Oral programme

Sunday, 02 September 2018	
14:30-19:00	Registration | Elafiti foyer
Room	Elafiti 1 & 2
15:00-16:30	**DCM Tutorial** **Chair:** K. Haenen, *Hasselt University and IMEC vzw, Belgium*
15:00-16:30	**[Tutorial] Epitaxial growth of diamond: Basic concepts, specific problems & appropriate characterization tools** M. Schreck, *University of Augsburg, Germany*
16:45-17:45	Materials Today Publishing Seminar
17:45-19:00	Welcome reception | Elafiti foyer
Monday, 03 September 2018	
Room	Elafiti 1 & 2
08:45-08:55	Opening address- Welcome: K. Haenen, *Hasselt University and IMEC vzw, Belgium*
08:55-10:15	**Session 1: Plenary** **Chair:** K. Haenen, *Hasselt University and IMEC vzw, Belgium*
08:55-09:35	**[Keynote 1] CVD diamond growth: How to meet our expectations?** P. Bergonzo, *Seki Diamond Systems, USA*
09:35-10:15	**[Keynote 2] Growth of singled-walled carbon nanotubes array with chirality controlled** J. Zhang, *Peking University, China*
10:15-10:45	**Refreshment break | Elafiti 3 & 4**
Room	Elafiti 1 & 2
10:45-12:50	**Focused Session 2: Carbon Materials for Neurointerfacing Applications** **Chair:** P. Bergonzo, *Seki Diamond Systems, USA*
10:45-10:50	**Introduction by session chair**
10:50-11:20	**[FS.01] Diamond electrodes for sensing** K. Bennet, *Mayo Clinic, USA*
11:20-11:35	**[O2.1] Evaluation of diamond material for long lifetime neuronal interface** P.G.L. Gonzalez Losada[1], D.N. Nguyen[2], E.S. Scorsone[3], G.L. Lissorgues[1], S.P. Picaud[3], P.B. Bergonzo[1], L.R. Rousseau*[1], *[1]Université Paris-Est, ESYCOM, ESIEE-Paris, France, [2]INSERM, U968, Institut de la Vision, France, [3]CEA-LIST, Diamond Sensors Laboratory, France*
11:35-11:50	**[O2.2] Diamond coated carbon fibre structures for biomedical applications** J. Orwa*[1], K. Sears[2], J. Schutz[2], A. Stacey[3,4], L. Hyde[5], Q. Li[1], M. Naebe[1], *[1]Deakin University, Australia, [2]CSIRO, Australia, [3]Melbourne Centre for Nanofabrication, Australia, [4]University of Melbourne, Australia, [5]Swinburne University of Technology, Australia*
11:50-12:05	**[O2.3] Detonation nanodiamonds as smart coating materials for biomedical devices** S. Balakin*[1,3], J. Lee[2], D. In[2], L. Römhildt[3], J. Opitz[3], G. Cuniberti[1], J-S. Yeo[2], *[1]Technische Universität Dresden, Germany, [2]Yonsei University, Republic of Korea, [3]Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany*
12:05-12:20	**[O2.4] Nanodiamonds as SEP a platform for skeletal tissue regeneration** D. Paschou*, A.C. Taylor, P. Ferreti, R.B. Jackman, *University College London, UK*
12:20-12:50	**[FS.02] Flexible solution-gated graphene field-effect transistor arrays: an efficient tool for *in vivo* mapping of the neural activity** C. Hébert, *Catalan Institute of Nanoscience & Nanotechnology, Spain*
12:50-14:15	**Lunch**
Room	Elafiti 1 & 2
14:15-15:45	**Session 3: Graphene Growth** **Chair:** T. Susi, *Universität Wien, Austria*
14:15-14:45	**[Inv.01] Real-time imaging of adatom-promoted graphene growth on nickel** C. Africh, *IOM-CNR Laboratorio TASC, Italy*
14:45-15:00	**[O3.1] "Snowing" graphene using microwave ovens** Y.Y. Sun*[1], L.W. Yang[1], K.L. Xia[3], H.Z. Liu[2], D. Han[2], Y.Y. Zhang[3], J. Zhang[1,2], *[1]Peking University, China, [2]Beijing Graphene Institute, China, [3]Tsinghua University, China*

15:00-15:15	**[O3.2] Layer-by-layer graphene growth on SiC/Si (001) wafers** V.Y. Aristov[1,2], A.N. Chaika*[2,3], O.V. Molodtsova[1,4], S.V. Babenkov[1,5], A. Locatelli[6], T.O. Mentes[6], A. Sala[6,7], B.E. Murphy[3], I.V. Shvets[3], *[1]Deutsches Elektronen-Synchrotron DESY, Germany, [2]Institute of Solid State Physics of the Russian Academy of Sciences, Russia, [3]CRANN, Trinity College Dublin, Ireland, [4]National Research University of Information Technologies, Mechanics and Optics, Russia, [5]Johannes Gutenberg-Universität, Germany, [6]Elettra-Sincrotrone Trieste S.C.p.A., Italy, [7]University of Trieste and IOM-CNR, Italy*		
15:15-15:30	**Young Scholar Award nominee presentation 1** **[YSA.01] Ordering and electronic structure of graphene doped with boron and nitrogen - Monte Carlo and tight binding study** A. Jamróz*, J.A. Majewski, *University of Warsaw, Poland*		
15:30-15:45	**[O3.3] Synthesis of carbon nitrogen films using photoemission-assisted plasma enhanced CVD using nitrogen diluted methane** S. Hashimoto*, R. Sugimoto, S. Ogawa, Y. Takakuwa, *IMRAM Tohoku University, Japan*		
15:45-16:15	**Refreshment break | Elafiti 3 & 4**		
