S1: Carbons for Health and Medicine - 1
(R Hurt, presiding)

O1-1 (Keynote)
HOW THE LESSONS OF CARBON NANOTUBE SAFETY ASSESSMENT MAY APPLY TO THE EXPANDING GRAPHENE ENTERPRIZE
André Nel
Division of NanoMedicine, David Geffen School of Medicine and the California NanoSystems Institute, UCLA, Los Angeles, USA.

O1-2
BIODEGRADATION OF GRAPHENE AND 2D CRYSTALS
Alberto Bianco
CNRS, Institut de Biologie Moléculaire et Cellulaire, Laboratoire d'Immunopathologie et Chimie Thérapeutique, 15 Rue René Descartes, 67084 Strasbourg, France.

O1-3
EFFECT OF GRAPHENE AND GRAPHENE OXIDE ON SKIN KERATINOCYTES: CYTOXOCITY AND MEMBRANE DAMAGE
Marco Pelin[1], Laura Fusco[1], Alejandro Criado[2], Veronica León[3], Ester Vázquez[3], Maurizio Prato[2], Aurelia Tubaro[1]
[1]Department of Life Sciences, University of Trieste, 34127 Trieste, Italy
[2]Department of Chemical and Pharmaceutical Sciences, University of Trieste, 34127 Trieste, Italy
[3]Department of Organic Chemistry, University of Castilla-La Mancha, 13071 Ciudad Real, Spain.

S1: Carbons for Health and Medicine - 2
(A Bianco, presiding)

O2-1
CARBON NANOTUBES AS pH CONTROLLED DRUGS NANOCONTAINERS. INSIGHTS FROM MOLECULAR DYNAMICS SIMULATIONS
Tomasz Panczyk, Lukasz Konczak, and Pawel Wolski
Jerzy Haber Institute of Catalysis and Surface Chemistry Polish Academy of Sciences ul. Niezapominajek 8 30239 Krakow, Poland.

O2-2
FUNCTIONALIZED CARBON NANO-ONIONS AS IMAGING PROBES FOR CANCER CELLS
Silvia Giordani[1], Marco Frasconi[1] and Roberto Marotta[2]
[1]Nano Carbon Materials and [2]Electron Microscopy Laboratory, Nanochemistry Department,
[2]Istituto Italiano di Tecnologia (IIT), Via Morego 30, 16163 Genova, Italy.

O2-3
ORIENTATION CONTROL OF LACCASE IMMOBILIZED IN A CARBON-COATED ANODIC ALUMINA OXIDE FILM FOR ENHANCING ELECTROCATALYTIC ACTIVITY
Yasuto Hoshikawa[1], Castro-Muñiz Alberto[1], Hanako Tawata[1], Takashi Kyotani[1], Kouichi Nozaki[2], Shohei Yamane[2], Tetsuji Itoh[3]
[1]IMRAM, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai, 980-8577, Japan
[2]Department of Chemistry and Material Engineering, Shinshu University,4-17-1, Wakasato, Nagano, 380-8553, Japan
[3]AIST, Nigatake 4-2-1, Miyagino-ku, Sendai 983-8551, Japan

O2-4
A CARBON NANOTUBE MICRODEVICE FOR VIRUS CAPTURE
Yin-Ting Yeh[1,3], Yi Tang[2], Nestor Perea-López[1], Huaguang Lu[2], Si-Yang Zheng[3], and Mauricio Terrones[1]

[1]*Department of Physics,* [2]*Department of Veterinary and Biomedical Sciences, and* [3]*Department of Biomedical Engineering,*
The Pennsylvania State University, University Park, PA 16802, USA.

S1: Carbons for Health and Medicine - 3
(S Mikhalovsky, presiding)

O3-1 (Keynote)
HEALTH EFFECTS OF CARBONACEOUS NANOMATERIALS: WHAT WE KNOW AND DON'T. FROM MECHANISMS TO REGULATORY CONSEQUENCES
Anna Shvedova
Exposure Assessment Branch/HELD/NIOSH/CDC, Department of Physiology and Pharmacology, WVU, Morgantown, WV, USA.

O3-2
EFFECT OF OXYGEN FUNCTIONALIZATION ON THE ELECTROCHEMICAL AND ANTIMICROBIAL ACTIVITY OF CARBON NANOMATERIALS: ISOLATING THE ROLE OF SURFACE CHEMISTRY
Yan Wang[1], Julie B. Zimmerman[2,3], and Leanne M. Gilbertson[1]
[1]*Department of Civil and Environmental Engineering, University of Pittsburgh, Pittsburgh, PA 15261, USA*
[2]*Department of Chemical and Environmental Engineering, Yale University, New Haven, CT 06520, USA*
[3]*School of Forestry and Environmental Studies, Yale University, New Haven, CT 06520, USA.*

O3-3
EFFECT OF POLYMER SURFACE ADSORPTION ON GRAPHENE NANOPLATELETS BIOCOMPATIBILITY
Artur M. Pinto[1,2,3], J. Agostinho Moreira[4], Fernão D. Magalhães[1], Inês C. Gonçalves[2,3]
[1]*LEPABE, Faculdade de Engenharia, Universidade do Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal*
[2]*INEB - Instituto de Engenharia Biomédica, Universidade do Porto, Rua do Campo Alegre, 823, 4150-180 Porto, Portugal*
[3]*Instituto de Investigação e Inovação em Saúde, Universidade do Porto, Portugal*
[4]*IFIMUP and IN – Institute of Nanoscience and Nanotechnology, Departamento de Física e Astronomia, Faculdade de Ciências, Universidade do Porto, Rua do Campo Alegre 687, 4169- 007, Porto, Portugal.*

O3-4
A COMPARATIVE STUDY ON THE π- π CONJUGATION BETWEEN POLYHYDROXYLATED FULLERENES [C60(OH)10, C60(OH)44] AND FOLIC ACID
Sadia Afreen[1], Kasturi Muthoosamy[1], Ken Kokubo[2], and Sivakumar Manickam[1]
[1]*Department of Chemical & Environmental Engineering, The University of Nottingham Malaysia Campus, Jalan Broga, Semenyih, Selangor D.E, 43500, Malaysia.*
[2]*Division of Applied Chemistry, Graduate School of Engineering, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565-0871, Japan.*

S1: Carbons for Health and Medicine - 4
(S Giordani, presiding)

O4-1
CARBON MATERIALS FOR EXTRACORPOREAL TREATMENT: IS IT JUST ADSORPTION OR ANYTHING ELSE?
Sergey Mikhalovsky
University of Brighton, Brighton, BN2 4GJ, UK, and Nazarbayev University, 53 Kabanbay Batyr Avenue, Astana 010000, Kazakhstan.

O4-2

FORMATION OF HYBRID MATERIALS BASED ON CALCIUM PHOSPHATE DEPOSITS ON CARBON FIBERS SCAFFOLD

Q. Picard[1], S. Delpeux[1], N. Rochet[2], J. Chancolon[1], F. Warmont[1], F. Fayon[3], S. Bonnamy[1]
[1]ICMN, CNRS / University of Orléans, 45071 Orléans Cedex 2, France
[2]Institut de biologie Valrose INSERM/BIPOA, 06107 Nice Cedex 2, France
[3]CEMHTI, CNRS, 45071 Orléans Cedex 2, France.

O4-3

La AND F CO-SUBSTITUTED HYDROXYAPATITE BIOACTIVE COATING REINFORCED BY SIC NANOWIRE/ZrO_2 HYBRID MATERIALS FOR CARBON/CARBON COMPOSITES

Zhang Leilei, Li Hejun, Li Kezhi
State Key Laboratory of Solidification Processing, Northwestern Polytechnical University, Xi'an 710072, China.

S2: Carbon Blacks and Flame-Formed Carbons - 1
(R Vander Wal, presiding)

O1-1 (Keynote)
FULL SCHEME FOR FULLERENE, GRAPHENE, AND SOOT FORMATION IN FLAME
Zulkhair A. Mansurov
Institute of Combustion Problems, 172 Bogenbai Batyr St., 050012, Almaty, Kazakhstan.

O1-2
PULSED LASER ANNEALING OF FLAME-FORMED CARBONS
Joseph Abrahamson and Randy Vander Wal
John and Willie Leone Family Department of Energy and Mineral Engineering and The EMS Energy Institute, The Pennsylvania State University, USA.

O1-3
RESTRUCTURING OF DISORDERED CARBON MATERIALS BY THERMAL ANNEALING
B. Apicella[1], C. Russo[1], A. Tregrossi[1], V. Mennella[2], A. Ciajolo[1]
[1]Istituto di Ricerche sulla Combustione - C.N.R., P.le Tecchio 80, 80135 Napoli, Italy
[2]Istituto Nazionale di Astrofisica – INAF, Salita Moiariello, 16 80131, Napoli, Italy.

S2: Carbon Blacks and Flame-Formed Carbons - 2
(A Korchev, presiding)

O2-1
DETERMINATION OF TOTAL EXTERNAL SPECIFIC SURFACE AREA OF MICROPOROUS CARBON BLACK
Arndt-Peter Schinkel
Orion Engineered Carbons GmbH, Harry-Kloepfer-Str. 1,50997 Cologne, Germany.

O2-2
IMPROVED CURVATURE ANALYSIS FOR HRTEM LATTICE FRINGES APPLIED TO SOOT
Chang'an Wang[1,2], Thomas Huddle[3], Chung-Hsuan Huang[2], Randal Vander Wal[2], Ed Lester[3], and Jonathan P. Mathews[2]
[1]School of Energy and Power Engineering, Xi'an Jiaotong University, Xi'an, 710049, China
[2]The Leone Family Department of Energy and Mineral Engineering, and the EMS Energy Institute, The Pennsylvania State University, United States
[3]Energy and Sustainability Research Division, Faculty of Engineering, University of Nottingham, University Park, Nottingham, United Kingdom.

O2-3
ANALYSES OF CARBONIZED AROMATIC COMPOUNDS WITH ZIGZAG AND ARMCHAIR EDGES
Miki Kawai[1], Yasuhiro Yamada[1], Hideki Yorimitsu[2], Shinya Otsuka[2], Ryohei Kishi[3], and Satoshi Sato[1]
[1]Graduate School of Engineering, Chiba University, 1-33 Yayoi, Inage, Chiba, 263-8522, Japan)
[2]Graduate School of Science, Kyoto University, Kitashirakawa Oiwakecho, Sakyo, Kyoto 606- 8502, Japan)
[3]Graduate School of Engineering Science, Osaka University, 1-3 Machikaneyama, Toyonaka, Osaka, 560-8531, Japan.

O2-4
EXTRAORDINARILY HIGH MECHANICAL ENERGY DISSIPATION DISCOVERED IN CARBON BLACK AND UNCONVENTIONALLY BASED ON THE INTERFACIAL MECHANISM
Yoshihiro Takizawa, Daojun Wang, and D.D.L. Chung
Composite Materials Research Laboratory, University at Buffalo, State University of New York, Buffalo, NY 14260-4400, USA.

S2: Carbon Blacks and Flame-Formed Carbons - 3
(R Taylor, presiding)

O3-1 (Keynote)
A SHORT REVIEW OF NANOSTRUCTURE AS A PARADIGM FOR DESCRIBING CARBON STRUCTURE, INTERPRETING ITS REACTIVITY AND QUANTIFYING ITS TRANSFORMATIONS
Randy Vander Wal, Kuen Yehliu, Chethan Gaddam and Chung-Hsuan Huang
John and Willie Leone Family Department of Energy and Mineral Engineering and The EMS Energy Institute, The Pennsylvania State University, USA.

O3-2
THERMAL TREATMENT OF TREAD TYPE CARBON BLACK: EFFECTS ON PHYSICO-CHEMICAL AND SORPTION PROPERTIES
Archie P. Smith[1], George Joyce[1] and Ranjan Ghosal[2]
[1]*Birla Carbon Technology Center, Marietta, USA*
[2]*Birla Carbon Technology Center, Taloja, India.*

O3-3
NEUTRON RADIOGRAPHY STUDIES OF THE INTERACTION BETWEEN HYDROGENOUS SUBSTANCES AND COMBUSTION-GENERATED POROUS CARBON MATERIALS
Frederik Ossler[1], Louis J. Santodonato[2], Hassina Z. Bilheux[2]
[1]*Combustion Physics, Lund University, PO BOX 118, SE 221 00 LUND, Sweden*
[2]*Neutron Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA.*

O3-4
THERMAL ENERGY STORAGE USING PHASE CHANGE MATERIALS AND A VARIETY OF CARBONS
Heinrich Badenhorst
Department of Chemical Engineering, University of Pretoria, Pretoria, 0002, South Africa.

S3: Photocatalysis - 1
(J Matos, presiding)

O7-1 (Keynote)
ON THE POSSIBILITIES OF PHOTOCATALYSIS BASED ON NANOPOROUS CARBONS
Alicia Gomis-Berenguer, Raquel García-González, Inma Velo-Gala, and Conchi O. Ania
ADPOR Group, Instituto Nacional del Carbón (INCAR-CSIC), 33011 Oviedo, Spain.

O7-2
PHOTOACTIVITY OF g-C_3N_4/S-DOPED POROUS CARBON COMPOSITE: SYNERGISTIC EFFECT OF COMPOSITE FORMATION
Mykola Seredych[1], Szymon. Łoś[2], Dimitrios A. Giannakoudakis[1,3], Enrique Rodriguez-Castellon[4] and Teresa J. Bandosz[1,3]
[1]Department of Chemistry and Biochemistry, The City College of New York, New York, USA.
[2]Institute of Molecular Physics Polish Academy of Sciences, Poznań, Poland.
[3]Ph.D. Program in Chemistry, The Graduate Center of the City University of New York, New York, USA.
[4]Departamento de Química Inorgánica, Universidad de Málaga, Málaga, Spain.

O7-3
DEVELOPING COMPOSITE NANOMATERIALS FOR PHOTOCATALYSIS: THE ROLE OF THE CARBON PHASE
Joaquim Luís Faria
Laboratory of Separation and Reaction Engineering - Laboratory of Catalysis and Materials (LSRE-LCM), Faculdade de Engenharia da Universidade do Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal.

O7-4
PROGRESSIVE DESIGN AND FABRICATION OF NOVEL GRAPHENE-BASED SEMICONDUCTORS AND THEIR CATALYTIC APPLICATIONS
Won-Chun Oh
Department of Advanced Materials Science & Engineering, Hanseo University, Seosan-si, Chungnam, Korea.

S3: Photocatalysis - 2
(C Ania, presiding)

O8-1
Fe(II)-Fe(III)/ACTIVE CARBON AS PHOTOCATALYST FOR NAPHTHALENE DEGRADATION IN AQUEOUS PHASE
Alicia L. Garcia-Costa, Juan A. Zazo, Jose A. Casas, Juan Jose Rodriguez
Chemical Engineering Section, Universidad Autónoma de Madrid. Crta de Colmenar Viejo km. 15. 28049, Madrid.

O8-2
CATALYTIC PROPERTIES OF LAYERED CARBON NITRIDE MATERIALS
Ana Belen Jorge[1], Ishanka Dedigama[2], Thomas S. Miller[3], Noramalina Mansor[2], Rhodri Jervis[2], Furio Corà[3], Andrea Sella[3], Paul Shearing[2], Daniel J. L. Brett[2], Paul F. McMillan[3]
[1]Materials Research Institute, School of Engineering and Materials, Queen Mary University of London, Mile End Rd, E1 4NS London, United Kingdom
[2]Electrochemical Innovation Lab, Department of Chemical Engineering, University College London, Torrington Place, WC1E 7JE London, United Kingdom
[3]Christopher Ingold Building, Department of Chemistry, 20 Gordon Street, WC1H 0AJ London, United Kingdom.

O8-3
PHOTOCATALYTIC ACTIVITY OF SELF-CLEANING SEMICONDUCTOR/CARBON PAINTS
Raquel García-González, María Cocina Fernández de Córdoba, Conchi O. Ania

ADPOR Group, Instituto Nacional del Carbón (INCAR, CSIC), Oviedo (33011) Spain.

S3: Electrocatalysis - 1
(L Dai, presiding)

O10-1
DESIGN PRINCIPLES OF HETEROATOM-DOPED NANOCARBON ELECTROCATALYSTS FOR FUEL CELLS AND METAL-AIR BATTERIES
Zhenghang Zhao[1], Mingtao Li[2], Lipeng Zhang[1], Liming Dai[3], Zhenhai Xia[1]
[1]Department of Materials Science and Engineering, Department of Chemistry, University of North Texas, Denton, TX 76203, USA.
[2]International Research Center for Renewable Energy, State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi 710049, P. R. China
[3]Center of Advanced Science and Engineering for Carbon (Case4Carbon), Department of Macromolecular Science and Engineering, Case Western Reserve University, Cleveland, Ohio 44106, USA.

O10-2
ABOUT THE EFFECT OF MICROPOROSITY IN THE OXYGEN REDUCTION REACTION
Ramiro Ruiz-Rosas[1], Carolina González-Gaitán[2], María José Valero-Romero[3], José Rodríguez-Mirasol[3], Tomás Cordero[3], Emilia Morallón[2], and Diego Cazorla-Amorós[1]
[1]Departamento de Química Inorgánica y [2]Departamento de Química Física,
Instituto Universitario de Materiales, Universidad de Alicante, Apartado 99, 03080-Alicante, Spain.
[3]Universidad de Málaga, Andalucía Tech, Departamento de Ingeniería Química, 29071 Málaga, Spain.

O10-3
(tbd)

O10-4 (Keynote)
DESIGNING POROUS STRUCTURES IN CARBON-BASED ELECTROCATALYSTS
Xinliang Feng
Department of Chemistry and Food Chemistry & Center for Advancing Electronics Dresden (cfaed), Technische Universität Dresden, 01062 Dresden, Germany.

S3: Green Catalysis - 1
(M Titirici and R White, presiding)

O11-1 (Keynote)
BOTTOM-UP DESIGN OF METAL-FREE CARBOCATALYSTS FOR THE CONVERSION OF BIOMASS UNDER HYDROTHERMAL CONDITIONS
Jack Carraher and Jean-Philippe Tessonnier*
Department of Chemical and Biological Engineering, Iowa State University and NSF Engineering Research Center for Biorenewable Chemicals (CBiRC), Ames, Iowa, USA.

O11-2
NOVEL DESIGN OF ANCIENT MATERIALS FOR A NEW GENERATION OF CATALYSTS WITH TUNABLE SELECTIVITY
Sarah Metzke[1], Stefan Glatzel[2], and Cristina Giordano[3]
[1]Stranski Laboratorium, Technischen Universität Berlin, Straße des 17. Juni 124, 10623, Germany
[2]School of Chemistry, University of Glasgow, Glasgow, G12 8QQ, UK
[3]School of Biological and Chemical Sciences, Queen Mary University of London, Mile End Road, London E1 4NS, UK.

