

International Conference on  
**CARBON CHEMISTRY  
AND MATERIALS**

**November 15-17, 2021 | Virtual**

**Meeting Time Zone:  
London (UK) TIME(GMT+0:00)**



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## Mute/Unmute & Audio Settings

Except for the moderator and the speaker, all attendees' microphones will be muted by the host.

## Chat Function

The participants will submit their questions through the chat function and the moderator / chair of the session will pick the questions for the discussion.

To direct your question, tag the speakers name to the questions as you submit them to the chat (e.g., For Dr. Will Torres – Question 1).

## Audience

We are anticipating over 150 attendees who will come from a range of professional backgrounds with a varied level of knowledge and expertise in technical and commercial aspects across the subject area.

## For Speakers

You will be allowed to share your screen during your presentation.

Session chair will pick the questions from the participants and asks the speaker depending on the time available. In case if more questions are left in the chat box, we encourage speakers to answer via chat and continue the discussion.

## For Poster Presenters

All the poster presentation recorded videos are made available to all the participants to view at any point of time at their convenience.

According to the program, the presenter will be available during the time slot for the Q&A.

## Recording

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## Join Zoom Meeting:

<https://us06web.zoom.us/j/87118093833?pwd=Y1p1UEh5Yll3S1RJSzFMcjNwV3VKdz09>

Meeting ID: 871 1809 3833

Passcode: 030018

08:00-08:20 Introduction and Joining the Meeting

## PLENARY PRESENTATION

Moderator: **Conchi Ania**, CNRS, France08:20-09:10 Multifunctional Synergy Strategies for Materials Design, Processing, and Applications  
**Shi Xue Dou**, University of Wollongong, Australia

## SPECIAL TALK

09:10-09:50 Graphene Functionalization and Functional Free-standing Graphene Membranes  
**Martin Kalbac**, UFCH JH, Czech Republic

09:50-10:00 Break

## KEYNOTE PRESENTATIONS SESSION-I

10:00-10:35 Graphene Oxide Liquid Crystal for Real-World Applications  
**Sang Ouk Kim**, KAIST, South Korea10:35-11:10 Advanced Nanocarbon Materials for Energy and the Environment  
**Aristeidis Bakandritsos**, Palacky University, Czech Republic

11:10-11:15 Break

## ORAL PRESENTATIONS

## CARBON ALLOTROPES-I

Chair: **Rainer Adelung**, Kiel University, Germany11:15-11:35 Development of Diamond MOSFET Logic Circuits  
**Jiangwei Liu**, National Institute for Materials Science, Japan11:35-11:55 Efficient Functionalization of Single-walled Carbon Nanotubes for Dispersant-Free Colloidal Dispersion and its Electrical Applications  
**Joong Tark Han**, Korea Electrotechnology Research Institute, South Korea11:55-12:15 Fundamental Properties of Li-Intercalated Layered Graphene's and Graphene Nanoribbons  
**Ngoc Thanh Thuy Tran**, National Cheng Kung University, Taiwan12:15-12:35 Tough, Transparent, Semi-conductive Polymer Nano-composite Substrates for Bendable Electronic Devices  
**Anasuya Bandyopadhyay**, IIT Roorkee, India12:35-12:55 Fabrication of 3D Printed Flexible Electrodes of Carbon Nanomaterials  
**Satendra Kumar**, AMPRI, India

12:55-13:00 **Session Poster**  
**Structural Evolution and Stability Behavior of Functionalized Nano Diamonds**  
**Sepehr Yazdani**, Mons University, Belgium

13:00-13:20 **Break**

13:20-13:40 **Graphene Quantum Dot Sensitizes GaN Nanotower/ZnO Nanorods Heterostructure based Optoelectronic Devices**  
**Govind Gupta**, AcSIR, India

13:40-14:00 **Preparation and Characterizations on Short Carbon Fiber Reinforced Acrylonitrile Butadiene Styrene Hybrid Nanocomposites Involving Carbon Nanotubes**  
**Alinda Oyku Akar**, Gebze Technical University, Turkey

## KEYNOTE PRESENTATIONS SESSION-II

**Moderator:** Jana Kalbacova Vejpravova, Charles University, Czech Republic

14:00-14:30 **Insight into a Silent Role of Nanopores in Carbon Catalysts Promoting Oxygen Reduction Reaction**  
**Teresa J. Bandoz**, The City College of New York, New York, NY

14:30-15:00 **Emerging Carbon Architectures for Rechargeable Batteries**  
**Vilas G. Pol**, Purdue University, West Lafayette, IN

15:00-15:30 **Synthesis and Processability of Ortho-Diynyl Arene Resins Toward Poly-naphthalene Networks and high yield Carbon-Carbon Composites**  
**Dennis Smith**, Mississippi State University, Mississippi State, MS