Room	Elafiti 1 & 2		
16:15-17:45	**Session 4: Diamond Fabrication & Applications** **Chair:** P.W. May, *University of Bristol, UK*		
16:15-16:45	**[Inv.02] Large area/low substrate temperature nanocrystalline diamond film growth and related plasma chemistry** F. Bénédic, *LSPM-CNRS, Université Paris 13, France*		
16:45-17:00	**[O4.1] Room temperature direct bonding of diamond substrate and GaN using the surface activated bonding (SAB) method** T. Suga*, F. Mu, *The University of Tokyo, Japan*		
17:00-17:15	**[O4.2] The combination of diamond devices with Si LSI by surface activated bonding** J.B. Liang*[1], S.S. Masuya[2,1], M.K. Kasu[2,1], N.T. Shigekawa[1], *[1]Osaka City University, Japan, [2]Saga University, Japan*		
17:15-17:45	**[Inv.03] Industrial upscaling of fabrication and application of boron doped CVD diamond electrodes** S. Rosiwal*[1], M. Rüffer[2], H. Ghanem[1], M. Bauer[2], M. Göltz[1], *[1]WTM Friedrich Alexander University Erlangen, Germany, [2]DiaCCon GmbH Fürth, Germany*		
17:45-19:15	**Session 5: Poster session I | Elafiti 3 & 4** **Chairs:** J. Ristein, *Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*; R. Schirhagl, *Rijksuniversiteit Groningen, Netherlands*; E. Scorsone, *CEA/Saclay, France*		
Tuesday, 04 September 2018			
Room	Elafiti 1	Room	Elafiti 2
08:45-10:30	**Session 6A: MOSFET** **Chair:** S. Yamasaki, *National Institute of Advanced Industrial Science and Technology (AIST), Japan*		**Session 6B: Carbon Biomaterials** **Chair:** K.E. Bennet, *Mayo Clinic, USA*
08:45-09:15	**[Inv.04] Enhancement-mode hydrogenated diamond MOSFETs** J. Liu*, M. Liao, M. Imura, Y. Koide, *National Institute for Materials Science (NIMS), Japan*	08:45-09:00	**[O6B.1] Tracking nanodiamonds movemenets in living cells** T. Hamoh*, L. Nie, R. Schirhagl, *Groningen University, The Netherlands*
		09:00-09:15	**[O6B.2] We can put diamonds in cells, but what's next?** A. Morita, A. Sigaeva, S.R. Hemelaar, M. Chipaux, F.P. Perona Martinez, R. Schirhagl*, *Groningen University, The Netherlands*

09:15-09:30	**Young Scholar Award nominee presentation 2** **[YSA.02] Diamond deep depletion metal oxide semiconductor field effect transistor (D3MOSFET) for power electronics** C. Masante*[1], J. Pernot[1], J. Letellier[1], D. Eon[1], N. Rouger[2], *[1]Univ. Grenoble Alpes, France, [2]LAPLACE, Université de Toulouse, France*	09:15-09:30	**Young Scholar Award nominee presentation 3** **[YSA.03] Nanodiamonds for gene delivery: chemical design and biological interaction studies** S. Alwani*, R. Rai, N. Hua, D. Michel, R.E. Verrall, C. Karunakaran, J. Chitanda, L. Sobchishin, N. Appathurai, I. Badea, *University of Saskatchewan, Canada*
09:30-09:45	**[O6A.1] Improvement of performance of NO_2-doped H-diamond FET by using Au gate metal** N.C. Saha, M. Kasu*, *Saga University, Japan*	09:30-10:00	**[Inv.05] Diamond as a material for stem cell regenerative medicine** A.C. Taylor[1,2], *[1]University College London, UK, [2]Okinawa Institute of Science and Technology, Japan*
09:45-10:00	**[O6A.2] Enhancement of breakdown voltage of H-terminated diamond FETs with field-plate structure** T. Okamura, M. Inaba, S. Kishimoto, Y. Ohno*, *Nagoya University, Japan*		
10:00-10:15	**[O6A.3] Optimization of diamond/alumina interfaces for diamond-based MOSFETs by TEM and DFT calculations** M. Gutiérrez*[1], A. Sánchez-Coronilla[2], J. Cañas[1], J. Navas[1], F. Lloret[1], T. Pham[3], D. Eon[3], J. Pernot[3], D. Araujo[1], *[1]University of Cadiz, Spain, [2]University of Seville, Spain, [3]University of Grenoble Alpes, France*	10:00-10:30	**[Inv.06] Single carbon nanotubes imaging reveals brain tissue features at the nanoscale** L. Cognet, *University of Bordeaux, France*
10:15-10:30	**[O6A.4] Diamond field-effect transistors fabricated on high-quality heteroepitaxial diamond wafers treated by chemical mechanical polishing technology** M. Kasu*[1], D. Fujii[2], S. Masuya[1], T. Oishi[1], S. Kim[2], *[1]Saga University, Japan, [2]Adamant Namiki Precision Jewel Co., Ltd., Japan*		
10:30-11:00	**Refreshment break | Elafiti 3 & 4**		
Room	Elafiti 1	Room	Elafiti 2
11:00-12:30	**Session 7A: Photonics** **Chair:** P. Reineck, *RMIT University, Australia*		**Session 7B: Graphene-based Applications** **Chair:** C. Hébert, *Catalan Institute of Nanoscience & Nanotechnology (ICN2), Spain*