O11-3
LIGNIN-DERIVED CARBON MATERIALS AS CATALYSTS FOR WET PEROXIDE OXIDATION

Maria Martin-Martinez[1], Maria Filomena F. Barreiro[1], Adrián M.T. Silva[2], José L. Figueiredo[2], Joaquim L. Faria[2] and Helder T. Gomes[1]
[1]LSRE-LCM Associate Laboratory, Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-857 Bragança, Portugal
[2]LSRE-LCM Associate Laboratory, Faculdade de Engenharia, Universidade do Porto, R. Dr. Roberto Frias, 4200-465 Porto, Portugal.

O11-4
NANOPOROUS CARBON AND CARBIDE MATERIALS AS SUPPORTS FOR THE SUSTAINABLE PRODUCTION OF LOWER OLEFINS FROM SYNTHESIS GAS WITH IRON-BASED CATALYSTS
Martin Oschatz[1], A. Iulian Dugulan[2], and Krijn P. de Jong[1]
[1]Inorganic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Utrecht University, Universiteitsweg 99, 3584 CG Utrecht, The Netherlands.
[2]Fundamental Aspects of Materials and Energy Group, Delft University of Technology, Mekelweg 15, 2629 JB Delft, The Netherlands.

S3: Electrocatalysis - 2
(X Feng, presiding)

O12-1
LARGE-SIZE GRAPHENE TUBES: OXYGEN ELECTROCATALYSTS FOR ENERGY CONVERSION
Gang Wu
Department of Chemical and Biological Engineering, University at Buffalo, The State University of New York 309 Furnas Hall, Buffalo, New York 14260, United States.

O12-2
SYNTHESIS OF AMORPHOUS MoSX ANCHORED GRAPHENE FOR HIGHLY STABLE ELECTROCHEMICAL HER CATALYST
Cheol-Ho Lee[1,2], Jin-Mun Yun[3], Sungho Lee[1], Seong-Mu Jo[1], Doh C. Lee[2], Han-Ik Joh[1]
[1]Carbon Convergence Materials Research Center, Institute of Advanced Composite Materials, Korea Institute of Science and Technology (KIST), San 101, Eunha-ri, Bongdong-eup, Wanjugun, Jeollabuk-do 55324, Republic of Korea.
[2]Department of Chemical and Biomolecular Engineering (BK21+ Program), KAIST Institute for the Nanocentury, Korea Advanced Institute of Science and Technology (KAIST), Daejeon 34141, Republic of Korea.
[3]Radiation Research Division for Industry and Environment, Korea Atomic Energy Research Institute (KAERI), Geumgu-gil 29, Jeongeup-si, Jeollabuk-do 56212, Republic of Korea.

O12-3
SINGLE-STEP SYNTHESIS OF W_2C/C ELECTROCATALYST FOR HYDROGEN EVOLUTION REACTIONS UTILIZING PHOSPHATE GROUPS ON CARBON EDGE SITES
Takafumi Ishii, Keita Yamada, Jun-ichi Ozaki
International Research & Education Center for Element Science, Faculty of Science and Technology, Gunma University, 1-5-1 Tenjin-cho, Kiryu, Gunma 376-8515, Japan.

S3: Electrocatalysis - 3
(G Wu, presiding)

O13-1 (Keynote)
CARBON-BASED METAL-FREE ELECTROCATALYSTS FOR OXYGEN REDUCTION: MATERIALS, PROPERTIES AND MECHANISM
Zheng Hu, Lijun Yang, Xizhang Wang, Qiang Wu
Key Laboratory of Mesoscopic Chemistry of MOE, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210093, China.

O13-2
ACTIVE SITES OF NITROGEN-DOPED CARBON MATERIALS FOR OXYGEN REDUCTION REACTION
Donghui Guo, Takahiro Kondo, Junji Nakamura
Faculty of Pure & Applied Sciences, University of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki 305-8573, Japan.

O13-3
CONDUCTIVITY *VERSUS* ACTIVE SITES IN METAL-FREE OXYGEN REDUCTION RECTION ELECTROCATALYSIS
Magdalena Titirici[1,2], Kathrin Preuss[1,2], Guillermo Álvarez[3], Mo Qiao[1], Marta Sevilla[3]
[1]Queen Mary University of London and [2]Materials Research Institute,
School of Engineering and Materials Science, Mile End Road, E14NS, London, UK
[3]Instituto Nacional del Carbón (CSIC), P.O. Box 73, Oviedo 33080, Spain.

S3: Electrocatalysis - 4
(Z Hu, presiding)

O14-1
CARBON GEL BASED PT/C CATALYSTS WITH A HIGH SINTERING TOLERANCE
Kodai Satoh, Takanori Tsuchiya, Shinichiro Iwamura, Isao Ogino and Shin R. Mukai
Division of Applied Chemistry, Graduate School of Engineering, Hokkaido University, N13W8 Kita-ku Sapporo 060-8628, Japan.

O14-2
Co-METAL ORGANIC FRAMEWORK NANO-CRYSTALS ON EXFOLIATED GRAPHITE AS NOBLE METAL-FREE ELECTRODE PRECURSORS
Tania Rodenas[1], Youngmi Yi[1], Saskia Buller[1], Sylvia Becker[1], and Robert Schlögl[1,2]
[1]MPI for Chemical Energy Conversion, Stifstr. 34-36, D-45470, Mülheim-Ruhr, Germany
[2]Fritz Haber Institute of the Max Planck Society, Faradayweg 4-6, 14195, Berlin, Germany.

O14-3
ELECTROCATALYTIC ACTIVITY OF GRAPHENE/(SCN)n COMPOSITES FOR OXYGEN REDUCTION REACTION
Jurgis Barkauskas[1*], Justina Gaidukevič[1], Julija Razumienė[2], Ieva Šakinytė[2], Romas Baronas[3], and Karolis Petrauskas[3]
[1]Vilnius University, Faculty of Chemistry, Naugarduko str. 24, LT-03225 Vilnius, Lithuania
[2]Vilnius University, Institute of Biochemistry, Mokslininkų str. 12, LT-08662 Vilnius, Lithuania
[3]Vilnius University, Faculty of Mathematics and Informatics, Didlaukio str. 47, LT-08303 Vilnius, Lithuania.

O14-4
(tbd)

S3: Green Catalysis - 2
(J P Tessonnier and J Artz, presiding)

O15-1 (Keynote)
TAILORING BIOMASS-DERIVED CARBON-SUPPORTED CATALYSTS FOR CIRCULAR-ECONOMY-RELATED APPLICATIONS
Robin J. White, Monika Bosilj, Mohamed Ouda
Sustainable Catalytic Materials Group, Division Hydrogen Technologies, Fraunhofer Institute for Solar Energy Systems, Heidenhofstraße 2, 79110 Freiburg, Germany.

O15-2
CARBON NANOTUBES AS SUSTAINABLE CATALYTIC MATERIAL FOR THE HYDROGENATION OF NITROARENES
Shuchang Wu[1], Sylvia Becker[1], Saskia Buller[1], and Robert Schlögl[1,2]
[1]Max Planck Institute for Chemical Energy Conversion, Department of Heterogeneous Reactions, Stiftstraße 34-36, 45470 Mülheim an der Ruhr, Germany
[2]Fritz Haber Institute of the Max Planck Society, Faradayweg 4-6, 14195 Berlin, Germany.

O15-3
(tbd)

O15-4
(tbd)

S3: Green Catalysis - 3
(A B Jorge Sobrido and C Giordano, presiding)

O16-1
SUPPORTED METAL CATALYSTS ON COVALENT TRIAZINE FRAMEWORKS AND THEIR APPLICATION IN CATALYSIS
Jens Artz and Regina Palkovits
ITMC at the RWTH Aachen University, Worringerweg 2, 52074 Aachen, Germany.

O16-2
PtCo NANOPARTICLES SUPPORTED ON NITROGEN-DOPED ORDERED MESOPOROUS CARBON: NOVEL CATALYSTS FOR HYDRODEOXYGENATION REACTIONS
Guang-Hui Wang[1], Zhengwen Cao[1], Dong Gu[1], Norbert Pfänder[2], Ann-Christin Swertz[1], Bernd Spliethoff[1], Hans-Josef Bongard[1], Claudia Weidenthaler[1], Wolfgang Schmidt[1], Roberto Rinaldi[3], and Ferdi Schüth[1*]
[1]Max-Planck-Institut für Kohlenforschung, Kaiser-Wilhelm-Platz 1, D-45470 Mülheim an der Ruhr, Germany
[2]Max-Planck-Institut für Chemische Energiekonversion, Stiftstrasse 34-36, D-45470 Mülheim an der Ruhr, Germany
[3]Department of Chemical Engineering, South Kensington Campus, Imperial College London, London, SW7 2AZ, United Kingdom.

O16-3
HUMINS, A NOVEL AND UNIQUE BIOMASS-DERIVED FEEDSTOCK FOR CARBONACEOUS MATERIAL
Alice Mija[1], Jan C. van der Waal[2], Nathanael Guigo[1], and Ed de Jong[2]
[1]Université Nice Sophia Antipolis, CNRS, LPMC, UMR 7336, 06100 Nice, France
[2]Avantium Chemicals B.V., Zekeringstraat 29, 1014 BV, Amsterdam, the Netherlands.

S3: Carbon-Metal Interactions - 1
(A Lueking, presiding)

O17-1 (Keynote)
METAL-CARBON FRAMEWORK: THROUGH A CONTROL OF CATALYST SYNTHESIS AT THE MOLECULAR LEVEL
Faqieng Leng[1], Rosa Axet[1], Iann Gerber[2], Philippe Serp[1]
[1]Laboratoire de Chimie de Coordination, composante ENSIACET, 4 allée Emile Monso, BP 44099, F-31030 Toulouse Cedex 4, France
[2]Université de Toulouse; INSA, UPS, CNRS; LPCNO (IRSAMC), 135 avenue de Rangueil, F- 31077 Toulouse, France.

O17-2
SYNTHESIS AND APPLICATION IN CATALYTIC HYDROTREATMENT OF TEMPLATED N-DOPED POROUS CARBON
C. Ruiz-Garcia, F. Heras, N. Alonso-Morales, L. Calvo, J.J. Rodriguez, M.A. Gilarranz
Sección de Ingeniería Química (Dept. de Química Física Aplicada), Universidad Autónoma de Madrid, Cantoblanco, Madrid, Spain.

O17-3
LEWIS BASIC SITES CREATED ON NITROGEN DOPED GRAPHITE SURFACES
Riku Shibuya[1], Takahiro Kondo[2], and Junji Nakamura[2]
[1]Graduate School of Pure and Applied Sciences, and [2]Faculty of Pure and Applied Sciences, University of Tsukuba. 1-1-1 Tennodai, Tsukuba, Ibaraki, Japan.

S3: Carbon-Metal Interactions - 2
(L Radovic, presiding)

O18-1
IN-DEPTH CARACTERIZATION OF FUNCTIONAL GROUPS OF MULTIWALLED CARBON NANOTUBES AND THEIR INTERACTIONS WITH ATOMIC LAYER DEPOSITED VANADIUM OXIDE
Pascal Düngen[1], Saskia Buller[1], and Robert Schlögl[1,2]
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[2]Fritz-Haber-Institut der Max-Planck-Gesellschaft, Faradayweg 4-6, 14195 Berlin.

O18-2
EFFECT OF CARBON SURFACE CHEMISTRY ON THE Cu^{2+} + BENZENE-1,3,5-TRICARBOXYLIC ACID REACTION
Balázs Nagy[1], Laura P. Nichele[1,2], Dávid Srankó[3], Zoltán Hell[4], János Madarász[5], and Krisztina László[1]
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[5]Department of Inorganic and Analytical Chemistry, Budapest University of Technology and Economics, Budapest, Hungary.

O18-3

EFFECT OF SUPPORT GRAPHITIZATION ON THE ACTIVITY OF Pd/C CATALYSTS FOR AQUEUOS-PHASE HYDRODECHLORINATION

José A. Baeza[1], Luisa Calvo[1], Noelia Alonso-Morales[1], Francisco Heras[1], Semih Eser[2], Juan J. Rodriguez[1], Miguel A. Gilarranz[1]

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O18-4

HYBRID GRAPHENE-METAL ORGANIC FRAMEWORK NANOCOMPOSITES FOR APPLICATIONS IN HETEROGENEOUS CATALYSIS

M. Samy El-Shall

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S4: Cokes and Graphite - 1
(C Contescu, presiding)

O1-1 (Keynote)
UPDATING IRRADIATED GRAPHITE DISPOSAL: PROJECT 'GRAPA' AND THE INTERNATIONAL DECOMMISSIONING NETWORK
A.J. Wickham[1], H.-J. Steinmetz[2], P. O'Sullivan[3] and M. Ojovan[3]
[1]Nuclear Graphite Consultancy, Builth Wells, UK and The University of Manchester
[2]Forschungszentrum Jülich, Germany
[3]International Atomic Energy Agency, Vienna, Austria.

O1-2
IDENTIFICATION AND QUANTIFICATION OF CARBON PHASES IN CONVERSION FUEL FOR THE TRANSIENT REACTOR TEST FACILITY
Robert Steele[1,] Angelica Mata[2], Mary Lou Dunzik-Gougar[2] and Isabella van Rooyen[3]
[1,2]Idaho State University, 921 South 8th Ave, Pocatello, ID, USA;
[3]Idaho National Laboratory, Idaho Falls, ID, USA.

O1-3
DEVELOPMENT OF GRAPHITE POWDER CHARACTERIZATION PROTOCOL SUITABLE FOR PRODUCTION OF SPHERICAL NUCLEAR FUEL ELEMENTS
Tao Liu[1], Qinghong Lu[1], Dai Huang[1], Houzheng Wu[2]
[1]Sinosteel Advanced Materials (Zhejiang) Co., Ltd, Changxing, Zhejiang 313100, China
[2]Department of Materials, Loughborough University, Leicestershire LE 11 3TU UK.

S4: Cokes and Graphite - 2
(N Gallego, presiding)

O2-1
GRAPHITE OXIDATION AS A TOOL FOR MICROSTRUCTURAL INVESTIGATION
Heinrich Badenhorst
Department of Chemical Engineering, University of Pretoria, Pretoria, 0002, South Africa.

O2-2
OXIDATION RESISTANCE OF ISO-MOLDED GRAPHITE WITH DIFFERENT GRAIN SIZE
He Li[1], Hui Yang[1], Yufa Chen[1], Dai Huang[1] and Houzheng Wu[2]
[1]Sinosteel Advanced Materials (Zhejiang) Co., Ltd, Changxing, Zhejiang, 313100, China;
[2]Department of Materials, Loughborough University, Leicestershire, LE113TU, UK.

O2-3
REVISITING WEIGHT-LOSS PREDICTIONS IN ADVANCED GAS-COOLED REACTOR GRAPHITE CORES
Anthony Wickham, Abbie Jones and Alex Theodosiou
Nuclear Graphite Research Group, School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, Pariser Building, Sackville Street, Manchester M13 9PL, UK.

O2-4
PREDICTIVE MODEL FOR CHRONIC OXIDATION OF NUCLEAR GRAPHITE UNDER NORMAL OPERATING CONDITIONS OF HIGH TEMPERATURE GAS-COOLED REACTORS
Cristian Contescu[1], Robert Mee[2], Joshua Kane[3], Nidia Gallego[1], Timothy Burchell[1], and William Windes[3]
[1]Oak Ridge National Laboratory, USA; [2]University of Tennessee, USA; [3]Idaho National Laboratory, USA.

S4: Cokes and Graphite - 3
(M Weisenberger, presiding)

O3-1 (Keynote)
A COMPARISON OF COAL TAR AND PETROLEUM PITCH
Robert H. Wombles
Koppers Inc, 1005 William Pitt Way Pittsburgh, Pa 15238, USA.

O3-2
EFFECT OF MONTMORILLONITE NANOPARTICLES ON THERMAL CONVERSION OF COAL TAR PITCH
Maciej Gubernat[1], Wilhelm Frohs[2], Janusz Tomala[3], Aneta Fraczek-Szczypta[1] and Stanislaw Blazewicz[1]
[1]*Faculty of Materials Science and Ceramics, AGH University of Science and Technology, Al.Mickiewicza 30, 30-059 Cracow, Poland;*
[2]*SGL CARBON GmbH Werner-von-Siemens-Straße 18 86405 Meitingen, Germany;*
[3]*SGL Carbon Polska S.A. 47-400 Raciborz ul. Piastowska 29/Poland.*

O3-3
LIGNIN/COLLAGEN HYBRID BIOMATERIALS AS BINDER SUBSTITUTE FOR SPECIALTY GRAPHITES AND ELECTRODES
Zilong Zhao[1,2,3], Fred S. Cannon[3], Cesar Nieto-Delgado[4], Leidy Pena[5]
[1]*School of Civil and Environmental Engineering, Harbin Institute of Technology Shenzhen Graduate School, Shenzhen 518055, P.R. China;*
[2]*Department of Municipal Engineering, Southeast University, Nanjing 210096, P.R. China;*
[3]*Department of Civil and Environmental Engineering, The Pennsylvania State University, 225 Sackett Building, University Park, PA 16802, United States;*
[4]*División de Ciencias Ambientales, Instituto Potosino de Investigación Científicay Tecnológica, SLP, Mexico;*
[5]*Supelco Inc., Bellefonte, PA 16823, USA.*

O3-4
WOOD-DERIVED TAR AS NON-TOXIC BINDER PRECURSOR FOR CARBON AND GRAPHITE MANUFACTURE
Tomasz Lis[1], Wilhelm Frohs[2], Janusz Tomala[3], Aneta Fraczek-Szczypta[1], and Stanislaw Blazewicz[1]
[1]*Faculty of Materials Science and Ceramics, AGH University of Science and Technology, Al. Mickiewicza 30, 30-059 Cracow/Poland;*
[2]*SGL CARBON GmbH Werner-von-Siemens-Straße 18 86405 Meitingen, Germany;*
[3]*SGL CARBON Polska S.A. 47-400 Raciborz ul. Piastowska 29, Poland.*

S4: Cokes and Graphite - 4
(J Norley, presiding)

O4-1
SYMMETRY ASSIGNMENT OF THE D1, D2, AND D″ BANDS IN THE RAMAN SPECTRA OF GRAPHITE
Craig P. Marshall[1,2], Bahne C. Cornilsen[3], John A. Jaszczak[4]
[1]*Department of Geology and* [2]*Department of Chemistry, The University of Kansas, Lawrence, Kansas 66045-7613, USA;*
[3]*Department of Chemistry, Michigan Technological University, Houghton, Michigan 49931-1295, USA;*
[4]*Department of Physics and the A. E. Seaman Mineral Museum, Michigan Technological University, Houghton, Michigan 49931-1295, USA.*

O4-2
THERMALLY PURIFIED NATURAL FLAKE GRAPHITE PREPARED BY AN ELECTROTHERMAL FLUIDIZED BED REACTOR
Huajun Yuan[1], Soeren Koester[2], Carsten Wehling[2]

[1]*Superior Graphite Co., 4021 Calvin Drive, Hopkinsville, KY 42240, USA;*
[2]*Superior Graphite Europe, Bergstrasse 2, 56203 Hoehr-Grenzhausen, Germany.*

O4-3

GRAPHITIZATION OF POLYMER THIN FILMS BY SPIN COATING

Yasushi Soneda, Noriko Yoshizawa, Masaya Kodama
National Institute of Advanced Industrial Science and Technology (AIST), 16-1Onogawa, Tsukuba, Ibaraki 305-8569, Japan; and Technology Research Association for Single Wall Carbon Nanotubes (TASC), 1-1-1 Higashi, Tsukuba, Ibaraki 305-8565, Japan.