15:30-16:00 **Towards Carbon Neutral World: Materials World Transformation: Sustainable Renewables**  
**Mohini M Sain**, University of Toronto, Canada

16:00-16:35 **Break**

## ORAL PRESENTATIONS

### CARBON ALLOTROPES-II

**Chair:** Ute Kaiser, Ulm University, Germany

16:35-16:55 **Characterization of Graphene using Contactless Terahertz Spectroscopy Methods**  
**Justinas Jorudas**, Center for Physical Sciences and Technology (FTMC), Lithuania

16:55-17:15 **Coherent White Emission of Graphene—Towards Graphene-Based White-Light Laser**  
**Wieslaw Strek**, Polish Academy of Sciences, Poland

17:15-17:35 **Carbon Nanotube Growth Controlled by Laser-Treatment of Substrates**  
**Norbert Hamp**, University of Marburg, Germany

17:35-17:55 **Atomistic Insights in Bonding, Nucleation, and Growth of Metals Confined in the Narrow Space of Single-Walled Carbon Nanotubes and Graphene Pockets**  
**Ute A.Kaiser**, Ulm University, Germany

- 17:55-18:15 **Hierarchical Mesoporous Silica Nanoparticles as the Matrix for b-glucosidase Immobilization**  
**Aniello Costantini**, University of Naples Federico II, Italy
- 18:15-18:20 **Session Poster**  
**Functionalization of ZnO nanostructures with carbon arrays for gas sensing**  
**Yazmin Mariela Hernandez Rodriguez**, CINVESTAV, Mexico
- 18:20-18:30 **Break**
- Chair: Duck J Yang**, The University of Texas at Dallas, Richardson, TX
- 18:30-18:50 **Topography-Driven Phenomena in Graphene—Chemistry Meets Physics (Invited Talk)**  
**Jana Kalbacova Vejpravova**, Charles University, Czech Republic
- 18:50-19:10 **One-Step Microwave Synthesis of Nitrogen-Doped Carbon Dots from Different Precursors**  
**Manoko Maubane-Nkadimeng**, University of The Witwatersrand, South Africa
- 19:10-19:30 **A brief Review on the Structural Modification of Graphene's for Persulfate Activation**  
**Daniel T. Oyekunle**, Covenant University, Nigeria
- 19:30-19:50 **"Super" Accumulation of Hydrogen in the Know-How of Activated Carbon Nanofibers**  
**Yury S. Nechaev**, Bardin Central Research Institute for Ferrous Metallurgy, Russia
- 19:50-20:10 **Harnessing the Carbon Content of Coal for Graphene and Synthetic Graphite**  
**Alexander Azenkeng**, UNDEERC, Grand Forks, ND
- 20:10-20:30 **Functionalized Graphene and Carbon Nanotube for the Performance Enhancement of Epoxy Composites**  
**Duck J Yang**, The University of Texas at Dallas, Richardson, TX

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Meeting ID: 871 1809 3833

Passcode: 030018

06:10-06:30 Introduction and Joining the Meeting

## KEYNOTE PRESENTATION

06:30-07:00 Identification and Detailed Characterization of Metal Oxides and Carbon Nitrides by Electron Trap-distribution Analysis  
**Bunsho Ohtani**, Hokkaido University, Japan

## ORAL PRESENTATIONS

## CARBON APPLICATIONS

**Chair: Fouzia Achchaq**, University of Bordeaux, France

07:00-07:20 Hydrogenated Carbon Electrodes by Silane Reduction as Antifouling Sensors for Dopamine  
**Danny Wong**, Macquarie University, Australia

07:20-07:40 Graphene-based Heat Conductive Smart Windows: Towards Energy Efficient Green Buildings  
**Alfred ling Yoong Tok**, Nanyang Technological University, Singapore

07:40-08:00 Spacer-Assisted Amine-Coiled Carbon Nanotubes for CO<sub>2</sub> Capture  
**Hyung Gyu Park**, Pohang University of Science and Technology (POSTECH), Korea

08:00-08:20 Amorphous Carbon Nanotubes as Efficient Remover of Heavy Metals and Textile Dyes  
**Diptonil Banerjee**, Teerthanker Mahaveer University, India

08:20-08:40 Deep Eutectic Solvents as New Candidate for Dye Sensitized Solar Cell Electrolyte: Experiment and Simulation  
**Fatemeh Mohammadpour**, Farhangian University, Iran

08:40-09:00 Carbon Fibres and Nanoparticles Impact on Advanced Phase Change Material Li<sub>4</sub>Br(OH)<sub>3</sub> Synthesis Developed for the Thermal Energy Storage Applications  
**Fouzia Achchaq**, University of Bordeaux, France

09:00-09:20 Photo-Assisted Regeneration of Activated Carbons: A Case Study on a WWTP  
**Conchi Ania**, CNRS, France

09:20-09:40 Carbon Properties Stimulating Microbial Extracellular Electron Transfer  
**Raul Berenguer**, University of Alicante, Spain