11:00-11:15	**[O7A.1] Silicon vacancy centers light emission rerouted into vertical direction via leaky modes of a photonic crystal slab** L. Ondic, M. Varga, J. Fait*, K. Hruška, *Institute of Physics, CAS, Czech Republic*	11:00-11:30	**[Inv.07] Graphene and 2D nanoporous aromatic membranes: From biomolecular detection to reverse osmosis** G.F. Schneider, *Leiden University, The Netherlands*
11:15-11:30	**[O7A.2] Diamond-based VECSELS for energy and data transmission** A. Mereuta[1], E. Kapon[1], A. Kaliman[2], N. Malpiece[2], M. Naamoun*[2], D. Rats[2], P. Gallo[2], *[1]Laboratory of Physics of Nanostructures, EPFL, Switzerland, [2]LakeDiamond SA, Switzerland*		
11:30-11:45	**[O7A.3] Diamond photonic structures for integration of color centers** N. Felgen[1], T. Jaffe[2], B. Naydenov[3], A. Schmidt[1], J.P. Reithmaier[1], M. Orenstein[2], F. Jelezko[3], C. Popov*[1], *[1]University of Kassel, Germany, [2]Technion - Israel Institute of Technology, Israel, [3]University of Ulm, Germany*	11:30-11:45	**[O7B.1] Stem cell behavior control by surface wave plasma CVD graphene attached on PDMS** M. Ban*[1], M. Ishihara[2], Y. Okikawa[2], M. Hasegawa[2], *[1]Nippon Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology (AIST), Japan*
11:45-12:00	**Young Scholar Award nominee presentation 4** **[YSA.04] Controlled formation of colour centres in single crystal diamond needles** S.A. Malykhin*[1,2], R.R. Ismagilov[1], A.S. Orekhov[3], E.A. Obraztsova[4], A.N. Obraztsov[1,2], *[1]Lomonosov Moscow State University, Russia, [2]University of Eastern Finland, Finland, [3]National Research Center Kurchatov Institute, Russia, [4]Institute of Bioorganic Chemistry RAS, Russia*	11:45-12:00	**[O7B.2] Graphene-based gas sensors detecting NO_2 at high temperature** F. Ricciardella*[1], S. Vollebregt[1], R. Sokolovskij[2], E. Iervolino[3], J. Zhang[4], H. Yu[3], G.Q. Zhang[1], P.M. Sarro[1] *[1]Delft University of Technology, The Netherlands, [2]State Key Laboratory of Solid State Lighting, China, [3]Southern University of Science and Technology, China, [4]Fudan University, China*

12:00-12:15	**[O7A.4] Formation and photoluminescence of GeV color centers in diamond films doped by adding germane GeH_4 to CH_4-H_2 microwave plasma** V. Sedov*[1], A. Martyanov[1], V. Krivobok[2], S. Nikolaev[2], A.A. Khomich[1,3], K. Boldyrev[4], O. Kudryavtsev[1], A. Bolshakov[5,1], V. Ralchenko[5,1], *[1]General Physics Institute RAS, Russia, [2]Lebedev Physical Institute RAS, Russia, [3]Institute of Radio Engineering and Electronics RAS, Russia, [4]Institute of Spectroscopy RAS, Russia, [5]Harbin Institute of Technology, China*	12:00-12:15	**[O7B.3] Graphene based asymmetric nanostructures for detecting terahertz radiation** G. Fedorov*[1,2], I. Gayduchenko[2,3], N. Titova[1], M. Moskotin[2], E. Obraztsova[4], M. Rybin[4], G. Goltsman[2], V. Ryzhii[5], *[1]Moscow Institute for Physics and Technology (State University), Russia, [2]Moscow State Pedagogical University, Russia, [3]National Research Center "Kurchatov Institute", Russia, [4]Russian Academy of Sciences, Russia, [5]Tohoku University, Japan*
12:15-12:30	**[O7A.5] Effect of Si, Ge and Sn impurities on structure and luminescence of nano- and microdiamonds synthesized from organic compounds** E.A. Ekimov*[1], M.V. Kondrin[1], V.S. Krivobok[1], A.V. Khomich[1], I.I. Vlasov[1], T. Iwasaki[2], M. Hatano[2], *[1]Russian Academy of Sciences, Russia, [2]General Physics Institute, Russia*	12:15-12:30	**[O7B.4] Current-enhanced solid-phase precipitation of multilayer graphene directly on SiO_2** T. Tamura, K. Ueno*, *Shibaura Institute of Technology, Japan*
12:30-14:00	**Lunch**		
Room	Elafiti 1 & 2		
14:00-14:40	**Early career award session** **Chair:** J. Pernot, *CNRS-Université Grenoble Alpes, France*		
14:00-14:40	**[ECR] Thin film diamond devices and applications** S. Mandal, *Cardiff University, UK*		
Room	Elafiti 1	Room	Elafiti 2
14:50-15:50	**Session 8A: Emission** **Chair:** R.J. Nemanich, *Arizona State University, USA*	**14:50-15:50**	**Session 8B: Carbon Composites** **Chair:** B.S. Flavel, *Karlsruhe Institute of Technology, Germany*
14:50-15:05	**[O8A.1] Direct observation of electron emission from CVD diamond grain boundaries by tunnelling AFM independent of surface morphology** R. Harniman[1], P.W. May*[1], O.J. Fox[1], W. Janssen[2,3], S. Drijkoningen[2,3], K. Haenen[2,3], *[1]University of Bristol, UK, [2]Institute for Materials Research (IMO) & IMOMEC, Belgium, [3]Hasselt University & IMEC vzw, Belgium*	14:50-15:05	**[O8B.1] Mechanical properties of CNTs reinforced ceramics nanocomposites** B.K. Jang*[1], K.S. Lee[2], Y.H. Han[3], *[1]Kyushu University, Japan, [2]Kookmin University, Republic of Korea, [3]Wuhan University of Technology, China*