S4: Cokes and Graphite - 5

(A Wickham, presiding)

O5-1 (Keynote)

NEUTRON IRRADIATION EFFECTS ON THE STRUCTURE OF HIGHLY ORIENTED PYROLYTIC GRAPHITE: XRD AND SANS STUDY

Nidia C Gallego[1], Timothy D Burchell[1], Lilin He[2], Melanie J. Kirkham[3], Cristian I Contescu[1]
[1]*Materials Science and Technology Division;* [2]*Biology and Soft Matter Division;* [3]*Instrument and Source Division Oak Ridge National Laboratory, 1 Bethel Valley Rd, Oak Ridge TN, 37831-6087, USA.*

O5-2

ASSESSMENT OF ELASTIC ANISOTROPY IN NUCLEAR GRAPHITES USING LASER ULTRASONIC SHEAR WAVE BIREFRINGENCE MEASUREMENTS

James B. Spicer[1], Fan W. Zeng[1], Nidia C. Gallego[2] and Cristian I. Contescu[2]
[1]*Department of Materials Science and Engineering, Whiting School of Engineering, The Johns Hopkins University, Baltimore, MD 21218;* [2]*Carbon and Composites Group Materials Science and Technology Division Oak Ridge National Laboratory Oak Ridge, TN 37831, USA.*

O5-3

FAILURE PREDICTIONS FOR GRAPHITE REFLECTOR BRICKS IN THE VERY HIGH TEMPERATURE REACTOR WITH THE PRISMATIC CORE DESIGN

Gyanender Singh[1], Alex Fok[2,3] and Sue Mantell[3]
[1]*Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN;*
[2]*Minnesota Dental Research Center for Biomaterials and Biomechanics, School of Dentistry, University of Minnesota, Minneapolis, MN, 55414;*
[3]*Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN, 55414, USA.*

S5: Electrochemical Carbons 1 - Li-Ion Batteries and Capacitors
(S Kaskel and K Kaneko, presiding)

O1-1 (Keynote)
A SMART SELF-REGENERATIVE LITHIUM ION SUPERCAPACITOR
Xu-Yi Shan, Feng Li and Hui-Ming Cheng
Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Wenhua Road, Shenyang 110016, PR China.

O1-2
ELECTROCHEMICAL PROPERTIES OF HF-TREATED B/C/N MATERIALS AS THE ANODE OF LITHIUM-ION BATTERIES
Masayuki Kawaguchi, Kaoru Yamada and Tsunahito Kitai
Osaka Electro-Communication University, 18-8 Hatsu-cho, Neyagawa, Osaka 572-8530, Japan.

O1-3
PREPARATION OF ACTIVATED CARBONS FROM TROPICAL SEAWEEDS FOR ELECTRODE OF SUPERCAPACITORS AND WATER TREATMENT APPLICATION
S. Gaspard[1], M. J. Pintor[1], S. Roche[1], C. Jean-Marius[1], A.C. Alvarez[4], J-L. Mansot[3], N. Passé-Coutrin[1], P.-L. Taberna[2], V. Jeanne-Rose[1]
[1]Laboratory COVACHIM M2E - EA 3592) - Faculté des Sciences Exactes et Naturelles, Université des Antilles et de la Guyane, B.P. 250,97 157 Pointe-à-Pitre Cedex Guadeloupe, France
[2]Centre Interuniversitaire de Recherche et d'Ingénierie des Matériaux (CIRIMAT/LCMIE, UMR CNRS 5085) - Université Paul Sabatier, bâtiment 2R1, 31062 Toulouse cedex 9, France
[3]GTSI, C3M Faculté des Sciences Exactes et Naturelles, Université des Antilles et de la Guyane, B.P. 250, 97 157 Pointe-à-Pitre Cedex Guadeloupe, France
[4]Institute of pure and applied mathematics, Dona Castorina, 110, Rio de Janeiro, Brasil.

S5: Electrochemical Carbons 2 - Li-Ion Batteries and Capacitors
(S Kaskel and K Kaneko, presiding)

O2-1
GRAPHITE OXIDE AS A POLARIZABLE ELECTRICAL CONDUCTOR IN THE THROUGH-THICKNESS DIRECTION
Xinghua Hong[1,2], Andi Wang[1], Weidong Yu[2], and D.D.L. Chung[1]
[1]Composite Materials Research Laboratory, University at Buffalo, State University of New York, Buffalo, NY 14260-4400, USA
[2]Key Laboratory of Textile Science & Technology, Ministry of Education, College of Textiles, Donghua University, Shanghai 201620, China.

O2-2
GRAPHENE/CELLULOSIC COMPOSITES FOR LI-ION BATTERIES
Olga Naboka, Yaser Abu-Lebdeh
National Research Council Canada, 1200 Montreal Rd, Ottawa K1A 0R6, Canada.

O2-3
THE MECHANISM OF GRAPHITIZED CARBON SPHERES WITH AN ONION-LIKE TEXTURE AS AN ANODE MATERIAL FOR LI-ION BATTERIES
Bin Cao, Huaihe Song and Xiaohong Chen
State Key Laboratory of Chemical Resource Engineering, Beijing Key Laboratory of Electrochemical Process and Technology for Materials, Beijing University of Chemical Technology, Beijing 100029, China.

O2-4 (Keynote)
HOLLOW NANOSTRUCTURES FOR LITHIUM SULFUR BATTERIES

Xiong Wen (David) Lou
School of Chemical and Biomedical Engineering, Nanyang Technological University, Singapore.

S5: Electrochemical Carbons 3 - Li-S and Ni-Ion Batteries
(Q-H Yang and J-K Kim, presiding)

O3-1 (Keynote)
TAILORING POROUS CARBONS AND RELATED MATERIALS FOR ENERGY APPLICATIONS
Sheng Dai
Chemical Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6201, and Department of Chemistry, University of Tennessee, Knoxville, TN 37996-1600, USA.

O3-2
THE CORE ROLE OF CARBON FOR LI-S BATTERIES
Qiang Zhang, Jia-Qi Huang, Xin-Bing Cheng, and Hong-Jie Peng
Department of Chemical Engineering, Tsinghua University, Beijing 100084, PR China.

O3-3
DUAL FUNCTIONALITIES OF CARBON NANOTUBE FILMS FOR DENDRITE-FREE LITHIUM-SULFUR BATTERIES
Keyu Xie[1], Kai Yuan[1], You You[1], Weibang Lu[2], Wei Lu[3], Yanqing Lai[4] and Bingqing Wei[5]
[1]*State Key Laboratory of Solidification Processing and Center for Nano Energy Materials, Northwest Polytechnical University, Xi'an 710072, China.*
[2]*Advanced Materials Division, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou 215123, China.*
[3]*University Research Facility in Materials Characterization and Device Fabrication, The Hong Kong Polytechnic University, Hong Kong, China.*
[4]*School of Metallurgy and Environment, Central South University, Changsha, Hunan, 410083, China.*
[5]*Department of Mechanical Engineering, University of Delaware, Newark, DE19716, USA.*

O3-4
ULTRAFINE FE_2O_3 NANOPARTICLES ANCHORED ON THE GRAPHENE NANOSHEETS AS ANODES FOR SODIUM-ION BATTERIES
Dan Li[1], Jisheng Zhou[1,2], Huaihe Song[1,2] and Xiaohong Chen[1]
[1]*State Key Laboratory of Chemical Resource Engineering, Key Laboratory of Carbon Fiber and Functional Polymers, Ministry of Education, Beijing University of Chemical Technology, Beijing, P. R. China.*
[2]*Changzhou Institute of Advanced Materials, Beijing University of Chemical Technology, Jiangsu, P. R. China.*

S5: Electrochemical Carbons 4 - Li-S and Ni-Ion Batteries
(Q-H Yang and J-K Kim, presiding)

O4-1
BIOMASS-DERIVED LOW COST NEGATIVE ELECTRODES IN NA-ION BATTERIES
Pelin Yilmaz[1], Yunming Li[2], Mo Qiao[1], Yong-Sheng Hu[2], Magdalena Titirici[1]
[1]*Queen Mary University of London, School of Engineering and Materials Science & Materials Research Institute, London, UK*
[2]*Chinese Academy of Science, Institute of Physics, Beijing, China.*

O4-2
UTILIZATION OF NITROGEN-DOPED CARBONIZED METAL ORGANIC FRAMEWORK FOR HIGH STABILITY ROOM TEMPERATURE SODIUM-SULFUR BATTERY
Yu-Ming Chen[1], Wengfeng Liang[1], Feng Zou[1], Zhe Qiang[2], Sarang M. Bhaway[2], Si Li[1], Min Gao[3], Bryan D. Vogt[2], Yu Zhu[1]
[1]*Department of Polymer Science, University of Akron, Akron, Ohio 44325 USA*
[2]*Department of Polymer Engineering, University of Akron, Akron, Ohio 44325 USA*

[3]*Liquid Crystal Institute, Kent State University, Kent, Ohio 44242, USA.*

O4-3

DESIGN AND COMBINATION OF CARBON MATERIALS FOR ADVANCED LITHIUM SULFUR BATTERIES

Li Feng, Liang Ji, Fang Ruopian, Hu Guangjian, Zhou Guangmin, Song Renheng and Cheng Hui-Ming
Shenyang National Laboratory for Materials Science,Institute of Metal Research, Chinese Academy of Sciences, Wenhua Road, Shenyang 110016, PR China.

S5: Electrochemical Carbons 5 - Graphene and CNTs

(E Frackowiak and Q Zhang, presiding)

O5-1 (Keynote)

DENSIFYING ENERGY STORAGE BY GRAPHENE

Quan-Hong Yang
School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China; and Shenzhen Key Laboratory for Graphene-based Materials, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China.

O5-2

THE ATOMIC ORIGIN OF UNIQUE PROPERTIES OF GRAPHENE MATERIALS

Junjie Guo[1], Bingshe Xu[1], Cristian I. Contescu[2], Matthew F. Chisholm[2], Stephen J. Pennycook[3]
[1]*Key Laboratory of Interface Science and Engineering in Advanced Materials of Ministry of Education, Taiyuan University of Technology, Taiyuan 030024, P.R.China*
[2]*Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6065, USA*
[3]*Department of Materials Science and Engineering, National University of Singapore, Singapore 117576, Singapore.*

O5-3

GRAPHENE-BASED HYBRID MATERIALS FOR SUPERCAPACITIVE ENERGY STORAGE

Cheng-Meng Chen, Qing-Qiang Kong, Fang-Yuan Su, Li-Jing Xie, Chun-Xiang Lu
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S5: Electrochemical Carbons 6 - Graphene and CNTs

(E Frackowiak and Q Zhang, presiding)

O6-1

FREESTANDING CARBON NANOFIBERS/GRAPHENE COMPOSITE ELECTRODES FOR SUPERCAPACITORS

Volodymyr Kuzmenko[1,2], Nan Wang[1], Arun Bhaskar[1], Henrik Staaf[1], Olga Naboka[1], Paul Gatenholm[2,3], Johan Liu[1,4], and Peter Enoksson[1,2]
[1]*Department of Microtechnology and Nanoscience, Chalmers University of Technology, Gothenburg, SE-41296, Sweden.*
[2]*Wallenberg Wood Science Center, Chalmers University of Technology, Kemivägen 4, Gothenburg, SE-41296, Sweden.*
[3]*Department of Chemistry and Chemical Engineering, Chalmers University of Technology, Gothenburg, SE-41296, Sweden.*
[4]*SMIT Center and School of Mechatronics and Mechanical Engineering, Key Laboratory of New Displays and System Integration, Shanghai University No 149, Shanghai, China.*

O6-2

STRUCTURE AND DYNAMICS OF DIGLYME MOLECULES IN GRAPHENE LAYERS WITH SODIUM ION STUDIED BY ^{2}H NMR

Kazuma Gotoh[1,2], Hisashi Maruyama[1], Tomoaki Takizawa[1], Ryohei Morita[1], Tatsuya Miyatou[3], Motohiro Mizuno[3], Koki Urita[4], Hiroyuki Ishida[1]
[1]Graduate School of Natural Science & Technology, Okayama University, 3-1-1 Tsushima-naka, Okayama 700-8530, Japan
[2]Element Strategy Initiative for Catalysts and Batteries (ESICB), Kyoto University, Nishikyo-ku, Kyoto 615-8245, Japan
[3]Department of Chemistry, Graduate School of Natural Science and Technology, Kanazawa University, Kakuma-machi, Ishikawa 920-1192, Japan
[4]Graduate School of Engineering, Nagasaki University, Japan.

O6-3
PLANAR GRAPHENE FILM SUPERCAPACITOR DERIVED FROM LIQUID-AIR INTERFACIAL ASSEMBLY
Xiangrong Chen[1], Shun Luo[1], Zhengjie Li[2], and Jiao-Jing Shao[1]
[1]School of Materials and Metallurgy, Guizhou University, Guiyang 550025, China
[2]School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China.

O6-4 (Keynote)
EFFECT OF SURFACE MODIFICATION ON THE CAPACITIVE DEIONIZATION PERFORMANCE OF ELECTRODES: THE ROLE OF POTENTIAL OF ZERO CHARGE
Tingting Wu, Gang Wang, Jieshan Qiu
State Key Lab of Fine Chemicals, Liaoning Key Lab for Energy Materials and Chemical Engineering, PSU-DUT Joint Center for Energy Research, Dalian University of Technology, Dalian, 116024, China.

S5: Electrochemical Carbons - 7
(S Kaskel and L Dai, presiding)

O7-1 (Keynote)
GRAPHENE AEROGELS FOR ENERGY STORAGE
Patrick G. Campbell*, James S. Oakdale, Swetha Chandrasekaran, Jianchao Ye, Julie A. Jackson, William L. Smith, Maira R. Céron Hernandez, Marcus A. Worsley, Theodore A. Baumann, Eric B. Duoss, Christopher M. Spadaccini, and Juergen Biener
Lawrence Livermore National Laboratory, 7000 East Ave., Livermore, CA 94550, USA.

O7-2
SPACE-CONFINED ASSEMBLY OF ALL-CARBON HYBRID FIBERS FOR CAPACITIVE ENERGY STORAGE
Yuan Chen[1], Wenchao Jiang[2], Shengli Zhai[1,2]
[1]School of Chemical and Biomolecular Engineering, The University of Sydney, NSW, 2006, Australia
[2]School of Chemical and Biomedical Engineering, Nanyang Technological University, 62 Nanyang Drive, 637459, Singapore.

O7-3
IDEAS ON THE RATIONAL DESIGN OF FUNCTIONAL CARBON NANOSTRUCTURES VIA PRE-ORGANIZATION
Nina Fechler, Thomas Jordan, Thomas Berthold, Christian Mbaya Mani and Markus Antonietti
Max Planck Institute of Colloids and Interfaces, Department of Colloid Chemistry, Am Mühlenberg 1, 14476 Potsdam, Germany.

O7-4
RENEWABLE CARBON FILM FOR SUPERCAPACITOR APPLICATIONS
Chau D Tran[1], Jong K Keum[2,3], Jihua Chen[2], Nidia C Gallego[1], and Amit K Naskar[1]
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Oak Ridge National Laboratory, Oak Ridge, TN 37831 USA.

S5: Electrochemical Carbons - 8
(S Kaskel and L Dai, presiding)

O8-1
CARBON MATERIALS FOR FLOWABLE ENERGY STORAGE SYSTEMS
Muhammad Boota[1], Kelsey B. Hatzell[1,2], and Yury Gogotsi[1]
[1]*A.J. Drexel Nanomaterials Institute and Department of Material Science and Engineering, Drexel University, 3141 Chestnut Street, Philadelphia, PA 19104, USA*
[2]*Lawrence Berkeley National Lab, Berkeley, CA 94709 USA.*

O8-2
SUPERCAPACITIVE PROPERTIES OF Ni-Co OXIDE NANOSHEETS ON CARBON NANOFIBERS WITH BILATERAL STRUCTURE
Ji Hoon Kim[1], Hyeonseok Yoon[1,2], Christopher E. Bunker[3], Yoong Ahm Kim[1,2], Kap Seung Yang[1,2]
[1]*Department of Polymer Engineering, Graduate School, Chonnam National University, 77 Yongbong-ro, Buk-gu, Gwangju 61186, Republic of Korea*
[2]*Alan G. MacDiarmid Energy Research Institute, School of Polymer Science and Engineering, Chonnam National University, 77 Yongbong-ro, Buk-gu, Gwangju 61186, Republic of Korea.*
[3]*Air Force Research Laboratory, Aerospace Systems Directorate, Wright-Patterson Air Force Base, Ohio 45433-7103, USA.*

O8-3 (CARBON Elsevier Prize)
CARBIDE-DERIVED CARBONS WITH HIERARCHICAL PORE ARCHITECTURES FOR ELECTROCHEMICAL ENERGY STORAGE IN ELECTRICAL DOUBLE-LAYER CAPACITORS
Martin Oschatz[1,2], Lars Borchardt[2], Winfried Nickel[2], and Stefan Kaskel[2]
[1]*Inorganic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Utrecht University, Universiteitsweg 99, 3584 CG Utrecht, The Netherlands.*
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S5: Electrochemical Carbons 9 - Supercapacitors
(S Shiraishi and B Dyatkin, presiding)

O9-1 (Keynote)
CHEMISTRY OF AGEING PHENOMENA IN CARBON-BASED CAPACITORS STUDIED BY OEMS TECHNIQUE
Elzbieta Frackowiak[1], Minglong He[2], Erik J. Berg[2] Krzysztof Fic[1], and Petr Novak[2]
[1]*Poznan University of Technology, Institute of Chemistry and Technical Electrochemistry, Berdychowo 4, 60-965 Poznan, Poland*
[2]*Electrochemistry Laboratory, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland.*

O9-2
HYBRID CAPACITORS WITH QUINONE GRAFTED CARBON ELECTRODES
Paulina Babuchowska, François Béguin
Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, ul. Berdychowo 4, 60-965 Poznan, Poland.

