 14.5**
 Del Sole, R.(1)*, Fracassi, F.(1)(2), Palumbo, F.(1), Milella, A.(1)(2)
 (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** **A 14.6**
 Macadam, N. * (1), Ng, L.W.T. (1, 2), Hu, G. (1, 3), Shi, H. H. (4, 5), Wang, W. (4, 5), Zhu, X. (1), Ogbeide, O. (1), Liu, S. (1), Yang, Z. (1, 6), Howe, R.C.T. (1), Jones, C. (7), Huang, Y.Y.S. (4, 5), Hasan, T. (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**