15:05-15:20	**[O8A.2] High field emission current density from carbon nano-flake ball and carbon nanotube hybrid material** P.H. Tsai*, H.Y. Tsai, *National Tsing Hua University, Taiwan*	15:05-15:20	**[O8B.2] Strengthening of carbon nanotube materials by covalent cross-linking: Insights from mesoscopic simulations** A.H. Banna, A.B. Thapa, A.N. Volkov*, *University of Alabama, USA*

15:20-15:35	**[O8A.3] High performance field emission properties of compact field emission device using directly grown carbon nanotube on metal substrate for x-ray imaging** A. Gupta[1], S. Yeo[1,3], J. Jeong[3], H. Park[1], C. Cho[3], S. Paik[3], S. Kim[2], J. Ahn[1], J. Ryu*[1,3], *[1]Kyung Hee University, Republic of Korea, [2]Asan Medical Center, Republic of Korea, [3]CAT Beam Tech co., Ltd, Republic of Korea*	15:20-15:35	**[O8B.3] Thermally-activated surface modification of carbon nanotubes for tuneable nanocomposites** M. Talo[1], M. Karimzadeh*[1], W. Lacarbonara[1], G. Lanzara[2], *[1]Sapienza University of Rome, Italy, [2]University of Roma Tre, Italy*
15:35-15:50	**[O8A.4] Field emission characteristics of pattern-defined CNFB/CNT composite structure grown by two-step MPCVD** Y.H. Chen*, H.Y. Tsai, *National Tsing Hua University, Taiwan*	15:35-15:50	**[O8B.4] Synthesis of nanostructured catalyst supports based on ZrO_2 and graphene** E.A. Trusova*[1], A.N. Kirichenko[2], A.S. Galkin[2], K.V. Polikarpov[3], *[1]Institution of the Russian Academy of Sciences A.A. Baikov Institute of Metallurgy and Materials Science of RAS, Russia, [2]Technological Institute for Superhard and Novel Carbon Materials, Russia, [3]Technological Institute for Superhard and Novel Carbon Materials, Russia, [4]Dmitry Mendeleev University of Chemical Technology of Russia, Russia*
15:50-16:20	**Refreshment break | Elafiti 3 & 4**		
Room	Elafiti 1	Room	Elafiti 2
16:20-18:05	**Session 9A: Monocrystalline Diamond Growth & Characterisation** **Chair:** M. Schreck, *Universität Augsburg, Germany*	**16:20-18:05**	**Session 9B: Carbon-based Devices** **Chair:** G.F. Schneider, *Universiteit Leiden, Netherlands*
16:20-16:35	**[O9A.1] Phosphorus-doping of diamond during HPHT growth for n-type conductivity** S.A. Tarelkin*[1,3], V.S. Bormashov[1,4], M.S. Kuznetsov[1], S.A. Terentiev[1], D.D. Prikhodko[1,2], A.N. Kirichenko[1], A.S. Galkin[1], V.D. Blank[1,2], *[1]Technological Institute for Superhard and Novel Carbon Materials, Russia, [2]Moscow Institute of Physics and Technology, Russia, [3]National University of Science and Technology MISiS, Russia, [4]The All-Russian Research Institute for Optical and Physical Measurements, Russia*	16:20-16:50	**[Inv.08] Probing the diameter limit of single walled carbon nanotubes in SWCNT: Fullerene solar cells** B.S. Flavel, *Karlsruhe Institute of Technology, Germany*
16:35-16:50	**[O9A.2] Heavily phosphorus doping of diamond and the electrical characteristics** S. Koizumi*, T. Shimaoka, T. Teraji, *NIMS, Japan*		

16:50-17:05	**[O9A.3] Thick and large high quality heavily boron doped diamond single crystals synthetized with high oxygen flow at high microwave power density** R. Issaoui[1,3], L. William[1,3], L. Mehmel[1,3], J. Achard*[1,3], A. Valentin[1,3], M-A. Pinault Thaury[2,4], F. Bénédic[1,3], *[1]LSPM-CNRS, France, [2]GEMAC-CNRS, France, [3]Université Paris 13, France, [4]Université de Versailles Saint-Quentin-en-Yvelines, France*	16:50-17:05	**[O9B.1] Vibrational signatures of the Jahn-Teller metal state in expanded fullerides under chemical and physical pressure** K. Kamarás*[1], J. Horváth[1], G. Németh[1], G. Klupp[1], P. Matus[1], F. Capitani[2], F. Borondics[2], *[1]Wigner Research Centre for Physics, Hungary, [2]Synchrotron Soleil, France*
17:05-17:20	**[O9A.4] Thick homoepitaxial diamond (111) film growth** T. Teraji, *National Institute for Materials Science, Japan*	17:05-17:20	**[O9B.2] Probing the surface chemistry of a chemically inert material using diamond colloidal probe force spectroscopy** P. Knittel*, T. Yoshikawa, C.E. Nebel, *Fraunhofer IAF, Institute for Applied Solid State Physics, Germany*