O9-3
ULTRAPOROUS NITROGEN-DOPED ZEOLITE-TEMPLATED CARBON FOR HIGH ENERGY DENSITY AQUEOUS-BASED SUPERCAPACITORS
M. José Mostazo-López[1], R. Ruiz-Rosas[1], A. Castro-Muñiz[2], H. Nishihara[2], T. Kyotani[2], E. Morallón[3], D. Cazorla-Amorós[1]

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[2]*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan*
[3]*Departamento de Química Física e Instituto Universitario de Materiales, University of Alicante, Ap. 99, 03080-Alicante, Spain.*

S5: Electrochemical Carbons 10 - Supercapacitors
(S Shiraishi and B Dyatkin, presiding)

O10-1
HYBRID POTASSIUM-ION CAPACITOR: AN INNOVATIVE AND COST-EFFECTIVE ENERGY STORAGE DEVICE FOR TRANSPORTATION APPLICATIONS
Annaïg Le Comte, Matthieu Picot, Philippe Azaïs, and Fabien Perdu
CEA, LITEN, Department of Electricity and Hydrogen for Transportation, 17 rue des Martyrs, Grenoble, France.

O10-2
HIGH PERFORMANCE OF COARSE-GRAINED CARBIDE-DERIVED CARBON SUPERCAPACITOR ELECTRODES
Boris Dyatkin[1], Oleksiy Gogotsi[2], Veronika Zahorodna[2], Yuliya Zozulya[2], Hsiu-Wen Wang[3], Katharine Page[3], Patrice Simon[4], and Yury Gogotsi[1]
[1]*A.J. Drexel Nanomaterials Institute & Department of Materials Science and Engineering, Drexel University, Philadelphia, PA, USA*
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[3]*Oak Ridge National Laboratory, Oak Ridge, TN, USA*
[4]*CIRIMAT, CNRS Université Paul Sabatier, Toulouse, France.*

O10-3
MODEL CARBONS FOR SUPERCAPS: ELUCIDATING THE STORAGE MECHANISM
Lars Borchardt[1], Stefan Kaskel[1], and Eike Brunner[2]
[1]*Technische Universität Dresden, Department for Inorganic Chemistry, Bergstrasse 66, 01069 Dresden, Germany*
[2]*Technische Universität Dresden, Department for Bioanalytical Chemistry, Bergstrasse 66, 01069 Dresden, Germany.*

O10-4 (Keynote)
AN INDUSTRIAL PERSPECTIVE ON SUPERCAPACITOR CARBONS
Ranjan K. Dash[1] and Lawrence Weinstein[2]
[1]*SABIC, 475 Creamery Way, Exton, PA 19341*
[2]*FlexEI LLC, 387 Technology Drive #2104, College Park, MD 20742, USA.*

S5: Electrochemical Carbons - 11
(H-M Cheng and S Dai, presiding)

O11-1 (Keynote)
ELECTROCHEMICAL CARBON RESEARCH IN THE FIRST ENERGY FRONTIER RESEARCH CENTER
David J. Wesolowski
Chemical Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA.

O11-2
ELECTROCHEMICAL PERFORMANCE IN SUPERCAPACITORS OF CARBONS PREPARED FROM RICE HUSK
Vladimir Pavlenko[1], Qamar Abbas[2], Makhmut Bijsenbaev[1], Krzysztof Fic[2], Anvar Zakhidov[3], François Béguin[2] and Zulkhair Mansurov[1]

[1]*Institute of Combustion Problems, Bogenbay Batyr str. 172, Almaty, Kazakhstan*
[2]*Poznan University of Technology, ul. Berdychowo 4, 60-965 Poznan, Poland*
[3]*University of Texas at Dallas, 75080-3021 Texas, USA.*

O11-3

POLYFURFURYL ALCOHOL DERIVED CARBON BASED ELECTRODES FOR HIGH ENERGY DENSITY ELECTROCHEMICAL CAPACITORS

Amir Reza Aref[1], Chih-Chuan Chou[2], Ramakrishnan Rajagopalan[3,4], and Clive Randall[2,4]
[1]*Engineering Science and Mechanics, The Pennsylvania State University, University Park, PA 16802, USA*
[2]*Materials Science and Engineering, The Pennsylvania State University, University Park, PA 16802, USA*
[3]*Department of Engineering, Penn State DuBois, DuBois, PA 15801, USA*
[4]*Materials Research Institute, The Pennsylvania State University, University Park, PA 16802, USA.*

O11-4

EFFECT OF CARBON-BASED COMPOSITE ON THE PERFORMANCE OF CAPACITIVE DEIONIZATION: THE ROLE OF MICROSTRUCTURE AND HYDROPHILICITY

Qinghan Meng, Yancong Wei, and Bing Cao
College of Materials Science and Engineering, Beijing University of Chemical Technology, Beijing 100029, China.

S5: Electrochemical Carbons - 12

(H-M Cheng and S Dai, presiding)

O12-1

BIOMASS-DERIVED HYDROTHERMAL CARBON DISC FOR ELECTROCATALYTIC WATER SPLITTING

Youngmi Yi[1], Natalia Kowalew[1], Sylvia Becker[1], Robert Schlögl[1,2]
[1]*Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany*
[2]*Fritz Haber Institute of the Max Planck Society, Berlin, Germany.*

O12-2

ARCHITECTURING FLEXIBLE CARBON NANOTUBE BASED SOLID STATE ULTRACAPACITOR

Kofi Adu[1,2], Ramakrishnan Rajagopalan[2,4] and Clive Randall[2,3]
[1]*Department of Physics, Altoona College, The Pennsylvania State University, Altoona, PA 16601, USA*
[2]*Materials Research Institute, The Pennsylvania State University, University Park, PA 16802, USA*
[3]*Department of Materials Science and Engineering, The Pennsylvania State University, University Park, PA 16802, USA*
[4]*Department of Engineering, The Pennsylvania State University-DuBois, DuBois, PA 15801, USA*

O12-3

3D HIERARCHICAL POROUS N-DOPED POLYACRYLONITRILE-DERIVED CARBON MONOLITH FOR HIGH-RATE ELECTROCHEMICAL CAPACITIVE ENERGY STORAGE

Yanqing Wang[1], Bunshi Fugetsu[2], Wei Gong[1], Zhipeng Wang[3], Shingo Morimoto[3], Ichiro Sakata[1, 2], Mauricio Terrones[4], Morinobu Endo[3], Mildred Dresselhaus[5]
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[2]*Policy Alternative Research Institute, The University of Tokyo, Bunkyo-ku, Tokyo 113-0032, Japan.*
[3]*Institute of Carbon Science and Technology, Shinshu University; 4-17-1 Wakasato, Nagano 380-8553, Japan.*
[4]*Department of Physics, Department of Chemistry, Department of Materials Science and Engineering and Center for 2-Dimensional and Layered Materials, The Pennsylvania State University, University Park, PA 16802, USA.*
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S5: Electrochemical Carbons 13 - *In Situ* Studies
(K Kaneko and X W Lou, presiding)

O13-1 (Keynote)
STUDY OF LITHIATION MECHANISMS OF EXCEPTIONAL HIGH-PERFORMANCE SILICON/CARBON ANODES BY *IN SITU* MICROSCOPY
Zheng-Long Xu, Mohammad Akbari Garakani, Sara Abouali and Jang-Kyo Kim
Department of Mechanical and Aerospace Engineering, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong.

O13-2
MULTIDIMENSIONAL *OPERANDO* ANALYSIS OF LITHIUM SULFUR CELLS WITH X-RAY RADIOGRAPHY
Sebastian Risse[1], Charl J. Jafta[1], Yan Yang[1], Nikolay Kardjilov[2], André Hilger[2], Annika Juhl[3], Simone Mascotto[3], Boris Ufer[3], Michael Fröba[3], Ingo Manke[2], Matthias Ballauff[1]
[1]*Institute of Soft Matter and Functional Materials, Helmholtz-Zentrum Berlin (HZB), Hahn-Meitner-Platz 1, 14109 Berlin, Germany*
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[3]*Institute of Inorganic Solid State Chemistry and Material Science, University of Hamburg, Martin-Luther-King Platz 2016 Hamburg, Germany.*

O13-3
***IN SITU* GROWTH OF MnO_2 CRYSTALS UNDER NANOPORE-CONSTRAINT IN CARBON NANOFIBERS AND THEIR ELECTROCHEMICAL PERFORMANCE**
Ying Yang[1], Trung Hieu Le[1], Liu Yu[1], Zhenghong Huang[2], and Feiyu Kang[2]
[1]*State Key Laboratory of Control and Simulation of Power System and Generation Equipments, Tsinghua University, Beijing 100084, China*
[2]*Laboratory of Advanced Materials, Department of Materials Science and Engineering, Tsinghua University, Beijing 100084, China.*

S5: Electrochemical Carbons 14 - *In Situ* Studies
(K Kaneko and X W Lou, presiding)

O14-1
***IN SITU* EQCM STUDY OF ION DYNAMICS AND CHARGE STORAGE MECHANISM FOR SUPERCAPACITOR APPLICATIONS**
Wan-Yu Tsai[1,2], Pierre-Louis Taberna[1,2], Patrice Simon[1,2]
[1]*CIRIMAT, Université Toulouse III Paul Sabatier, UMR CNRS 5085, 118 Route de Narbonne, 31062 Toulouse, France*
[2]*Réseau sur le Stockage Electrochimique de l'Energie (RS2E), FR CNRS 3459, France.*

O14-2
***IN SITU* CHARACTERIZATION OF CARBON-BASED ELECTROCHEMICAL CAPACITORS**
Krzysztof Fic, Elzbieta Frackowiak
Poznan University of Technology, Institute of Chemistry and Technical Electrochemistry, Berdychowo 4, 60-965 Poznan, Poland.

O14-3
ELECTROCHEMICAL CAPACITOR USING GRAPHITE-FLUORIDE AND ALKALI METAL
Soshi Shiraishi[1], Tsuyoshi Kawashima[1], Yasuyoshi Shiraishi[1], and Hiroyuki Fujimoto[2]
[1]*Gunma University, Kiryu, Gunma 376-8515, Japan*
[2]*Osaka Gas Co. Ltd., Osaka 554-0051, Japan.*

O14-4 (Keynote)
SWCNT FOR ELETROCHEMICAL POWER SOURCES
Konstantin Tikhonov, Oleg Bobrenok, Mikhail Predtechensky
OCSiAl S.à r.l., 15-17 Avenue Gaston Diderich, L-1420 Luxembourg.

S5: Electrochemical Carbons 15 - Carbon Research for Industry
(R K Dash and Y-K Lee, presiding)

O15-1 (Keynote)
THERMALLY PURIFIED GRAPHITE FOR ENERGY APPLICATIONS
Francois Henry, Joseph Li, Diptarka Majumdar
Superior Graphite, 1470 S. Riverside Plaza, Chicago, IL 60606, USA.

O15-2
FABRICATION OF SILICON CARBIDE DERIVED CARBON MADE FROM RICE HUSK AND ITS ELECTROCHEMICAL PERFORMANCES FOR CAPACITOR ELECTRODES
Takahiro Saito, Kazuya Kuwahara, Shinji Ishikawa
Sumitomo Electric Industries, LTD., 1, Taya-cho, Sakae-ku, Yokohama 244-8588, Japan.

O15-3
A TUNABLE HIERARCHICAL POROUS CARBON (HPC) FOR SPECIFIC ENERGY STORAGE APPLICATIONS
Luis Estevez[1], Sookyung Jeong[1], Wu Xu[1], Ruiguo Cao[1], Xiaolin Li[1], Priyanka Bhattacharya[1], Qiang Wu[2], Jim P. Zheng[2], Ji-Guang Zhang[1]
[1]Pacific Northwest National Laboratory, Richland, WA, USA
[2]Florida State University, Tallahassee, FL, USA.

O15-4
CARBON BLACK FOR ELECTROCHEMICAL ELECTRODES AND THERMAL INTERFACE MATERIALS
Morteza Moalleminejad, Kesong Hu, and D.D.L. Chung
Composite Materials Research Laboratory, University at Buffalo, State University of New York, Buffalo, NY 14260-4400, USA.

S5: Electrochemical Carbons 16 - Carbon Research for Industry
(R K Dash and Y-K Lee, presiding)

O16-1
GICs OF NANOCARBONS AND THEIR ROLE AS EFFECTIVE REDUCING AGENT
Ferdinand Hof[1,2], Kai Huang[1,2], Katerina Kampioti[1,2], Alessandro Boni[3], Giovanni Valenti[3], Catharina Paukner[4], Alain Derré[1,2], Francesco Paolucci[3], Alain Penicaud[1,2]
[1]CNRS, Centre de Recherche Paul Pascal (CRPP), UPR 8641, F-33600 Pessac, France.
[2]Université Bordeaux, CRPP, UPR 8641, F-33600 Pessac, France.
[3]Dipartimento di Chimica "G. Ciamician", Università di Bologna, 40126 Bologna, Italy.

O16-2
TUNING WATER MANAGEMENT IN PEM FUEL CELLS – ROLE OF CARBONS AND GDL DESIGN REVISITED
Ruediger Schweiss, Christian Meiser, Oswin Oettinger
SGL Carbon GmbH, Technology and Innovation, Werner von Siemensstrasse 18, D-86405 Meitingen, Germany.

O16-3

FABRICATION OF HOLLOW CARBON SPHERE CONTAINING ACTIVE MATERIALS *VIA* ELECTROSPRAYING

Jihyun Yoon[1], Ho-Sung Yang[1], Byoung-Sun Lee[2], Kang Hee Lee[2], Woong-Ryeol Yu[1]

[1]*Department of Materials Science and Engineering, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul 151-742, Republic of Korea*

[2]*Samsung Advanced Institute of Technology, 130, Samsung-ro Yeongtong-gu, Suwon-si Gyeonggi-do, Republic of Korea.*

S5: Electrochemical Carbons 17 - Porous Carbons

(H-M Cheng and M Oschatz, presiding)

O17-1 (Keynote)

UNDERSTANDING THE ELECTROCHEMICAL DEGRADATION OF CARBON MATERIALS IN TERMS OF CARBON EDGE SITES

Kaishi Taguchi[1], Hirotomo Nishihara[1], Takafumi Ishii[2], Yasuji Muramatsu[3], Diego Cazorla-Amorós[4], and Takashi Kyotani[1]

[1]*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai 980-8577, Japan*

[2]*Graduate School of Science and Technology, Gunma University, 1-5-1, Tenjin-cho, Kiryu, Gunma 376-8515, Japan*

[3]*Graduate School of Engineering, University of Hyogo, 2167, Shosya, Himeji, Hyogo 671-2201, Japan*

[4]*Departamento de Química Física e Instituto Universitario de Materiales, Universidad de Alicante. Apdo 99, Alicante, Spain.*

O17-2

ANOMALOUS ACCUMULATION OF ISOCHARGED IONS IN THE NEAREST COUNTER ION SHELL OF IONIC LIQUID CONFINED IN CARBON MICROPORES

Ryusuke Futamura[1], Taku Iiyama[1,2], Yuma Takasaki[2], Yury Gogotsi[3], Mark Biggs[4,5], Patrice Simon[6,7], and Katsumi Kaneko[1]

[1]*Center for Energy and Environmental Science, Shinshu University, 4-17-1, Nagano, 380-8553, Japan*

[2]*Faculty of Science, Department of Chemistry, Shinshu University, 3-1-1, Matsumoto, 390-8621, Japan*

[3]*Department of Material Science and Engineering, Drexel University, 3141 Chestnut Street Philadelphia, Pennsylvania 19104, USA*

[4]*School of Science, Loughborough University, Leicestershire, LE11 3TU, UK*

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[6]*Université Paul Sabatier, CIRIMAT UMR, CNRS 5085,118 route de Narbonne, 31062 Toulouse Cedex 4, France*

[7]*Réseau sur le Stockage Electrochimique de l'Energie, RS2E FR CNRS 3459, France.*

O17-3

(tbd)

S5: Electrochemical Carbons 18 - Porous Carbon

(H-M Cheng and M Oschatz, presiding)

O18-1

ION DYNAMICS AND CAPACITANCE IN FUNCTIONALIZED POROUS AND NON-POROUS CARBON ELECTRODES

Boris Dyatkin[1], Yu Zhang[2], Eugene Mamontov[3], Naresh C. Osti[3], Alexander I. Kolesnikov[3], Yongqiang Cheng[3], Peter T. Cummings[2], Yury Gogotsi[1]

[1]*A.J. Drexel Nanomaterials Institute & Department of Materials Science and Engineering, Drexel University, Philadelphia, PA, USA.*

[2]*Vanderbilt University, Nashville, TN, USA*
[3]*Oak Ridge National Laboratory, Oak Ridge, TN, USA.*

O18-2

DISTRIBUTION OF SULFUR IN CARBON/SULFUR NANOCOMPOSITES ANALYZED BY SMALL ANGLE X-RAY SCATTERING

Simone Mascotto[1], Albrecht Petzold[2], Günter Goerigk[2], Daniel Clemens[2], Jonas Scholz[1], Anika Juhl[1], Michael Fröba[1] and Matthias Ballauff[2]
[1]*Institute of Inorganic and Applied Chemistry, University of Hamburg, Martin-Luther-King Platz 2016 Hamburg, Germany*
[2]*Helmholtz-Zentrum Berlin, Hahn-Meitner-Platz 1, 14109 Berlin, Germany.*

O18-3

EFFECT OF PROCESSING CONDITIONS ON THE CAPACITIVE PERFORMANCE OF ONION-LIKE CARBON

Kathleen A. Maleski, Katherine L. Van Aken, Tyler S. Mathis, James P. Breslin, and Yury Gogotsi
Department of Materials Science and Engineering, A.J. Drexel Nanomaterials Institute, Drexel University, 3141 Chestnut Street, Philadelphia, PA 19104, USA.

O18-4 (Keynote)

NANOSTRUCTURED CARBON MATERIALS FOR LITHIUM SULFUR BATTERIES

Stefan Kaskel[1,2] and Holger Althues[2]
[1]*Department of Chemistry, TU Dresden, Germany*
[2]*Fraunhofer IWS, Dresden, Germany.*

S6: Fibers and Composites - 1
(J Norley, presiding)

O1-1
MODIFICATION OF FCC-DO FOR FEASIBLE PROCESSES OF MESOPHASE PITCH BASED CARBON FIBERS
Dong Hun Lee[1], Kap Seung Yang[1,2], Young Se Oh[3]
[1]Department of Polymer Engineering, Graduate School, Chonnam National University, 77 Yongbong-ro, Buk-gu, Gwangju 61186, Republic of Korea
[2]Alan G. MacDiarmid Energy Research Institute, School of Polymer Science and Engineering, Chonnam National University, 77 Yongbong-ro, Buk-gu, Gwangju 61186, Republic of Korea.
[3]Chemical&Polymer Lab. R&D center, GS Caltex Corporation, Daejeon, 305-380, Republic of Korea.

O1-2
SUPERCRITICAL FRACTIONATION OF PYRENE OLIGOMERS FOR ENHANCED MATERIALS PROPERTIES
Mark Thies, Cabell Lamie
Clemson University, 221 Earle Hall, Clemson, SC 29634, USA.

O1-3
NEW PROCESSES FOR THE PRODUCTION OF ISOTROPIC AND MESOPHASE PITCH
D. Chris Boyer[1], Thomas C. Holcombe[2] and Donald P. Malone[3]
[1]Advanced Carbon Products, LLC, 1404 Shadowwood Lane, Fleming Island, FL 32003, USA
[2]Advanced Carbon Products, LLC, 200 Beekman Lane, Hillsborough, NJ 08844, USA
[3]Advanced Carbon Products, LLC, P.O. Box 38, Hitchins, KY 41146, USA.

S6: Fibers and Composites - 2
(W Hoffman, presiding)

O2-1
INVESTIGATION OF THE EFFECTS OF HIGH TEMPERATURES OF SHORT DURATION ON MICROSTRUCTURE AND PROPERTIES OF PAN-BASED CARBON FIBERS AND DRY CARBON YARNS
Brian J. Sullivan[1], Kerry D. Howren[1], Chanse Appling[2], Jacques Cuneo[2], John Koenig[2], and David Anderson[3]
[1]Materials Research & Design, Inc., Wayne, PA, USA
[2]Southern Research Institute, Birmingham, AL, USA
[3]University of Dayton Research Institute, Dayton, OH, USA.

O2-2
SHORTENING THE THERMAL STABILIZATION OF POLYACRYLONITRILE-BASED CARBON FIBERS: ROLE OF ELECTRON BEAM IRRADIATION PRIOR TO THERMAL STABILIZATION
Seung Hwa Yoo, Sejoon Park, Ha Ri Kang, Seong Mu Jo, Han-Ik Joh, Sungho Lee
Carbon Convergence Materials Research Center, Institute of Advanced Composite Materials, Korea Institute of Science and Technology, 92, Chudong-ro, Bongdong-eup, Wanju-gun, Jeollabuk-do 565-905, Republic of Korea.

O2-3
CHEMICAL REACTIONS OF ATACTIC-POLYACRYLONITRILE STABILIZATION
Toshikazu Miyoshi[1], Xiaoran Liu[1], Youlee Hong[2], and Yusuke Nishiyama[2]
[1]Department of Polymer Science, The University of Akron, Akron, OH 44325-3909, USA
[2]RIKEN CLST-JEOL Collaboration Center, Yokohama, Kanagawa 230-0045, Japan.

O2-4

MAPPING THE MECHANICAL PROPERTIES OF CARBON FIBER COMPOSITE BY ADVANCED NANOINDENTATION TECHNIQUE

Yujie Meng
Nanomechanics, Inc. Oak Ridge, TN 37830, USA.

S6: Fibers and Composites - 3

(A Ogale, presiding)

O3-1

PAN PRECURSOR DRAW AND STRAIN RATE DURING SPINNING: QUANTITATIVE EFFECTS ON MECHANICAL PROPERTIES AND ORIENTATION OF RESULTANT CARBON FIBER

Sarah Edrington, E. Ashley Morris, Nik Hochstrasser, Matthew C. Weisenberger, and Jason Stewart
Center for Applied Energy Research, University of Kentucky, 2540 Research Park Dr., Lexington, KY 40511, USA.

O3-2

ENHANCED STABILIZATION OF POLYACRYLONITRILE BASED CARBON FIBRE WITH IONIC LIQUIDS

Maxime Maghe[1], Claudia Creigthon[1], Luke Henderson[1], Mickey Huson[2], Nolene Byrne[3] and Bronwyn Fox[4]
[1]Deakin University, Carbon Nexus, 75 Pigdons Rd, Waurn Ponds, Geelong, Australia.
[2]CSIRO, Manufacturing, 75 Pigdons Rd, Waurn Ponds, Geelong, Australia.
[3]Deakin University, 75 Pigdons Rd, Waurn Ponds, Geelong, Australia.
[4]Swinburne University, Faculty of Science, Engineering and Technology, Hawthorn, Melbourne, Australia.

O3-3

FIRST OBSERVATION OF ELECTRICAL-RESISANCE-BASED DAMAGE SELF-SENSING AND VISCOELASTIC BEHAVIOR OF CARBON FIBER TOWS

Miguel Ramirez[1,2] and D.D.L. Chung[1]
[1]Composite Materials Research Laboratory, University at Buffalo, State University of New York, Buffalo, NY 14260-4400, USA
[2]Undergraduate student, University at Albany, State University of New York, NY, USA.

O3-4

APPLICATION OF DRAWING PROFILES DURING STABILIZATION FOR IMPROVED CARBON FIBRE STRENGTH

Franz Pursche, Konstantin Schech, Gunnar Seide, Thomas Gries
Institut für Textiltechnik, Department of man-made fibres, RWTH Aachen University, OttoBlumenthal-Str. 1, 52074 Aachen, Germany.

S6: Fibers and Composites - 4

(M Thies, presiding)

O4-1

LOW-COST, RENEWABLY-SOURCED LIGNIN-BASED CARBON FIBERS FOR HIGH-TEMPERATURE APPLICATIONS

Ryan M. Paul, Xuliang Dai, Shadab Shaikh, Deanna Burwell, and Andrew Hausner
GrafTech International Holdings Inc., USA.

O4-2

CARBON FIBERS DERIVED FROM LIGNIN-PAN POLYMER BLEND PRECURSOR

Jing Jin, Amod Ogale
Department of Chemical and Biomolecular Engineering, Clemson University, Clemson, SC 29634, USA.

O4-3

TUNABLE FABRICATION OF CARBON NANOFIBERS BASED ON THE ELECTROSPINNING OF BIOWASTE LIGNIN AND RECYCLED PET

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S6: Fibers and Composites - 5

(A Naskar, presiding)

O5-1

HIGH STRENGTH CARBON NANOTUBE COMPOSITE YARNS BY INFILTRATION OF DICYCLOPENTADIENE POLYMER FORMULATION

Igor De Rosa[1], Wenbo Xin[2], Larry Carlson[1]
[1]UCLA Engineering Institute for Technology Advancement, and [2]Department of Materials Science and Engineering,
University of California Los Angeles, 420 Westwood Plaza, Los Angeles 90095, USA.

O5-2

SCALING UP THE FABRICATION OF MECHANICALLY ROBUST CARBON NANOFIBER FOAMS

Jonathan Phillips[1], William Curtin[2], Pedro Arias Monje[2], Chariean Dominguez[2], and Claudia C. Luhrs[2]
[1]Naval Postgraduate School and [2]Dept. of Mechanical and Aerospace Engineering, Naval Postgraduate School 1 University Drive, Monterey CA 93943, USA.

O5-3

MECHANICAL PROPERTIES OF CARBON/CARBON COMPOSITES REINFORCED BY CARBON NANOTUBES WITH DIFFERENT EXTENDING LENGTHS

Lei Feng, Ke-zhi Li, He-jun Li, Qiang Song, Lei-Lei Zhang, Jin-hua Lu
State Key Laboratory of Solidification Processing, C/C Composites Research Center, Northwestern Polytechnical University, Xi'an, 710072, P.R. China.

S6: Fibers and Composites - 6

(W Lu, presiding)

O6-1

CONTINUOUS CARBON FIBER POLYMER-MATRIX COMPOSITES IN UNPRECEDENTED ANTIFERROELECTRIC COUPLING AND PROVIDING HIGH THROUGH-THICKNESS ELECTRIC PERMITTIVITY UP TO 78,000

Yoshihiro Takizawa[1,2], and D.D.L. Chung[1]
[1]Composite Materials Research Laboratory, University at Buffalo, State University of New York, Buffalo, NY 14260-4400, USA
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O6-2

IMPACT OF NITROGEN DOPING OF CARBON NANOTUBE ON DIELECTRIC PROPERTIES OF CARBON NANOTUBE/POLYMER NANOCOMPOSITES

Mohammad Arjmand and Uttandaraman Sundararaj
Department of Chemical and Petroleum Engineering, University of Calgary, Canada.

O6-3

GRAPHITE NANOPLATELET-BASED EPOXY COMPOSITES AS ADHESIVES AND PADS FOR THERMAL INTERFACE APPLICATIONS

Mohsin Ali Raza[1], Aidan Westwood[2], Chris Stirling[3]
[1]Department of Metallurgy and Materials Engineering, CEET, University of the Punjab, Lahore, Pakistan
[2]Institute for Materials Research, School of Chemical and Process Engineering, University of Leeds, LS2 9JT, UK
[3]Morgan Advanced Materials, Swansea, SA6 8PP, UK (Current address: Haydale Ltd., Ammanford, SA18 3BL, UK.

O6-4

GRAPHENE AS A NEW CLASS OF POTENTIAL NANOFILLER FOR ELASTOMERIC NANOCOMPOSITES

Anil K. Bhowmick[1], Titash Mondal[1], Ranjan Ghosal[2], and Rabindra Mukhopadhyay[3]
[1]Rubber Technology Center, Indian Institute of Technology Kharagpur, India 721302
[2]Birla Carbon R&D, Taloja, Mumbai-410208, India
[3]HASETRI, J. K. Tyre & Industry Ltd., Kankroli-313342, India.

S6: Fibers and Composites - 7

(N Gallego, presiding)

O7-1

THE EFFECT OF STRUCTURE OF THERMALLY REDUCED GRAPHENE OXIDE ON THE PROPERTIES OF EPOXY RESIN-BASED COMPOSITES

Rubén Sánchez-Hidalgo[1], Silvia Rubiera[2], Clara Blanco[1], Ricardo Santamaría[1], Antonio Argüelles[2], Jaime Viña[2], Raquel Verdejo[3], Miguel Ángel López-Manchado[3], Rosa Menéndez[1]
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[2]Department of Materials Science and Metallurgical Engineering. University of Oviedo, 33203 Gijón, Spain
[3]Instituto de Ciencia y Tecnología de Polímeros, ICTP-CSIC, C/ Juan de la Cierva 3, 28006- Madrid, Spain.

O7-2

CxNy-MATERIALS FROM SUPRAMOLECULAR PRECURSORS FOR "ALL-CARBON" COMPOSITE MATERIALS

Thomas Jordan, Markus Antonietti, Menny Shalom, and Nina Fechler
Max-Planck-Institute of Colloids and Interfaces, Department of Colloid Chemistry, Am Mühlenberg 1, 14476 Potsdam, Germany.

O7-3

FIRST REPORT OF FUMED ALUMINA INCORPORATION IN CARBON-CARBON COMPOSITE AND THE CONSEQUENT IMPROVEMENT OF THE OXIDATION RESISTANCE AND MECHANICAL PROPERTIES

Andi Wang and D.D.L. Chung
Composite Materials Research Laboratory, University at Buffalo, State University of New York, Buffalo, NY 14260-4400, USA.

O7-4

(tbd)

S6: Fibers and Composites - 8
(W Frohs, presiding)

O8-1
OPTIMISING SURFACE FUNCTIONALISATION OF CARBON FIBRE TO ENHANCE INTERFACIAL ADHESION
Kathleen Beggs[1], Daniel Gunzelmann[1], Luke O'Dell[1], Jennifer M. Pringle[1], Cristina PozoGonzalo[1], Thomas Gengenbach[2], Linden Servinis[1], Magenta D. Perus[1], Bronwyn Fox[3] and Luke Henderson[1]
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[2]CSIRO Manufacturing, Bayview Avenue, Clayton, Victoria 3168, Australia
[3]Swinburne Research/Faculty of Science, Engineering and Technology, John Street, Hawthorn, Victoria 3122, Australia.

O8-2
EFFECT OF ATOMIC OXYGEN ON THE PERFORMANCE OF C/C–SiC–ZrC COMPOSITES: THE ROLE OF EXPOSURE TIME
Lingjun Guo, Aizhi Cao, Hejun Li, Xiaohong Shi
State Key Laboratory Solidification Processing, C/C Composites Research Centre, Northwestern Polytechnical University, Xi'an 710072, PR China.

O8-3
DIMENSION CONTROLABLE SYNTHESIS OF GOLD NANOCRYSTALS ON CARBON NANOTUBE ASSEMBLIES AND THEIR MULTI-FUNCTIONAL APPLICATIONS
Wenbo Xin[1], Igor De Rosa[2], Larry Carlson[2]
[1]Department of Materials Science and Engineering, University of California Los Angeles, 410 Westwood Plaza, Los Angeles, 90095, USA
[2]UCLA Engineering Institute for Technology Advancement, University of California Los Angeles, 410 Westwood Plaza, Los Angeles, 90095, USA.

S6: Fibers and Composites - 9
(C A León y León, presiding)

O9-1
DEVELOPMENT OF TEST DEVICE OF THERMAL EXPANSION OF CARBON FIBER
Norio Iwashita, Hiromichi Watanabe, and Naofumi Yamada
National Institute of Advanced Industrial Science and Technology, AIST/Tsukuba, JAPAN.

O9-2
AMPACITY AND ELECTRICAL CONDUCTIVITY OF A COPPER CARBON NANOTUBE COMPOSITE AT ROOM AND ELEVATED TEMPERATURES
Henry C. de Groh III
NASA Glenn Research Center, ms 49-3, Cleveland, OH 44135, USA.

O9-3
Ni-Mg/MWCNT AND Ni-Ca/MWCNT FROM THE CONTROLLED DRY METHANE REFORMING ON ACTIVATED CARBON-SUPPORTED Ni-BASED CATALYSTS
Juan Matos[1], José R. Rangel-Méndez[2], and Javier A. Arcibar-Orozco[2,3]
[1]Biomaterials Department, Technological Development Unit, University of Concepción, Chile.
[2]Division of Environmental Sciences, Instituto Potosino de Investigación Científica y Tecnológica, C.P. 78216, San Luís Potosí, S.L.P., México.
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S7: Fullerenes, Nanotubes and Other Curved Nanostructures - 1
(R Andrews, presiding)

O9-1 (Keynote)
KINETICS OF COLLECTIVE CARBON NANOTUBE NUCLEATION AND DEACTIVATION REVEALED BY *IN SITU* ENVIRONMENTAL TRANSMISSION ELECTRON MICROSCOPY
Mostafa Bedewy[1,2,†], Viswanath Balakrishnan[1††], Eric R. Meshot[3], Dmitri N. Zakharov[4], Eric A. Stach[4] and A. John Hart[1,2]
[1]Department of Mechanical Engineering and Laboratory for Manufacturing and Productivity, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139, USA
[2]Department of Mechanical Engineering, University of Michigan, 2350 Hayward St. Ann Arbor, MI 48109, USA
[3]Physical and Life Sciences Directorate, Lawrence Livermore National Laboratory, Livermore, CA, USA.
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[†]Current Address: Research Laboratory of Electronics, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139, USA
[††]Current Address: Indian Institute of Technology, Mandi, India.

O9-2
HIGH CURRENT PER TUBE IN CARBON NANOTUBE ARRAY FIELD-EFFECT TRANSISTORS
Gerald J. Brady, Austin J. Way, Robert M. Jacobberger, Michael T. Strand, Yongho Joo, Padma Gopalan, and Michael S. Arnold
University of Wisconsin, Madison, Department of Materials Science and Engineering, 1509 University Avenue, Madison, WI 53706, USA.

O9-3
TRANSPARENT AND CONDUCTIVE FILM FABRICATION WITH THE Zn/Al COMPLEX-AIDED SWCNT INKS
Radovan Kukobat[1,2], Takuya Hayashi[1], Takafumi Matsuda[3], Motoo Sunaga[3], and Katsumi Kaneko[2]
[1]*Department of the Electrical Engineering, Shinshu University, Nagano 380-8553, Japan*
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[3]*Technuical Center, Fuji Chemical Co., Nakatsugawa 509-9132, Japan.*

S7: Fullerenes, Nanotubes and Other Curved Nanostructures - 2
(H Terrones, presiding)

O10-1
ROBUSTNESS OF CARBON NANOTUBES IN HIGH TEMPERATURE ENERGETICS REACTIONS
Karen Martirosyan[1], M.A. Hobosyan[1], P. Martinez[2], and A.A. Zakhidov[2]
[1]Department of Physics, University of Texas Rio Grande Valley, Brownsville, TX 78520, USA
[2]NanoTech Institute, University of Texas at Dallas, Richardson, TX 75083–0688, USA.

O10-2
HIGHLY EFFICIENT PHOTOLUMINESCENT EUROPIUM-NANOLATEX SYSTEMS ENHANCED BY NITROGEN-DOPED CARBON NANOTUBES
Cristal Ibañez[1], Sidicleia Bezerra[2], Miguel A. Pelagio-Flores[1,2], Yadira I. Vega-Cantú[2] and André Galembeck[1,2]
[1]*Centro de Tecnologias Estratégicas do Nordeste-CETENE, MCTI, Recife-PE, Brasil.*
[2]*Departamento de Química Fundamental, Universidade Federal de Pernambuco UFPE, Recife-PE, Brasil.*

O10-3

ENHANCED ELECTRICAL CONDUCTIVITY IN EXTRUDED SINGLE-WALL CARBON NANOTUBE FIBERS FROM LASER VAPORIZATION SYNTHESIS

Andrew R. Bucossi[1,2], Cory D. Cress[3], Christopher M. Schauerman[2,4], Jamie E. Rossi[2,5], Ivan Puchades[2,5], and Brian J. Landi[2,5]

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[2]NanoPower Research Laboratory, Rochester Institute of Technology, Rochester, NY, 14623, USA
[3]Electronics Science & Technology Division, U.S. Naval Research Laboratory, Washington, DC, 20375, USA
[4]Battery Prototyping Center, Rochester Institute of Technology, Rochester, NY, 14623, USA
[5]Department of Chemical Engineering, Rochester Institute of Technology, Rochester, NY 14623, USA.

O10-4 (Keynote)

CARBON NANOTUBES: FUNDAMENTAL OBSTACLES AND PERSPECTIVES FOR INDUSTRIAL-SCALE APPLICATIONS

Avetik Harutyunyan
Honda Research Institute USA Inc., Columbus, Ohio, 43212, USA.