17:20-17:35	**[O9A.5] Doping level and diffusion length extraction of a HPHT diamond substrate using electron beam induced current** C. Masante*[1,2], F. Donatini[1], N. Rouger[3,4], J. Pernot[1,2], *[1]Institut Néel, CNRS, France, [2]Université Grenoble Alpes, France, [3]Université de Toulouse, France, [4]LAPLACE, CNRS, France*	17:20-17:35	**[O9B.3] Manufacture of highly tough graphene oxide fibers by liquid crystal wet-spinning and ex situ polymerization** Y. Kwon*, J. Yoon, W.R. Yu, *Seoul National University, Republic of Korea*
17:35-17:50	**[O9A.6] Relaxation of infrared excitations in a HPHT IIb diamond** S.G. Pavlov*[1], S.A. Tarelkin[2,3], V.S. Bormashov[2,4], *[1]Institute of Optical Sensor Systems, German Aerospace Center, Germany, [2]Technological Institute for Superhard and Novel Carbon Materials, Russia, [3]National University of Science and Technology MISiS, Russia, [4]The All-Russian Research Institute for Optical and Physical Measurements, Russia, [5]FELIX Laboratory, Radboud University, The Netherlands, [6]Russian Academy of Sciences, Russia, [7]Moscow Institute of Physics and Technology, Russia, [8]Humboldt-Universität zu Berlin, Germany*	17:35-17:50	**[O9B.4] Development of high response carbon nanotube gas sensor** Y. Tomita*, S. Inoue, Y. Matsumura, *Hiroshima University, Japan*

17:50-18:05	**[O9A.7] Defect studies in chemical vapor deposited diamond homoepitaxial multilayer structures** O. Loto*[1], T-N. Tran Thi[2], D. Eon[1], E. Gheeraert[1,3], *[1]University Grenoble Alpes, France, [2]European Synchrotron Radiation Facility (ESRF), France, [3]University of Tsukuba, Japan*	16:50-17:05	**[O9B.5] Selective growth of nanocrystalline CVD diamond stamps for imprint lithography** A.F. Sartori[1], B.H.L. Overes[1], M. Tsigkourakos[1,2], P. Fanzio[1], L. Sasso[1], J.G. Buijnsters*[1], *[1]Delft University of Technology, The Netherlands, [2]National Technical University of Athens, Greece*
Wednesday, 05 September 2018			
Room	Elafiti 1 & 2		
08:45-10:15	**Focused Session 10: Carbon for Energy Applications I** **Chair:** N. Yang, *Universität Siegen, Germany*		
08:45-08:50	**Introduction by session chair**		
08:50-09:20	**[FS.03] Photocatalytic reduction via electron emission from diamond thin films and plasmonic diamond heterostructures** R.J. Hamers, *University of Wisconsin-Madison, USA*		
09:20-09:35	**[O10.1] Transient absorption spectroscopy of nanodiamonds in water: direct observation of solvated electrons** F. Buchner*[1], C. Merschjann[1], B. Kiendl[2], A. Venerosy[3], H. Girard[3], J-C. Arnault[3], A. Krueger[2], T. Petit[1], *[1]Helmholtz-Zentrum Berlin, Germany, [2]Universitaet Wuerzburg, Germany, [3]CEA, France*		
09:35-09:50	**[O10.2] Branched TiO2 Nanorod Arrays Coated with Reduced Graphene Oxide for an Efficient Solar Hydrogen Production in Photoelectrochemical Cell** R. Bashiri*, N. Muti Mohamed, U. Shahid, S. Sufian, C. Fai Kait, M. B M Saheed, *Universiti Teknologi PERONAS, Malaysia*		
09:50-10:05	**[O10.3] An ex-situ study of the structure-property relationship in highly efficient carbon nitride photocatalysts for hydrogen evolution** J. Ren*[1,2], N. Meng[3], B. Zhang[3], T. Petit[1], *[1]Helmholtz-Zentrum Berlin für Materialien und Energie, Germany, [2]Freie Universität Berlin, Germany, [3]Tianjin University, China*		
10:05-10:20	**[O10.4] Transition metal functionalized nanodiamond for photocatalytic applications** A. Krueger*[1], B. Kiendl[1], S. Choudhury[2], F. Buchner[2], K. Larsson[3], G. Levitre[4], E. Hadzifejzovic[5], M. Lounasvuori[5,2], A. Venerosy[6], H. Girard[6], *[1]Wuerzburg University, Germany, [2]Helmholtz Zentrum Berlin, Germany, [3]Uppsala University, Sweden, [4]Institut de Chimie des Substance naturelles Gif sur Yvette, France, [5]University of Oxford, UK, [6]CEA Saclay, France*		
10:20-10:50	**Refreshment break | Elafiti 3 & 4**		
Room	Elafiti 1	Room	Elafiti 2
10:50-12:20	**Focused Session 11A: Carbon for Energy Applications II** **Chair:** R.J. Hamers, *University of Wisconsin-Madison, USA*	**10:50-12:20**	**Session 11B: Spectroscopy** **Chair:** A. Hoffman, *Technion-Israel Institute of Technology, Israel*
10:50-11:05	**[O11A.1] Solid-state growth of three-dimensional interconnected nanoporous graphene for lithium-sulfur batteries** L. Lu*, T. Abeln, J. De Hosson, Y. Pei, *University of Groningen, The Netherlands*		**[Inv.09] Spectroscopy and electron-beam manipulation of single impurity atoms in graphene** T. Susi*, M. Tripathi, J.C. Meyer, J. Kotakoski, *University of Vienna, Austria*

11:05-11:20	**[O11A.2] Functionalization of boron-doped diamond with light-harvesting molecules via Sonogashira and CuAAC chemistry towards dye-sensitized solar cells** J. Raymakers*[1], H. Krysova[2], A. Artemenko[3], S.S. Nicley[1], J. Cermak[3], P. Verstappen[1], S. Gielen[1], A. Kromka[3], K. Haenen[1], L. Kavan[2], W. Maes[1], B. Rezek[3,4], *[1]UHasselt, Institute for Materials Research (IMO) & IMEC vzw, IMOMEC, Belgium, [2]J. Heyrovsky Institute of Physical Chemistry, CAS, Czech Republic, [3]Institute of Physics, CAS, Czech Republic, [4]Czech Technical University, Czech Republic*		
11:20-11:35	**[O11A.3] High performance diamond supercapacitors** S. Yu[1], N. Yang*[1], S. Mandal[2], O.A. Williams[2], X. Jiang[2], *[1]University of Siegen, Germany, [2]Cardiff University, UK*	11:20-11:35	**[O11B.1] Manipulation and characterization of defects in graphene** W.Y. Woon[1], H.C. Tsai[1], M.C. Chuang[1], Y.Z. Hong*[1], A. Johansson[2], M. Pettersson[2], C.H. Chen[3], *[1]National Central University, Taiwan, [2]University of Jyväskylä, Finland, [3]National Synchrotron Radiation Research Center, Taiwan*
11:35-11:50	**[O11A.4] Composites obtained by sintering of diamond nanoparticles as a material for a thermoelectric generator** A.P. Meilakhs*[1], E.D. Eidelman[1,2], F.M. Shakhov[1], *[1]Ioffe Institute, Russia, [2]St. Petersburg State Chemical–Pharmaceutical Academy, Russia*	11:35-11:50	**[O11B.2] How to identify graphene** J-K. Lee*, K.P.S.S. Hembram, *Korea Institute of Science and Technology, Republic of Korea*
11:50-12:20	**[FS.04] Application of conductive diamond powders to electrochemical energy devices** T. Kondo, *Tokyo University of Science, Japan*	11:50-12:05	**[O11B.3] Understanding the evolution of carbonaceous species on carbon substrates with secondary electron hyperspectral imaging** K. Abrams*, N. Stehling, C. Rodenburg, *University of Sheffield, UK*
		12:05-12:20	**[O11B.4] Recent developments in soft X-ray absorption spectroscopy of carbon-based nanomaterials** T. Petit*[1], J. Ren[1,2], S. Choudhury[1,2], A. Al-Temimy[1,2], F. Weber[1,2], K. Atak[1], A. Bande[1], *[1]Helmholtz Zentrum Berlin, Germany, [2]Freie Universität Berlin, Germany*
12:20-13:50	**Lunch**		
Room	Elafiti 1 & 2		
13:50-14:20	**Materials Today "Materials in Society" Lecture** **Chair:** J. Pernot, *CNRS-Université Grenoble Alpes, France*		

13:50-14:20	**[Inv.10] Diamond quantum probes for bio-sensing and imaging** D.A. Simpson, *University of Melbourne, Australia*		
Room	Elafiti 1	Room	Elafiti 2
14:30-16:00	**Session 12A: Electrical Transport Properties** **Chair:** K. Kamarás, *HAS-Wigner Research Centre for Physics, Hungary*	**14:30-16:00**	**Session 12B: DLC** **Chair:** J.G. Buijnsters, *Delft University of Technology, Netherlands*
14:30-15:00	**[Inv.11] Granular superconductivity in boron-doped nanocrystalline diamond films** G.M. Klemencic*[1], J.M. Fellows[2], J.M. Werrell[1], S. Mandal[1], S.R. Giblin[1], R.A. Smith[3], O.A. Williams[1], *[1]Cardiff University, UK, [2]University of Bristol, UK, [3]University of Birmingham, UK*	14:30-14:45	**[O12B.1] Optical measure of disorder: Why Urbach analysis works for amorphous silicon but fails for amorphous carbon** D.V. Tsu*[1], T. Schuelke[2], J. Slagter[1], *[1]Mackinac Technology Company, USA, [2]Fraunhofer USA, Inc, USA*
		14:45-15:00	**[O12B.2] New generation diamond-like carbon based low-emissivity coatings** M. Babayigit Cinali*[1], O. Duyar Coskun[1], B. Kaftanoglu[2], *[1]Hacettepe University, Turkey, [2]Atilim University, Turkey*
15:00-15:15	**[O12A.1] Superconductivity in high quality single crystal boron-doped diamond films with Tc above 10K** T. Kageura*[1], I. Tsuyuzaki[1], T. Yamaguchi[2], Y. Takano[2], H. Kawarada[1], *[1]Waseda University, Japan, [2]National Institute for Materials Science, Japan*	15:00-15:15	**[O12B.3] Investigation of tribo-mechanical properties of sputtered a-C:Si films using design of experiments** W. Tillmann, N.F. Lopes Dias*, D. Stangier, *TU Dortmund University, Germany*
15:15-15:30	**[O12A.2] Heterostructers of carbon and boron nitride** M. Sadek, J.A. Majewski*, *University of Warsaw, Poland*	15:15-15:30	**[O12B.4] Femtosecond laser surface texturing of diamond-like nanocomposite films to improve tribological properties in lubricated sliding** S.M. Pimenov*[1], B. Jaeggi[2], B. Neuenschwander[2], E.V. Zavedeev[1], O.S. Zilova[3], M.L. Shupegin[3], *[1]General Physics Institute, Russia, [2]Bern University of Applied Sciences, Switzerland, [3]National Research University MPEI, Russia*