S7: Fullerenes, Nanotubes and Other Curved Nanostructures - 3
(B Pradhan, presiding)

O11-1 (Keynote)

COMPUTATIONAL TOOLS FOR THE ADVANCEMENT OF CARBON-BASED NANOMATERIALS AND BEYOND

Richard G. Hennig
Materials Science and Engineering, University of Florida, Gainesville, Florida 326111, USA.

O11-2

BENZENE DERIVED CARBON NANOTHREADS

John V. Badding[1,4,5,7], Xiang Li[1,7], Thomas Fitzgibbons[1,7], Malcolm Guthrie[2], Maria Baldini[3], Nasim Alem[4,7], Steven Juhl[1,4,7], Enshi Xu[5,7], Tao Wang[5,7], Roald Hoffmann[6], Bo Chen[6], Vincent H. Crespi[1,4,5,7]
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[2]European Spallation Source, Lund, Sweden
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[6]Department of Chemistry, Cornell University, Ithaca, NY 14853, USA
[7]Materials Research Institute, Pennsylvania State University, University Park, PA 16802, USA.

O11-3

CONTROLLED SYNTHESIS OF HIGH-QUALITY SEMICONDUCTING SINGLE-WALL CARBON NANOTUBES

Peng-Xiang Hou, Jin-Cheng Li, Wen-Shan Li, Chang Liu, and Hui-Ming Cheng
Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, People's Republic of China.

O11-4

GROWTH MECHANISM OF HELICALLY STACKED CONE STRUCTURE OF GRAPHENE RIBBON

Yukie Saito[1], Masaaki Yoshikawa[2], Hiroyuki Fujimoto[2]
[1]Graduate School of Agricultural Life Sciences, The University of Tokyo, Bunkyo-ku Yayoi, 113- 8657, Japan
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S7: Fullerenes, Nanotubes and Other Curved Nanostructures - 4
(E Muñoz-Sandoval, presiding)

O12-1
DESIGNING MAGNETIC BUCKYPAPERS TOWARDS ELECTRONICS APPLICATIONS
Karwei So[1], Benoit Grosjean[1,2], Seyyed Shayan Meysami[1], Vitaly Babenko[1], Greg Cook[1], Frank Dillon[1], Toru Maekawa[3], Nicole Grobert[1]
[1]University of Oxford, Department of Materials, Parks Road, Oxford. OX1 3PH, United Kingdom
[2]École Normale Supérieure, Département de Chimie, 45 Rue d'Ulm, 75005 Paris, France
[3]Bio-Nano Electronics Research Centre, Toyo University, 2100 Kujirai, Kawagoe, Saitama, Japan.

O12-2
PROCESSING OF MULTI-WALLED CARBON NANOTUBES TO ACHIEVE MAGNETIC ADDITIVES FOR POLYMER NANOCOMPOSITES
Jatin Haibat[1], Steven Ceneviva[1], Frances Kwok[2], Simin Feng[3], Mychal Spencer[1], Ana Laura Elias[3], Mauricio Terrones[2,3,4], Suzanne Mohney[2], and Namiko Yamamoto[1]
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[3]Department of Physics, Pennsylvania State University, University Park, PA 16802, USA
[4]Department of Chemistry, Pennsylvania State University, University Park, PA 16802, USA.

O12-3
STRESS-PATTERNED SELF-FORMATION OF TEXTURED GRAPHITE CONDUCTING WIRES IN AMORPHOUS CARBON MATRIX
Ding-Shiang Wang[1,2], Shou-Yi Chang[1,3], Jin-Bao Wu[2], Ming-Sheng Leu[2], and Hon-Jen Lai[2]
[1]*Department of Materials Science and Engineering, National Chung Hsing University, Taichung 40227, Taiwan*
[2]*Material and Chemical Research Laboratories, Industrial Technology Research Institute, Chutung 30010, Taiwan*
[3]*Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu 30013, Taiwan.*

S7: Fullerenes, Nanotubes and Other Curved Nanostructures - 5
(S B Sinnott, presiding)

O15-1 (Keynote)
COMPUTATIONAL EXPLORATION AND DESIGN OF NANOSCALE SENSORS AND DEVICES
J. Bernholc[1,2], Yan Li[1], Miroslav Hodak[1], Wenchang Lu[1,2], Emil B. Briggs[1]
[1]Center for High Performance Simulation and Department of Physics, North Carolina State University, Raleigh, NC 27695-7518, USA
[2]Computer Science and Mathematics Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA.

O15-2
RAMAN SCATTERING FOR *IN SITU* ANALYSIS OF sp2 CARBONS UNDER EXTREME CONDITIONS
M. R. Ammar[1], A. Canizarès[1], T. Labbaye[2], N. Bost[1], E.S. Fotso Gueutue[1], E. Kovacevic[2], Ch. Boulmer-Leborgne[2], N. Raimboux[1], J. Poirier[1], P. Simon[1]
[1]CNRS, CEMHTI UPR3079, Univ. Orléans, F-45071 Orléans Cedex 2, France
[2]GREMI UMR 7344 Université & CNRS d'Orléans, Orléans, France.

O15-3
MODIFIED GROWTH TERMINATION MODEL OF CARBON NANOTUBE FOREST
Jaegeun Lee, Seojeong Jeong, and Seung Min Kim
Institute of Advanced Composite Materials, Korea Institute of Science and Technology, Jeonbuk 55324, Korea.

O15-4

CNT COATINGS AS THE ICING ON LASER TEXTURES - ENTRAPPING SOLID LUBRICANT TO LAST LONGER

Leander Reinert[1], Sebastian Suárez[1], Federico Lasserre[1], Cedric Mathieu[1], Steffen Gimmler[1], Joan Josep Roa[2], and Frank Mücklich[1]

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S7: Fullerenes, Nanotubes and Other Curved Nanostructures - 6

(S Sinnott, presiding)

O16-1

FIELD EMISSION PROPERTIES OF CARBON NANOSTRUCTURES: NANOTUBES, MICRO-ARRAYS AND GRAPHENE OXIDE

María Luisa García-Betancourt[1,2], Néstor Perea-López[2], Ferdinando Tristán[3], Sofía Vega-Díaz[4], Ana Laura Elias[2], Florentino López-Urías[5], Emilio Muñoz-Sandoval[5], Mauricio Terrones[2,6,7]

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[6]*Department of Chemistry and Department of Materials Science and Engineering, Pennsylvania State University, University Park, PA, United States;*

[7]*Carbon Institute of Science and Technology, Shinshu U., Nagano, 4-17-1 Wakasato, Japan.*

O16-2

NUCLEAR MAGNETIC RESONANCE CHEMICAL SHIFTS OF PARTIALLY AND FULLY SATURATED CARBON NANOTHREADS CALCULATED BY DENSITY FUNCTIONAL THEORY

Tao Wang[1], En-shi Xu[1], and Vincent H. Crespi[1,2,3,4]

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[2]*Department of Materials Science and Engineering, Pennsylvania State, University, University Park, PA 16802, USA*

[3]*Department of Chemistry, Pennsylvania State University, University Park, PA 16802, USA*

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O16-3 (Keynote)

LOCAL-CURVATURE EFFECTS IN GRAPHENE

Sokrates Pantelides[1,2]

[1]*Department of Physics and Astronomy and* [2]*Department of Electrical Engineering and Computer Science Vanderbilt University, Nashville, Tennessee 37235, USA.*

S7: Fullerenes, Nanotubes and Other Curved Nanostructures - 7

(H Terrones, presiding)

O17-1 (Keynote)

UNDERSTANDING THE ROLES OF GAS COMPOSITION AND CATALYST IN FLAME SYNTHESIS OF CARBON NANOTUBES USING PREMIXED AND DIFFUSION FLAMES

Randy Vander Wal
John and Willie Leone Family Department of Energy and Mineral Engineering and The EMS Energy Institute, The Pennsylvania State University, USA.

O17-2
KINETICS AND CATALYSIS OF CARBON TUBES GROWTH. CNTs - OCTOPUS CARBON, CNFs – SPIRAL GROWTH, KINETIC LINEARITY PRINCIPLE
Luis S Lobo
Nova Lisboa University, Requimte/Chem. Dept., 2829 Caparica, Portugal.

O17-3
RESONANT RAMAN MODES FOR SINGLE CHIRALITY-ENRICHED, SEMICONDUCTING CARBON NANOTUBE SOLUTIONS
Yanmei Piao[1], Jeffrey R. Simpson[1,3], Jason K. Streit[2], Geyou Ao[2], Ming Zheng[2], Jeffrey A. Fagan[2], Angela R. Hight Walker[1]
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S7: Fullerenes, Nanotubes and Other Curved Nanostructures - 8
(N Grobert, presiding)

O18-1
THE EFFECTS OF ION IRRADIATION ON THE CONTACT RESISTANCE BETWEEN SILVER AND SINGLE-WALL CARBON NANOTUBE THIN FILMS
Nathanael D. Cox[1,2], Jamie E. Rossi[2,3], Ivan Puchades[2,3], Andrew Merrill[2,3], Cory D. Cress[4], Brian J. Landi[2,3]
[1]Deptartment of Microsystems Engineering, Rochester Institute of Technology, Rochester, NY, 14623, USA
[2]NanoPower Research Laboratories, Rochester Institute of Technology, Rochester, NY, 14623, USA
[3]Deptartment of Chemical Engineering, Rochester Institute of Technology, Rochester, NY, 14623, USA
[4]Electronics Science and Technology Division, United States Naval Research Laboratory, Washington, D.C. 20375, USA.

O18-2
THIN CNT FILMS FABRICATED BY UNIFORM DROPLETS PRINTING
Hongcheng Lian, Xianming Zhang, Jun Luo, Lehua Qi, Keyu Xie, and Hejun Li
Northwestern Polytechnical University, Xi'an 710072, China.

O18-3
IS IT POSSIBLE TO SYNTHESIZE MULTIWALLED CARBON NANOTUBES USING A VERY LOW FERROCENE CONCENTRATION?
Grecia Yajsee[l], Martínez Ortiz[1,4], Haydee Pacheco Flores[2,4], Rocío Morales Salinas[3,4], Alejandro Javier Cortés-López[1], Florentino López-Urías[4], Emilio Muñoz Sandoval[1]
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[2]Departamento de Ciencias Químico-Biológicas, Universidad de las Américas Puebla, San Andrés Cholula, Puebla 72820, Mexico
[3]Instituto Tecnológico de Celaya, Av. Tecnológico y Av. García Cubas s/n Celaya,Guanajuato, Mexico
[4]Advanced Materials Division, IPICYT, camino a la presa San José 2055 Lomas 4ª sección, San Luis Potosí, S.L.P, Mexico.

O18-4 (Keynote)
NANOSTRUCTURED CARBON ALLOTROPES AS WEYL-LIKE SEMIMETALS
Shengbai Zhang
Department of Physics, Applied Physics & Astronomy, Rensselaer Polytechnic Institute, Troy, NY, USA.

S8: Graphene - 1
(Jeremy Robinson, presiding)

O5-1 (Keynote)
CVD GRAPHENE AND NEW OPPORTUNITIES
Rodney S. Ruoff
IBS Center for Multidimensional Carbon Materials, Ulsan National Institute of Science and Technology, 50 UNIST-gil, Eonyang-eup, Ulju-gun, Ulsan, Korea.

O5-2
ATOMIC LAYERS OF GRAPHENE PREPARED BY NON-OXIDATIVE INTERCALATION AND EXFOLIATION OF GRAPHITE BY BRØNSTED ACIDS
Nina I. Kovtyukhova[1], Yuanxi Wang[2], Mauricio Terrones[2], Vincent H. Crespi[2] and Thomas E. Mallouk[1]
[1]Department of Chemistry and [2]Department of Physics, The Pennsylvania State University, University Park, PA 16802, USA.

O5-3
CRUMPLED TWO-DIMENSIONAL MATERIALS FOR MULTIFUNCTIONAL SENSOR DEVICES
Pilgyu Kang[1], Michael Cai Wang[1], and SungWoo Nam[1,2]
[1]Mechanical Science and Engineering and [2]Materials Science and Engineering,
University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA.

S8: Graphene - 2
(Joshua Robinson, presiding)

O6-1
A FAST, LOW-TEMPERATURE GROWTH OF VERTICAL GRAPHENE FROM SOLID WASTE PLASTICS AND THEIR ELECTROCHEMICAL PROPERTIES
Zhipeng Wang[1,2], Hironori Ogata[3,4], Gan Jet Hong Melvin[1,5], Shingo Morimoto[1], Josue Ortiz-Medina[1], Rodolfo Cruz-Silva[1], Masatsugu Fujishige[1], Kenji Takeuchi[1], Hiroyuki Muramatsu[2], Takuya Hayashi[2], Mauricio Terrones[1,6], Yoshio Hashimoto[1,2], Morinobu Endo[1]
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[6]Department of Physics, Department of Materials Science and Engineering & Materials Research Institute, The Pennsylvania State University, University Park, PA 16802, USA.

O6-2
RAPID TRANSFORMATION OF BIOMASS COMPOUNDS TO CATALYSTS *VIA* SHORT MICROWAVE IRRADIATION
Mehulkumar Patel[1], Keerthi Savaram[1], Feixiang Luo[2], M. Reza Khoshi[1], Carol R. Flach[1], Kristina Keating[2], Richard Mendelsohn[1], Eric Garfunkel[2], Michal Szostak[1], and Huixin He[1]
[1]Department of Chemistry, Rutgers University, Newark, NJ 07102, USA
[2]Department of Chemistry and Chemical Biology, Rutgers University, Piscataway, NJ 08854, USA.

O6-3
THREE-DIMENSIONAL BI-CONTINUOUS GRAPHENE MONOLITH FROM POLYMER TEMPLATES
Kewei Liu, Yu-Ming Chen, Gina M. Policastro, Matthew L. Becker, and Yu Zhu
Department of Polymer Science, University of Akron, 170 University Circle, Akron, Ohio 44325-3909, USA

O6-4 (Keynote)

TOWARDS LARGE-AREA SINGLE-CRYSTAL MONOLAYER AND BILAYER GRAPHENE

Van Luan Nguyen and Young Hee Lee

Center for Integrated Nanostructure Physics, Institute for Basic Science, Sungkyunkwan University, Suwon, Kyunggi-do 440-746, South Korea; Department of Energy Science, Department of Physics, Sungkyunkwan University, Suwon, Kyunggi-do 440-746, South Korea.

S8: Graphene - 3

(S Das, presiding)

O7-1 (Keynote)

GRAPHENE FOR NEXT GENERATION INTERCONNECTS APPLICATIONS

Ruchit Mehta, Sunny Chugh, Zhihong Chen

School of ECE and Birck Nanotechnology Center, Purdue University, West Lafayette, IN 47907, USA.

O7-2

REDUCED GRAPHENE OXIDE/CARBIDE DERIVED CARBON FILMS AS HYBRID ELECTRODES FOR HIGH-PERFORMANCE SUPERCAPACITORS

Mohamed Alhabeb, Majid Beidaghi, K. L. Van Aken, Yury Gogotsi

A.J. Drexel Nanomaterials Institute and Department of Materials Science and Engineering, Drexel University, 3141 Chestnut St, Philadelphia, PA 19104, USA.

O7-3

DEFECTIVE GRAPHENE FOR HIGH PERFORMANCE SUPERCAPACITORS

Lili Jiang, Tong Wei, Zhuangjun Fan

College of Material Science and Chemical Engineering, Harbin Engineering University, Harbin 150001, China.

O7-4

CaO-TEMPLATED GROWTH OF HIERARCHICAL POROUS GRAPHENE FOR HIGH-POWER LITHIUM-SULFUR BATTERY APPLICATIONS

Cheng Tang, Bo-Quan Li, Qiang Zhang, Lin Zhu, Hao-Fan Wang, Jia-Le Shi, and Fei Wei

Department of Chemical Engineering, Tsinghua University, Beijing 100084, China.

S8: Graphene - 4

(R Cruz-Silva, presiding)

O8-1

ALL-CARBON NANOARCHITECTURES AS HIGH PERFORMANCE SEPARATION MEMBRANES WITH SUPERIOR STABILITY

Yuan Chen[1] and Kunli Goh[2]

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O8-2

PREPARATION AND APPLICATION OF HIGHLY FOCUSED ELECTRON BEAM GENERATED USING MULTI-LAYER GRAPHENE-GATED TRIODE STRUCTURE

Young Chul Choi[1], Hyojin Jeon[1,2], Sora Park[1], Jun-Tae Kang[1], Eunsol Go[1,2], Min-Sik Shin[1,2], Jae-Woo Kim[1], Jin-Woo Jeong[1] and Yoon-Ho Song[1,2]

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O8-3 (Keynote)
MULTIDIMENSIONAL CARBON: MODELING THE NANOTUBES, GRAPHENE, CARBYNE
Boris I. Yakobson
Rice University, Houston, Texas, USA.

S8: Graphene - 5
(Jeremy Robinson, presiding)

O9-1 (Keynote)
(TITLE TBA)
Keith Paton
National Physical Laboratory, UK.

O9-2
SURFACTANT-FREE SINGLE LAYER GRAPHENE IN WATER
George Bepete[1,2], Eric Anglaret[3], Carlos Drummond[1,2], and Alain Penicaud[1,2]
[1]CNRS, Centre de Recherche Paul Pascal (CRPP), UPR 8641, F-33600 Pessac, France
[2]Univ. Bordeaux, CRPP, UPR 8641, F-33600 Pessac, France
[3]Univ. Montpellier-II, Laboratoire Charles Coulomb (L2C), UMR CNRS 5521, F-34000 Montpellier, France.

O9-3
GRAPHENE SYNTHESIS *VIA* ELECTROCHEMICAL EXFOLIATION OF GRAPHITE NANOPLATELETS IN AQUEOUS SULFURIC ACID
Lin Li-Shang, Aidan Westwood, Rik Brydson
School of Chemical and Process Engineering, University of Leeds, LS2 9JT, UK.

S8: Graphene - 6
(tbd, presiding)

O10-1
GRAPHENE ELECTRONICS: PROGRESS AND PROSPECT
Saptarshi Das
Department of Engineering Science and Mechanics, Center for 2-Dimensional and Layered Materials and Materials Research Institute. The Pennsylvania State University, University Park, Pennsylvania 16802, USA.

O10-2
ADSORPTION OF ORGANIC CONTAMINANTS ON GRAPHENE SURFACES
Archi Dasgupta[1], Juan Matos[5], Christopher Rotella[2], Hiroyuki Muramatsu[6], Viviana Gonzalez[7], Lakshmy Pulickal[2], Kazunori Fujisawa[3], Ana Laura Elias[3], Ljubisa Radovic[4,5] and Mauricio Terrones[1,2,3]
[1]Department of Chemistry, [2]Department of Materials Science and Engineering, [3]Department of Physics,
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[5]Department of Biomaterials, Technology Development Unit, University of Concepcion, Chile.
[6]Faculty of Engineering, Shinshu University, Japan
[7]Department of Chemistry, University of Castilla la Mancha, Spain.