15:30-15:45	**[O12A.3] Quantum transport in an h-BN / diamond heterostructure** Y. Sasama[1,2], K. Komatsu[1], S. Moriyama[1], M. Imura[1], T. Teraji[1], K. Watanabe[1], T. Taniguchi[1], S. Uji[1,2], T. Uchihashi[1], Y. Takahide*[1,2], *[1]National Institute for Materials Science, Japan, [2]University of Tsukuba, Japan*	15:30-15:45	**[O12B.5] Effects of annealing temperature and duration on electrical resistance of boron doped DLC film** A. Amira*, K. Hirakuri, A. Homma, Y. Ohgoe, *Tokyo Denki University, Japan*

15:45-16:00	**[O12A.4] Novel lateral diamond nanowires with exceptionally high current density and emergent devices enabling diamond quantum technologies** A.C. Pakpour-tabrizi[1], M. Reed[2], R.B. Jackman*[1], *[1]University College London, UK, [2]Yale University, USA*	15:45-16:00	**[O12B.6] Evaluation of structural and electric/magnetic properties of cobalt-containing DLC film for magnetic device application** H. Kosukegawa*, S. Yamazaki, H. Miki, T. Takagi, *Tohoku University, Japan*
16:00-17:30	**Session 13: Posters II and Refreshment break | Elafiti 3 & 4** **Chairs:** J. Ristein, *Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*; R. Schirhagl, *Rijksuniversiteit Groningen, Netherlands*; E. Scorsone, *CEA/Saclay, France*		
19:00-22:00	**Conference dinner | Tirena Terrace (ticket holders only)**		
Thursday, 06 September 2018			
Room	Elafiti 1 & 2		
09:00-10:15	**Session 14: Magnetometry** **Chair:** D.A. Simpson, *The University of Melbourne, Australia*		
09:00-09:15	**Young Scholar Award nominee presentation 5** **[YSA.05] Wide field diamond magnetometry with millihertz frequency resolution and nanotesla magnetic sensitivity** K. Mizuno*[1], M. Nakajima[1], H. Ishiwata[1,2], Y. Masuyama[1], T. Iwasaki[1], M. Hatano[1], *[1]Tokyo Institute of Technology, Japan, [2]PREST, Japan*		
09:15-09:30	**[O14.1] Progress and challenges of NV-doped diamond for ultrasensitive laser magnetometry** J. Jeske*[1,2], S.R. Nair[3], X. Vidal[3], L.J. Rogers[3], T. Volz[3], O. Kitzler[3], R.P. Mildren[3], S. Onoda[4], T. Ohshima[4], F. Jelezko[5], P. Reineck[2], D.W.M. Lau[2], J.H. Cole[2], B.C. Gibson[2], A.D. Greentree[2] *[1]Fraunhofer IAF, Germany, [2]RMIT University, Australia, [3]Macquarie University, Australia, [4]National Institute for Quantum and Radiological Science and Technology, Japan, 5Universität Ulm, Germany*		
09:30-09:45	**[O14.2] A miniaturised magnetic field sensor based on nitrogen-vacancy centres in diamond** F.M. Stürner*[1,2], A. Brenneis[1], R. Rölver[1], U. Wostradowski[1], J. Kassel[1], T. Fuchs[1], F. Jelezko[2], *[1]Corporate Research, Robert Bosch GmbH, Germany, [2]Ulm University, Germany*		
09:45-10:00	**[O14.3] Determination of the position of a single nuclear spin via nuclear free precession detected by a diamond quantum sensor** K. Sasaki*, K. Itoh, E. Abe, *Keio University, Japan*		
10:00-10:15	**[O14.4] Electrically detected nuclear spin coherence in NV centers at room temperature** H. Morishita*[1,2], S. Kobayashi[1,2], M. Fujiwara[1,2], H. Kato[3,2], T. Makino[3,2], S. Yamasaki[3,2], N. Mizuochi[1,2], *[1]Kyoto University, Japan, [2]JST-CREST, Japan, [3]AIST, Japan*		
10:15-10:45	**Refreshment break | Elafiti 3 & 4**		
Room	Elafiti 1 & 2		
10:45-12:15	**Session 15: Electronic Properties of Carbon Materials** **Chair:** R.B. Jackman, *University College London, UK*		
10:45-11:15	**[Inv.12] Discovery of Q-carbon and high-temperature superconductivity: A new frontier in carbon science and diamond related materials** J. Narayan, *North Carolina State University, USA*		
11:15-11:30	**[O15.1] Stability of single molecule magnets grafted to graphene nanoribbons** F. Chudzynski, P. Zielinski, A. Jamroz, J.A. Majewski*, *University of Warsaw, Poland*		
11:30-11:45	**[O15.2] Ab initio investigation of Eu-doped diamond** D.E.P. Vanpoucke*[1,2], S.S. Nicley[1,2], E. Bourgeois[1,2], M. Nesladek[1,2], K. Haenen[1,2], *[1]Hasselt University, Belgium, [2]IMEC vzw, Belgium*		
11:45-12:00	**[O15.3] Computational design of new 2D nano-materials based on carbon** T. Burczynski*[1], W. Kus[2], M. Mazdziarz[1], A. Mrozek[3], *[1]Institute of Fundamental Technological Research of Polish Academy of Sciences, Poland, [2]Silesian University of Technology, Poland, [3]AGH University of Science and Technology, Poland*		

12:00-12:15	**[O15.4] Photoluminescence study of carbon dots synthesized by template method** D.K. Nelson*, A.N. Starukhin, D.L. Fedorov, D.A. Eurov, D.A. Kurdyukov, E.Y. Stovpiaga, V.G. Golubev, *Ioffe Physical-Technical Institute, Russia*
12:15-13:45	**Lunch**
Room	Elafiti 1 & 2
13:45-15:15	**Session 16: Diamond Nanoparticles** **Chair:** T. Kondo, *Tokyo University of Science, Japan*
13:45-14:15	**[Inv.13] Fluorescent nanodiamonds: from the creation and characterization of optical defects to applications in biology** P. Reineck*[1,2], D. Lau[1], L. Parker[9], E.R. Wilson[1,2], G. Thalassinos[1,2], N. Nunn[3], L. Trindade[5], C. Deeleepojananan[7], M. Capelli[1,2], S. Chang[8], T. Ohshima[4], D.A. Simpson[5], A.D. Greentree[1,2], P. Cigler[6], O. Shenderova[3], V.N. Mochalin[7], G. Hugues[10], J.C. Arnault[10], B.C. Gibson[1,2], *[1]RMIT University, Australia, [2]ARC Centre of Excellence for Nanoscale BioPhotonics, Australia, [3]Adamas Nanotchnologies, USA, [4]National Institutes for Quantum and Radiological Science and Technology, Japan, [5]University of Melbourne, Australia, [6]The Czech Academy of Sciences, Czech Republic, [7]Missouri University of Science and Technology, USA, [8]Arizona State University, USA, [9]Macquarie University, Australia, [10]Diamond Sensors Laboratory, CEA, LIST, France*
14:15-14:30	**[O16.1] How to put diamond in living cells to measure their metabolism?** M. Chipaux*, A. Morita, S. Hemelaar, F.P. Martinez, K. van der Laan, R. Schirhagl, *University of Groningen, The Netherlands*
14:30-14:45	**[O16.2] Lysozyme modified nanodiamonds: structural, in-vitro, and in-vivo study** M.G. Chernysheva*[1], G.A. Badun[1], A.G. Popov[1], A.V. Sinolits[1], A.V. Egorov[1], T.B. Egorova[1], A.V. Panchenko[2], A.L. Ksenofontov[3], *[1]M.V. Lomonosov Moscow State University, Russia, [2]N.N. Petrov Research Institute of Oncology, Russia, [3]A.N. Belozersky Institute of Physico-Chemical Biology MSU, Russia*
14:45-15:00	**[O16.3] Five nanometers diamond particle grafted by ions of rare earth metals** A.Y. Vul[1], I.B. Iudina*[1], A.E. Aleksenskiy[1], A.T. Dideikin[1], I.G. Fomina[2], A.V. A. V. Shvidchenko[1], *[1]Ioffe Institute, Russia, [2]IRIG RAS, Russia*
15:00-15:15	**[O16.4] Experimental evaluation of the use diamond nanolubricants in a refrigeration system using alternative refrigerants** D.M. Marcucci, L.R.R. da Silva, M.T. Gama, E.P. Bandarra Filho*, *Federal University of Uberlandia, Brazil*
15:15-15:45	**Refreshment break | Elafiti 3 & 4**
Room	Elafiti 1 & 2
15:45-17:30	**Session 17: Diamond Devices** **Chair:** S. Koizumi, *National Institute for Materials Science (NIMS), Japan*
15:45-16:00	**Young Scholar Award nominee presentation 6** **[YSA.06] High mobility diamond field effect transistor with a monocrystalline h-BN gate dielectric** Y. Sasama*[1,2], K. Komatsu[1], S. Moriyama[1], M. Imura[1], T. Teraji[1], K. Watanabe[1], T. Taniguchi[1], T. Uchihashi[1], Y. Takahide[1,2], *[1]National Institute for Materials Science, Japan, [2]University of Tsukuba, Japan*
16:00-16:15	**[O17.1] Temperature characteristics of high current diamond diodes - injection mode operation** R. Hathwar[1], M. Malakoutian[2], F.A.M. Koeck[1], M. Benipal[1], S. Chowdhury[2], S.M. Goodnick[1], R.J. Nemanich*[1], *[1]Arizona State University, USA, [2]University of California - Davis, USA*
16:15-16:30	**[O17.2] Diamond Schottky diodes: Substrates, fabrication and characteristics** T.A. Grotjohn*[1,2], J. Albrecht[1], J. Asmussen[1], M.F. Becker[2], A. Bhattacharya[1], A. Hardy[2], T.P. Hogan[1], U. Karki[1], J. Miao[1], M. Muehle[1], *[1]Michigan State University, USA, [2]Fraunhofer USA Center for Coatings and Diamond Technologies, USA*
16:30-16:45	**[O17.4] Interesting phenomena related to ohmic contact of boron-doped diamond and guiding principle forming good ohmic property** M. Ogura*, T. Makino, H. Kato, S. Yamasaki, *National Institute of Advanced Industrial Science and Technology (AIST), Japan*
16:45-17:00	**[O17.5] Tem and electrical study of a vertical diamond Schottky diode** J. Letellier*[1], G. Alba[3], F. Lloret[3], D. Araujo[3], M.P. Villar[3], F. Donatini[1], E. Gheeraert[1,2], D. Eon[1], *[1]Univ. Grenoble Alpes, France, [2]Univ. Tsukuba, Japan, [3]University of Cadiz, Spain*

17:00-17:15	**[O17.6] Energy band alignment of Al_2O_3/SO_2/H-diamond heterointerface determined by synchrotron XPS/UPS/XANES measurements** N.C. Saha, K. Takahashi, M. Imamura, M. Kasu*, *Saga University, Japan*
17:15-17:30	**[O17.7] Normally-off hydrogen-terminal diamond field-effect transistors** Y.F. Wang*, X.H. Chang, D. Zhao, *Xi'an Jiaotong University, China*
17:30-17:45	Closing ceremony – K. Haenen, *Hasselt University and IMEC vzw, Belgium*