O10-3
PREPARATION AND CHARACTERIZATION OF EDGE SELECTIVELY OXIDIZED GRAPHENE
Jisoo Park, Taehoon Kim, Yern Seung Kim and Chong Rae Park
Department of Materials Science and Engineering, Seoul National University, Seoul 151-744, Korea.

O10-4
ROBUST POROUS ELECTRICALLY CONDUCTIVE COMPOSITE BY SELF-ASSEMBLY OF 2D GRAPHENE SURFACTANTS

Jennifer L. Bento[1], Steven J. Woltornist[2], Elizabeth Brown[1], Deepthi Varghese[2], Andrey V. Dobrynin[3], and Douglas H. Adamson[1,2]
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S8: Graphene - 7
(M Drndic, presiding)

O11-1 (Keynote)
NANOBIOSENSORS BASED ON 2-DIMENSIONAL MATERIALS
A. T. Charlie Johnson
Department of Physics and Astronomy and Laboratory for Research on the Structure of Matter, University of Pennsylvania, Philadelphia, Pennsylvania 19104, USA.

O11-2
IONIC TRANSPORT ACROSS GRAPHENE MEMBRANES
Michael I. Walker[1], Robert S. Weatherup[2], Stephan Hofmann[2], and Ulrich F. Keyser[1]
[1]Cavendish Laboratory, University of Cambridge, J.J. Thomson Avenue, Cambridge CB3 0HE, United Kingdom
[2]Department of Engineering, University of Cambridge, Cambridge CB3 0FA, United Kingdom.

O11-3
DECORATING GRAPHENE WITH CUSTOM BIOMOLECULES
Mirela Mustata[1], Yong-Ho Kim[2], Jian Zhang[3], William F. DeGrado[4], Gevorg Grigoryan[3,5], and Meni Wanunu[1]
[1]Department of Physics and Chemistry/Chemical Biology, Northeastern University Boston MA, USA
[2]SKKU Advanced Institute of Nanotechnology, Sungkyunkwan University, Korea
[3]Department of Computer Science, Dartmouth College, Hanover, NH, USA
[4]Department of Pharmaceutical Chemistry, UC San Francisco, San Francisco, CA, USA.

O11-4
THE PERMEATION OF 2D MOLECULE THROUGH GRAPHENE OXIDE MEMBRANE: THE ROLE OF MOLECULE SHAPE
Boyue Lian[1], Greg Leslie[1] and Rakesh Joshi[2]
[1]UNESCO Centre for Membrane Science and Technology, University of New South Wales, Australia
[2]School of Materials Science and Engineering, University of New South Wales, Australia.

S8: Graphene - 8
(A Morelos-Gomez, presiding)

O12-1
CHEMICALLY SELECTIVE, SHAPE RESPONSIVE, CONDUCTIVE SOFT GRAPHENE COMPOSITE FOAMS
Deepthi Varghese[1], Steven Woltornist[1], Daniel Massucci[1], Andrey Dobrynin[3], Douglas Adamson[1,2]
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[2]Polymer Program, Institute of Materials Science, University of Connecticut, Storrs, Connecticut 06269, United States
[3]Department of Polymer Science, The University of Akron, Akron, Ohio 44325, USA.

O12-2
MULTISCALE GRAPHENE TOPOGRAPHIES PROGRAMMED BY SEQUENTIAL MECHANICAL DEFORMATION
Po-Yen Chen, Ian Y. Wong, Robert H. Hurt

School of Engineering, Institute for Molecular and Nanoscale Innovation, Brown University, Providence, RI 02912, USA.

O12-3

INTERFACIAL-FRICTION-DERIVED VISCOUS BEHAVIOR OF EXFOLIATED GRAPHITE, AS SUPPORTED BY THEORY AND EXPERIMENTS

Lifeng Xiao[1,2], Po-Hsiu Chen[1], and D.D.L. Chung[1]
[1]*Composite Materials Research Laboratory, University at Buffalo, State University of New York, Buffalo, NY 14260-4400, USA*
[2]*Permanent address: School of Mechanical Engineering and Automation, Beihang University, No. 37, Xueyuan Road, Haidian District, Beijing, P.R. China.*

S8: Graphene - 9

(Joshua Robinson, presiding)

O13-1 (Keynote)

ULTRASENSITIVE MOLECULE DETECTION OF LARGE-AREA DOPED GRAPHENE

Ruitao Lv[1], Feiyu Kang[1], Mauricio Terrones[2]
[1]*Key Laboratory of Advanced Materials (MOE), School of Materials Science and Engineering, Tsinghua University, Beijing, 100084, China*
[2]*Department of Physics, The Pennsylvania State University, University Park, PA 16802, USA.*

O13-2

LATERAL HETEROSTRUCTURES BASED ON EPITAXIAL GRAPHENE

Shruti Subramanian, Kehao Zhang, Donna Deng, and Joshua A. Robinson
The Pennsylvania State University, University Park, PA 16802, USA.

O13-3

ENERGY MANIPULATION IN GRAPHENE RESONATORS

Jeremy T Robinson, Maxim Zalalutdinov, Cory D Cress, Jim C Culbertson, Adam L. Friedman
Naval Research Laboratory, Washington, DC 20375, USA.

S8: Graphene - 10

(S Das, presiding)

O14-1

USING GRAPHENE AS A SUBSTRATE IN ADVANCED 2D HETEROSTRUCTURES

Joshua A. Robinson
The Pennsylvania State University, University Park, PA 16802, USA.

O14-2

GRAPHENE DISPERSIONS FOR PRINTING, COMPOSITES, AND ENERGY

David Ager and John Texter
School of Engineering Technology, Eastern Michigan University, Ypsilanti, MI 48197, USA.

O14-3

GROWTH, CHARACTERIZATION, AND GAS SENSING CAPABILITIES OF CVD-GROWN BORON-DOPED GRAPHENE

Amber McCreary[1], Ruitao Lv[1,2], Gugang Chen[3], Qing Lie[4], Andrés Botello-Méndez[5], S. V. Morozov[6], Liangbo Liang[7], Xavier Declerck[5], Nestor Perea-López[1], Ana Laura Elías[1], Rodolfo Cruz-Silva[8], Morinobu Endo[8], Feiyu Kang[2], Jean-Christophe Charlier[5], Vincent Meunier[7], Minghu Pan[9], Avetik R. Harutyunyan[3], Konstantin S. Novoselov[6] and Mauricio Terrones[1,8]
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[2]*Key Laboratory of Advanced Materials of Ministry of Education of China, School of Materials Science and Engineering, Tsinghua University, China*

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[6]*School of Physics & Astronomy, University of Manchester, UK*
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[8]*Research Center for Exotic Nanocarbons, Shinshu University, Japan*
[9]*School of Physics, Huazhong University of Science and Technology, China.*

O14-4
SUSTAINED AND REPRODUCIBLE SUPERLUBRICITY AT MACROSCALE USING GRAPHENE-NANODIAMOND ENSEMBLES
Anirudha V. Sumant[1], Diana Berman[1], Sanket A. Deshmukh[1], Subramanian K.R.S. Sankaranarayanan[1], Ali Erdemir[2]
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S8: Graphene - 11
(J Ortiz-Mendez, presiding)

O15-1 (Keynote)
RECENT PROGRESS IN LARGE-SCALE GRAPHENE SYNTHESIS AND ITS WEARABLE AND BIOMEDICAL APPLICATIONS
Byung Hee Hong[1,2]
[1]*Department of Chemistry, Seoul National University, 151-747, Seoul, Korea.*
[2]*Graphene Square Inc., Seoul National University, 151-747, Korea.*

O15-2
DIRECT OBSERVATION OF CROWN ETHER IN GRAPHENE OXIDE
Junjie Guo[1], Bingshe Xu[1], Matthew F. Chisholm[2], Stephen J. Pennycook[3]
[1]*Key Laboratory of Interface Science and Engineering in Advanced Materials of Ministry of Education, Taiyuan University of Technology, Taiyuan 030024, P.R.China*
[2]*Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6065, USA*
[3]*Department of Materials Science and Engineering, National University of Singapore, Singapore 117576, Singapore.*

O15-3
KINETIC TRAPPING OF UNSTABLE TWO-PHASE LIQUID SYSTEMS USING SELF-ASSEMBLED GRAPHENE MOLECULAR BARRIERS
Megan A. Creighton, Wenpeng Zhu, Finn Van Krieken, Robert A. Petteruti, Huajian Gao, Robert H. Hurt
School of Engineering, Brown University, 182 Hope Street, Providence, RI 02912, USA.

O15-4
(tbd)

S8: Graphene - 12
(R Lv, presiding)

O16-1
FROM GRAPHENE TO 2D TRANSITION METAL CARBIDES: SYNTHESIS AND APPLICATIONS
Wencai Ren[1]
[1]*Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, P.R. China.*

O16-2

DISTORTED GRAPHENE STACKING-DERIVED INACCESSIBLE NANOPOROSITY

Shuwen Wang[1], Dániel Ábrahám[2], Fernando Vallejos-Burgos[1], Krisztina László[2], Kenji Takeuchi[3], Morinobu Endo[3], and Katsumi Kaneko[1]

[1]*Center for Energy and Environmental Science, Shinshu University, Nagano, 380-8553, Japan.*

[2]*Department of Physical Chemistry and Materials Science, Budapest University of Technology and Economy, Budapest, Hungary.*

[3]*Institute of Carbon Science, Shinshu University, Nagano, 380-8553, Japan.*

O16-3 (Keynote)

ADVANCES IN OXO-FUNCTIONALIZED GRAPHENE ARCHITECTURES AND GRAPHENE FORMATION

Siegfried Eigler[1,2]

[1]*Chalmers University of Technology, Sweden*

[2]*Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany***.**

S9: Modeling and Simulation - 1
(J Sofo, presiding)

O6-1
DEGRADATION OF ORGANIC MATTER UNDER GEOLOGICAL CONDITIONS: A ROUTE TOWARDS THERMODYNAMIC SOLID/FLUID EQUILIBRIUM USING REPLICA EXCHANGE MOLECULAR DYNAMICS SIMULATIONS
Roland Pellenq[1,2,3], Léa Atmani[2,3], Jean-Marc Leyssale[2], Christophe Bichara[3], Henri Van Damme[2] and Franz Ulm[1]
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[2]CNRS/MIT joint lab on MultiScale Materials Science for Energy and Environment, MIT Energy Initiative, Massachusetts Institute of Technology, Cambridge, MA 02139, USA
[3]CiNaM, Campus de Luminy, Case 913, 13288 Marseille Cedex 9, France.

O6-2
AN EXPLORATION OF CHAR REACTIVITY CAPTURING TEMPERATURE EFFECTS WITHIN A SIMPLISTIC BUT LARGE-SCALE ATOMISTIC SIMULATION
Haihui Xin[1,2], Chang'an Wang[3], Jonathan P. Mathews[1]
[1]The Leone Family Department of Energy and Mineral Engineering, and the EMS Energy Institute, The Pennsylvania State University, United States
[2]China University of Mining and Technology, Xuzhou, China
[3]Xi'an Jiaotong University, Xi'an, China.

O6-3
SHOCK COMPRESSION OF POROUS GRAPHITE: A COMBINED MOLECULAR DYNAMICS AND EQUATION OF STATE APPROACH
Nicolas Pineau[1], Emeric Bourasseau[1], Jean-Bernard Maillet[1], Vincent Dubois[1], Laurent Soulard[1], and David Hébert[2]
[1]CEA/DAM/DIF, F-91297 Arpajon, France
[2]CEA/DAM/CESTA, F-33114 Le Barp, France.

O6-4
QUANTIFICATION OF THE INFLUENCE OF SUBSTRATE COMPOSITION ON TITANIUM THIN FILM/GRAPHENE STABILITY
Alexandre F. Fonseca[1], Tao Liang[2], Difan Zhang[3], Kamal Choudhary[3], Simon Phillpot[3], and Susan B. Sinnott[2]
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[3]Department of Materials Science and Engineering, University of Florida, Gainesville, FL, 32611-6400, USA.

S9: Modeling and Simulation - 2
(J Mathews, presiding)

O13-1 (Keynote)
STRUCTURE AND PROPERTY ALTERATIONS IN GRAPHITE UNDER HIGH ELECTRON DOSE: A COMBINED TEM/MD INVESTIGATION
Baptiste Farbos[1,2], Helen Freeman[3], Trevor Hardcastle[3], Jean-Pierre Da Costa[2], Rik Brydson[3], Patrick Weisbecker[1], Andrew J. Scott[3], Gérard L. Vignoles[1], and Jean-Marc Leyssale[1,4]
[1]Laboratoire des Composites ThermoStructuraux, Univ. Bordeaux/CNRS/CEA/Herakles, 3 allée de La Boétie, 33600 Pessac, France
[2]Laboratoire d'Intgration du Matériau au Système, Univ. Bordeaux/CNRS/IPB/BSA, 351 Cours de la Libération, 33400 Talence, France
[3]Institute for Materials Research, School of Chemical and Process Engineering, University of Leeds, Leeds LS2

9JT, UK
[4]MultiScale Material Science for Energy and Environment, CNRS/MIT joint lab, MIT Energy Initiative, 77 Massachusetts Avenue, Cambridge MA 02139, USA.

O13-2

DEDUCTIONS ABOUT RADIATION DAMAGE IN GRAPHITE FROM MOLECULAR DYNAMIC RESULTS

Malcolm I. Heggie[1,2], A.J. McKenna[1], T. Trevethan[1], P.J. Young[1] and C.D. Latham[1]
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[2]BlackDogBytes, Brin Villa, Black Dog, Crediton, EX17 4QU United Kingdom.

O13-3

HOT STRINGS, COLD STRINGS: THERMAL CONDUCTIVITY OF CARBYNE CHAINS

Steven W. Cranford, Yichen Deng
Laboratory of Nanotechnology in Civil Engineering (NICE), Department of Civil and Environmental Engineering, Northeastern University, 360 Huntington Avenue, Boston, MA 02115, USA.

S9: Modeling and Simulation - 3

(M Heggie, presiding)

O14-1

ATOMISTIC MODELING INSIGHT INTO THE STRUCTURE OF LIGNITE-BASED ACTIVATED CARBON, AND BEHAVIOR OF BENZENE SORPTION

Yang Huang[1,2,], Fred S. Cannon[2], Jinsong Guo[1,3], Justin K. Watson[4], Jonathan P. Mathews[5]
[1]Yang Huang, College of Urban Construction and Environmental Engineering, Chongqing University, Chongqing 400045, China
[2]Department of Civil and Environmental Engineering, The Pennsylvania State University, University Park, PA 16802, USA
[3]Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences, Chongqing 401122, China
[4]The Applied Research Laboratory, The Pennsylvania State University, University Park, PA 16802, USA
[5]The EMS Energy Institute, and the Leone Family Department of Energy and Mineral Engineering, The Pennsylvania State University, University Park, PA 16802, USA.

O14-2

THERMODYNAMIC ANALYSIS OF SORPTION WITH MSM IN TERMS OF SEQUESTRATION OF CO_2 AND CH_4 RECOVERY

Grzegorz S. Jodłowski, Marta Wójcik, Magda Ziółkowska
AGH University of Science and Technology, Faculty of Energy and Fuels Al. Mickiewicza 30, 30-059 Kraków, Poland.

O14-3

UNDERSTANDING THE INTERACTIONS BETWEEN LITHIUM POLYSULFIDES AND N-DOPED GRAPHENE USING DENSITY FUNCTIONAL THEORY CALCULATIONS

Li-Chang Yin[1], Guang-Min Zhou[1], Ji Liang, Feng Li[1], Riichiro Saito[2], Hui-Ming Cheng[1]
[1]Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, People's Republic of China
[2]Department of Physics, Tohoku University, Sendai 980-8578, Japan.

O14-4

STRUCTURE AND DYNAMICS OF WATER ADSORBED AT THE INTERFACE AND CONFINED IN BETWEEN OF TITANIUM-CARBIDE MXENE LAYERS: REACTIVE MOLECULAR DYNAMICS USING REAXFF

Alireza Ostadhossein[1] and Adri CT van Duin[2]

[1]Department of Engineering Science and Mechanics, and [2]Department of Mechanical and Nuclear Engineering, The Pennsylvania State University, University Park, PA 16802, USA.

S10: Porous Carbons 1 - Electrochemical
(C Thomson, presiding)

O4-1
HIERARCHICALLY ORGANIZED POROUS CARBON MONOLITHS FOR ENERGY STORAGE APPLICATIONS
Michael S. Elsaesser[1], Simon Rumswinkel[1], Christian Prehal[2], Christian Koczwara[2], Oskar Paris[2] and Nicola Hüsing[1]
[1]*Materials Chemistry, Paris Lodron University of Salzburg, 5020 Salzburg, Austria*
[2]*Institute of Physics, Montanuniversität Leoben, 8700 Leoben, Austria.*

O4-2
EXPLORING CO_2 REDUCTION ON HETEROATOM-DOPED NANOPOROUS CARBONS
Wanlu Li[1], Mykola Seredych[2], Enrique Rodríguez-Castellón[3] and Teresa J. Bandosz[1,2]
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[2]*Ph.D. Program in Chemistry, The Graduate Center of the City University of New York, New York, USA*
[3]*Departamento de Química Inorgánica, Universidad de Málaga, Málaga, Spain.*

O4-3
ACTIVATED CARBONS BY NITROGEN-DOPED CHEMICAL ACTIVATION AND THEIR PERFORMANCE IN ELECTRICAL DOUBLE LAYER CAPACITORS
Masaaki Yoshikawa[1], Hiroyuki Fujimoto[1], and Junichi Hayashi[2]
[1]*Energy Technology Laboratories, Osaka Gas co., ltd, Osaka, Japan*
[2]*Kansai University, Osaka, Japan.*

S10: Porous Carbons 2 - CO_2 Adsorption
(T Bandosz, presiding)

O5-1 (Keynote)
DEVELOPMENT OF MICROPOROUS CARBONS FOR CO_2 ADSORPTION AT AMBIENT CONDITIONS
Mietek Jaroniec
Department of Chemistry and Biochemistry, Kent State University, Kent, OH 44224, USA.

O5-2
SULFUR-DOPED MICRO-MESOPOROUS CARBONS FOR CO_2 SEPARATION
Dipendu Saha
Department of Chemical Engineering, Widener University, Chester PA 19013, USA.

O5-3
CO_2 ADSORPTION ON BANANA-PEEL-DERIVED HIERARCHICAL POROUS CARBON FOAMS
Arash Arami-Niya, Zhonghua Zhu, and Thomas E. Rufford
School of Chemical Engineering, The University of Queensland, St Lucia 4072 Australia.

S10: Porous Carbons 3 - Advanced Characterization
(J Olivier, presiding)

O6-1
NITROGEN INTERACTION WITH SINGLE WALL CARBON NANOTUBES PROBED *VIA IN SITU* VIBRATIONAL SPECTROSCOPY
Paramita Ray[1], Enshi Xu[2], David Gidley[3], Vincent H. Crespi[2], John V. Badding[1] and Angela D. Lueking[4]
[1]*Department of Chemistry and Materials Research Institute, Pennsylvania State University, University Park, PA 16802, USA*
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[4]*Department of Chemical Engineering, & EMS Energy Institute, The Pennsylvania State University, University Park, PA 16802, USA.*

O6-2

SEPARATION OF HYDROCARBONS BY ADSORPTION PROCESSES USING CARBON MOLECULAR SIEVES

Vladimir Martis[1], Daryl Williams[1] and Daniel J. Burnett[2]
[1]*Surface Measurement Systems Ltd, Unit 5, Wharfside, Rosemont Road, London, HA0 4 PE, United Kingdom*
[2]*Surface Measurement Systems NA, 2125 28th Street SW, Suite 1, Allentown, PA 18103, USA.*

O6-3

PRODUCTION AND CHARACTERIZATION OF LIGNIN-BASED ACTIVATED CARBON FIBERS

Nidia C Gallego, Cristian I Contescu, Yanfeng Yue, Chau Tran
Materials Science and Technology Division, Oak Ridge National Laboratory, 1 Bethel Valley Rd, Oak Ridge, TN 37831-6087, USA.

O6-4

ENVIRONMENT AND ENERGY APPLICATIONS OF POROUS CARBON ULTRAFINE FIBER PREPARED BY ELECTROSPINNING PROCESS

Feiyu Kang[1,2], Yu Bai[2], Jiangan Wang[3], Zeyu Guo[2], Lin Zou[2], Zheng-Hong Huang[2], Ying Yang[4]
[1]*Key Laboratory of Thermal Management Engineering and Materials, Graduate School at Shenzhen, Tsinghua University, Shenzhen, Guangdong 518055,China*
[2]*Laboratory of Advanced Materials, School of Materials Science and Engineering, Tsinghua University, Beijing 100084, China*
[3]*School of Materials Science and Engineering, Northwest Polytechnic University, Xi'an, Shaanxi Province 710072, China*
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S10: Porous Carbons 4 - Water Treatment

(A Carvalho, presiding)

O7-1 (Keynote)

A RAPID KINETIC DYE TO PREDICT ADSORPTION OF ORGANIC CONTAMINANTS ONTO GRANULAR ACTIVATED CARBONS

Adam Redding[1], Michael Greenwald[2], and Fred S. Cannon[2]
[1]*Evoqua Water Technologies LLC, 201 S Potter St, Bellefonte, 16823, PA, USA*
[2]*Department of Civil and Environmental Engineering, The Pennsylvania State University, PA 16802, USA.*

O7-2

NITROGEN DOPING OF AMORPHOUS CARBON FOR REVERSE OSMOSIS MEMBRANES

Josue Ortiz-Medina[1], Hiroki Kitano[1,2], Aaron Morelos-Gomez[1], Zhipeng Wang[3], Takumi Araki[1,4], Cheon-Soo Kang[3], Takuya Hayashi[1,3], Kenji Takeuchi[1,3], Takeyuki Kawaguchi[1], Akihiko Tanioka[1], Rodolfo Cruz-Silva[1], Mauricio Terrones[3,5] and Morinobu Endo[1,3]
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[5]*Department of Physics, Department of Chemistry, Department of Materials Science and Engineering & Center for 2-Dimensional and Layered Materials. The Pennsylvania State University, University Park, PA 16802, USA.*

O7-3

TAILOR-MADE MESOPOROUS CARBONS FOR THE REMOVAL OF LARGE ORGANIC POLLUTANTS FROM WATER

Wannes Libbrecht[1,2,3], Hilde Poelman[2], An Verberckmoes[1], Joris W. Thybaut[2], Jeriffa De Clercq[1] and Pascal Van Der Voort[3]
[1]*Industrial Catalysis and Adsorption Technology (INCAT), Engineering & Architecture, Ghent University, Valentin Vaerwyckweg 1, 9000 Ghent, Belgium*
[2]*Laboratory for Chemical Technology (LCT), Engineering & Architecture, Ghent University, Technologiepark 914, 9052 Zwijnaarde, Belgium*
[3]*Center for Ordered Materials, Organometallics & Catalysis (COMOC), Inorganic and Physical Chemistry, Ghent University, Krijgslaan 281-S3, 9000 Ghent, Belgium.*

O7-4
LIGNIN WASTE TRANSFORMED TO COCONUT ACTIVATED CARBON PORE STRUCTURE
Henry Nowicki, Charles Carr, and George Nowicki
PACS and Activated Carbon Services Inc. 409 Meade Drive, Coraopolis, PA 15108, USA.

S10: Porous Carbons 5 - CO_2 Adsorption
(M Jaroniec, presiding)

O8-1
PREPARATION AND CHARACTERIZATION OF CARBONIZED WOOD WITH METAL IONS FOR CO_2 CAPTURE
Toshimitsu Hata[1], Sensho Honma[2], Yoshikazu Onishi[3], Isamu Ide[3], Sylvie Bonnamy[4], and Paul Bronsveld[5]
[1]*Research Institute for Sustainable Humanosphere, Kyoto University, Uji, Kyoto 611-0011, Japan*
[2]*Forest Products Research Institute, Hokkaido Research Organization, 1-10 Nisikagura, Asahikawa, Hokkaido 071-0198, Japan*
[3]*Lignyte Co. Ltd., Chikkoshinmachi, 2-5, Sakai Nishi-ku, Osaka 592-8331, Japan*
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[5]*Department of Applied Physics, University of Groningen, Nijenborgh 4, 9747 AG Groningen, The Netherlands.*

O8-2
SYSTEMATIC STUDY OF THE ADSORPTION AND PHASE BEHAVIOR OF CARBON DIOXIDE IN ORDERED MICRO-MESOPOROUS CARBONS: TOWARDS AN ADVANCED PORE STRUCTURAL CHAR
Katie Cychosz[1] Richard T. Cimino[2], and Alexander V. Neimark[2], Matthias Thommes[1]
[1]*Quantachrome Instruments, Boynton Beach, FL 33426*
[2]*Chemical and Biochemical Engineering, Rutgers, The State University, New Jersey, Piscataway, NJ, USA.*

O8-3 (Keynote)
POTENTIAL OF LOW-TEMPERATURE CARBON-BASED SOLID SORBENTS IN CO_2 SEPARATIONS
N. Álvarez-Gutiérrez, N. Querejeta, I. Durán, M.G. Plaza, F. Rubiera, C. Pevida
Instituto Nacional del Carbón, INCAR-CSIC. Apartado 73, 33080 Oviedo, Spain.

S10: Porous Carbons 6 - Advanced Characterization
(M Thommes, presiding)

O9-1 (Keynote)
WATER VAPOUR ADSORPTION COUPLED WITH n-OCTANE PREADSORPTION FOR THE ADVANCED CHARACTERIZATION OF ACTIVATED CARBONS
Leticia F. Velasco[1], Inna Berezovska[1], Yasmine Boutillara[1,2], and Peter Lodewyckx[1]
[1]*Department of Chemistry, Royal Military Academy, Renaissancelaan 30, 1000 Brussels, Belgium*
[2]*Service de Thermodynamique, Faculté Polytechnique, UMONS, Université de Mons, 20 Place du Parc, 7000 Mons, Belgium.*

O9-2

GRAPHITIZED CARBONS: TAILORING SURFACE PROPERTIES AND MESOPOROSITY

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[2]*Sigma-Aldrich Corp., 595 North Harrison Road, Bellefonte, PA 16823, USA.*

O9-3

TUNING THE MESOPOROSITY OF CARBON GELS BY WET IMPREGNATION OF ALKALINE SALTS

Alicia Gomis-Berenguer[1], Ana S. Mestre[2], and Conchi O. Ania[1]
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S10: Porous Carbons 7 - NPM/Characterization

(J Olivier, presiding)

O10-1

OBSERVATION OF THE TRANSFORMATION OF SILICON DIOXIDE INTO SILICON CARBIDE IN A BIOMASS CARBON BY USING SCANNING ELECTRON MICROSCOPY AND RAMAN SPECTROSCOPY

Francisco G. Emmerich, Rodolfo S. Tartaglia, Enrique R. Yapuchura, Alfredo G. Cunha, and Jair C. C. Freitas
Laboratory of Carbon and Ceramic Materials, Department of Physics, Federal University of Espirito Santo, 29075-910 Vitoria-ES, Brazil.

O10-2

FORCED H_2O DESORPTION AND RE-UPTAKE IN ELASTIC MICROPOROUS CARBON BY MECHANICAL COMPRESSION/RECOVERY

Keita Nomura,[1] Hirotomo Nishihara,[1] Hideki Tanaka,[2] Minoru T. Miyahara,[2] Kyotani Takashi[1]
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O10-3

BIOMASS-DERIVED MICROPOROUS CARBON MATERIALS WITH OPEN STRUCTURE OF CROSS-LINKED SUBMICROFIBERS WITH ENHANCED ADSORPTION CHARACTERISTICS

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O10-4

ORGANIC POROSITY OF GEOLOGICAL CARBONACEOUS MATERIALS

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S10: Porous Carbons 8 - Vapor/Gas-Phase Adsorption/Characterization

(C Pevida, presiding)

O11-1 (Keynote)

HIGH-PRESSURE METHANE STORAGE IN PETROLEUM-PITCH DERIVED CARBONS

Mirian E. Casco, Manuel Martínez-Escandell, Francisco Rodríguez-Reinoso, Enrique V. Ramos-Fernández, Joaquín Silvestre-Albero
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O11-2

SYNTHESIS OF NANOSTRUCTURED NITROGEN-DOPED CARBON THROUGH SOFT-TEMPLATING

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O11-3

A GENERAL SILICA-TEMPLATING SYNTHESIS OF ALKALINE MESOPOROUS CARBON FOR HIGHLY EFFICIENT H_2S CATALYTIC OXIDATION AT ROOM TEMPERATURE

Zixiao Zhang, Jitong Wang, Wenming Qiao, Donghui Long, Licheng Ling

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O11-4

TOXIC GAS SENSING ON NANOPOROUS CARBONS

Nikolina Travlou[1,2], Mykola Seredych[1], Enrique Rodriguez-Castellon[3] and Teresa J. Bandosz[1,2]

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S10: Porous Carbons 9 - Advanced Characterization

(P Lodewyckx, presiding)

O12-1

QUASI-WALL EFFECT IN GRAPHENE-BASED NANOWINDOWS

Fernando Vallejos-Burgos and Katsumi Kaneko

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O12-2

THE CORRELATION BETWEEN POROUS STRUCTURE AND THERMAL CONDUCTIVITY OF EXPANDED GRPAHITE

Olga Shornikova[1,2], Alexey Kamaev[1], Nickolay Taibarey, Artem Malakho[1,2], Stanislav Filimonov[1] and Victor Avdeev[1]

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O12-3

MODELLING THE PHYSICAL PROPERTIES OF GLASSLIKE CARBON FOAMS

Maxime Letellier[1], Jan Macutkevic[2], Dzmitry Bychanok[3], Polina Kuzhir[3], Clara Delgado-Sanchez[1], Hani Naguib[4], Shahrzad Ghaffari Mosanenzadeh[4], Vanessa Fierro[1] and Alain Celzard[1]

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S10: Porous Carbons 10 - Liquid-Phase Adsorption
(A Redding, presiding)

O13-1 (Keynote)
SYNTHESIS, CAFFEINE ADSORPTION AND REGENERATION STUDY OF ACTIVATED CARBONS FROM RAPESEED WASTE OF BIODIESEL PRODUCTION
Mary K.S. Batista[1,2], Ana S. Mestre[1], Inês Matos[2], Isabel M. Fonseca[2], and Ana P. Carvalho[1]
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O13-2
FROM LOW-DENSITY BIOMASS TO HIGH-GRADE ACTIVATED CARBONS: HIGH PERFORMING ADSORBENTS FOR IBUPROFEN AND IOPAMIDOL
Ana S. Mestre[1,2], Fabian Hesse[1,3], Cristina Freire[2], Conchi O. Ania[4], and Ana P. Carvalho[1]
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O13-3
GREEN MESOPOROUS CARBONACEOUS MATERIALS FOR THE SELECTIVE ADSORPTION AND RECOVERY OF CRITICAL METALS
Andrea Munoz Garcia[1], Andrew Hunt[1], Peter Shuttleworth[2], James Clark[1], and Vitaliy Budarin[1]
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S10: Porous Carbons 11 - Vapor/Gas-Phase Adsorption
(M J Martín, presiding)

O14-1
GRAPHITE OXIDE EXPLOSIVE THERMAL EXFOLIATION – THERMAL HAZARD OR OPPORTUNITY FOR LARGE-SURFACE-AREA GRAPHENE-BASED MATERIALS?
Yang Qiu, Samuel Moore, Robert Hurt, and Indrek Külaots
School of Engineering, Brown University, 184 Hope Street, Providence, RI, USA.

O14-2
ILLUMINATING METHANE HYDRATE FORMATION IN CONFINED SPACES - FUNDAMENTAL INVESTIGATIONS ON POROUS MODEL CARBONS
Lars Borchardt[1] and Joaquin Silvestre-Albero[2]
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O14-3
APPLICATIONS OF ACTIVATED CARBON HONEYCOMBS IN AUTOMOTIVE EVAPORATIVE EMISSION CONTROL
Roger S. Williams, James R. Miller, Cameron I. Thomson, and Timothy M. Byrne
Ingevity Corporation, 5255 Virginia Avenue, N. Charleston, SC, USA.

O14-4

EFFECT OF DESORPTION CONDITIONS AND ADSORBATE PROPERTIES ON HEEL FORMATION DURING REGENERATION OF ACTIVATED CARBON FIBER CLOTH

Saeid Niknaddaf[1], Monisha Alam[1], Abedeh Gholidoust[1], Mohammadreza Fayaz[1], Zaher Hashisho[1], John D. Atkinson[2], John H. Phillips[3], James E. Anderson[4], and Mark Nichols[4]
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S10: Porous Carbons 12 - Vapor/Gas-Phase Adsorption
(J Silvestre-Albero, presiding)

O15-1 (Keynote)

ACTIVATED CARBONS FOR THE REMOVAL OF SILOXANES: SEWAGE BIOGAS UPGRADING

Alba Cabrera-Codony, Eric Santos-Clotas, Maria J. Martín
LEQUIA, Institute of Environment, University of Girona, Campus Montilivi, E-17071 Girona, Catalonia, Spain.

O15-2

PROCESS CONTROL OF ACTIVATED CARBON INJECTION FOR POWER PLANT FLUE GAS MERCURY REMOVAL

Xianxian Wu
Emerson Process Management, 200 Beta Drive, Pittsburgh, PA 15238, USA.

O15-3

EFFECT OF DESORPTION PURGE GAS IMPURITY ON IRREVERSIBLE ADSORPTION OF ORGANIC VAPORS

Masoud Jahandar Lashaki[1], Seyed Mojtaba Hashemi[1], John D. Atkinson[2], Zaher Hashisho[1], John H. Phillips[3], James E. Anderson[4], Mark Nichols[4], and Tony Misovski[4]
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O15-4

SULFUR-BASED CARBONS AND THEIR APPLICATION FOR GAS-PHASE MERCURY REMOVAL

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S10: Porous Carbons 13 - Electrochemical
(T Bandosz, presiding)

O16-1

ORDERED MESOPOROUS CARBONS FOR HIGH-PERFORMANCE SUPERCAPACITORS

Angela Sánchez-Sánchez[1], Vanessa Fierro[1], María Teresa Izquierdo[2], and Alain Celzard[1]
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O16-2

HIERARCHICALLY POROUS CARBON FOR SUPERCAPACITORS FROM ANTHRACITE WITH SIDERITE AND KOH ACTIVATION

Dubin Huang, Xiuyun Chuan
School of Earth and Space Sciences, Key Laboratory of Orogen and Crust Evolution, Peking University, Beijing 100871, China.

O16-3

PORE SIZE OPTIMIZATION OF HIGH VOLTAGE OPERATING EDLC ELECTRODE BASED ON QUANTITATIVE SOLID-STATE NMR ANALYSIS

Keiko Ideta[1], Chinami Morishima[2], DooWon Kim[2], Takashi Utsunomiya[3], Koji Nakabayashi[1,2], Jin Miyawaki[1,2], and Seong-Ho Yoon[1,2]
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S10: Porous Carbons 14 - Liquid-Phase Adsorption

(C Thomson, presiding)

O17-1 (Keynote)

MECHANISM STUDY OF THIOPHENIC ADSORPTION ON ACTIVATED CARBONS

Zhijun Li, Shuangling Jin, Rui Zhang, Xia Shao, Shimin Zhang, Ning Jiang, Minglin Jin
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O17-2

FAST AND EFFICIENT REMEDIATION OF SULFIDE FROM PETROLEUM EFFLUENTS USING ALGINATE-DERIVED POROUS GRAPHITIC CARBON

Anjali Achazhiyath Edathil, Priyabrata Pal, and Fawzi Banat
The Petroleum Institute, Department of Chemical Engineering, Abu Dhabi, UAE.

O17-3

APPLICATION OF RAPESEED-BASED ACTIVATED CARBONS AS ADSORBENTS OF ANTI-INFLAMMATORY AND ANTIBIOTIC DRUGS

Maria Bernardo[1], Mary Batista[1,3], Domingas Songo[1], Inês Matos[1], Nuno Lapa[2], Ana P. Carvalho[3], Isabel Fonseca[1]
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S10: Porous Carbons 15 - Electrochemical and Thermal Applications

(L Borchardt, presiding)

O18-1

MESOPOROUS CARBON BASED ELECTRODE MATERIALS FOR SUPERCAPACITORS

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O18-2

THE PREPARATION AND ELECTROCHEMICAL PROPERTIES OF ORDERED NANOPOROUS CARBONS RESULTING FROM PTEPM-b-PS BLOCK COPOLYMERS BY THERMALLY INDUCED SELF-ASSEMBLY

Junlong Huang, Yeru Liang, Yanhuan Lin, Yongming Chen, Dingcai Wu, Ruowen Fu

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O18-3

NATURAL POLYPHENOLS AS VERSATILE CARBON PRECURSORS FOR ELECTROCHEMICAL APPLICATIONS

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O18-4

CARBON FOAMS SPECIALLY DESIGNED FOR SEASONAL THERMAL STORAGE

Alain Celzard[1], Prasanta Jana[1], Vanessa Fierro[1] and Ghouti Medjahdi[2]
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