09:40-10:00 Cement/Carbon Nanofiber Composites for Well Plug Integrity Sensing  
**Kamila Gawel**, SINTEF, Norway

10:00-10:15 Break

**Chair: Sylvie Bonnamy**, CNRS, University of Orleans, France

10:15-10:35 Bioactive 3D Printed Scaffolds Functionalized with Green Reduced Graphene Oxide: A New Strategy to Improve Bone Tissue Regeneration  
**Catia S. D. Cabral**, University of Beira Interior, Portugal

- 10:35-10:55 **Enhanced Control of Recalcitrant Pharmaceuticals and Organic Matter in Urban Wastewater Treatment with Pine Nutshell CO<sub>2</sub> Activated Carbon**  
**Ana Sofia Mestre**, University of Lisbon, Portugal
- 10:55-11:15 **Graphene Based Nanostructured Materials for Water Remediation**  
**Paula Marques**, University of Aveiro, Portugal
- 11:15-11:35 **Graphene Based Aeromaterials: From High Performance Actuators to air Sterilization**  
**Rainer Adelung**, Kiel University, Germany
- 11:35-11:55 **Challenges in Biofuels Downstream Processing: Separation of the 1,3-Propanediol + Water Mixture**  
**Stefania Moio**, GASP-Polytechnic of Milan, Italy
- 11:55-12:15 **Energy Storage Technologies: Synthetic and Catalytic Aspects of Power-to-DME**  
**Rosanna Viscardi**, ENEA, Italy
- 12:15-12:35 **Phenazine Analogues Consist of Chlorambucil and Biotin Moieties as New Conjugates for Anticancer Therapy**  
**Beata Miksa**, Centre of Molecular and Macromolecular Studies Polish Academy of Science, Poland
- 12:35-12:55 **Cost Saving Schemes for Biomethanol Purification**  
**Stefania Moio**, GASP-Polytechnic of Milan, Italy

12:55-13:25 **Break**

**Chair: Wilhelm Pfleging**, Karlsruhe Institute of Technology, Germany

- 13:25-13:45 **Selection of the Proper Carbon-Based Working Electrode for the Catalytic Adsorptive Stripping Voltammetry**  
**Agnieszka Krolicka**, AGH University of Science and Technology, Poland
- 13:45-14:05 **Graphene and Beyond Materials-Based Membranes to Make Water Desalination More Fruitful and Efficient**  
**Annarosa Gugliuzza**, CNR-ITM, Italy
- 14:05-14:25 **Activated Carbon Fiber Cloth Used as a Biomaterial to Improve Bone Regeneration**  
**Sylvie Bonnamy**, CNRS, University of Orleans, France
- 14:25-14:45 **Stereolithography 3D Printing Technology as a Production Method to Generate 3D Porous Carbon for Electrochemical Capacitive Energy Storage**  
**Babak Rezaei**, Technical University of Denmark, Denmark
- 14:45-15:05 **Preventing Degradation at Conducting Carbon Interfaces in Solid-State Batteries**  
**Felix Richter**, Justus-Liebig-University Giessen, Germany
- 15:05-15:25 **Silicon-Based Graphite Electrode Materials—Impact of Electrode Architecture on Electrochemical Performance and Cell Degradation**  
**Wilhelm Pfleging**, Karlsruhe Institute of Technology, Germany
- 15:25-15:45 **Adapting Carbons for Cathodes and Anodes in Lithium-Based Batteries**  
**Susanne Dorfler**, Fraunhofer Institute for Material and Beam Technology, IWS, Germany
- 15:45-15:50 **Session Poster**  
**One-step Template-Synthesis of Fe<sub>1-x</sub>S/Nitrogen-doped Porous Carbon Membranes from Poly (Ionic Liquid)**  
**Sadaf Saeedi Garakani**, Stockholm University, Sweden

15:50-15:55 **Break**



**Chair: Jean Gamby**, Sorbonne University, France

- 15:55-16:15 **Electrochemically Enhanced or Inhibited Scale Deposition Inside Graphite Cylinders in Parallel Connection**  
**Laura Edvardsen**, SINTEF, Norway
- 16:15-16:35 **Functionally Graded Carbon Fiber-Reinforced Ceramics for Extreme Environments Characterization and Numerical Assessment**  
**Laura Silvestroni**, CNR-ISTEC, Italy
- 16:35-16:55 **Enhanced Hydrogen Storage Properties of NaAlH<sub>4</sub> Confined in Carbon Black**  
**Kenneth Tuul**, University of Tartu, Estonia
- 16:55-17:15 **Optical Anisotropy Evolution of Thin Porphyrin Films Grown on HOPG During the Molecular Oxidation in Acid Electrolytes**  
**Gianlorenzo Bussetti**, Polytechnic University of Milan, Italy
- 17:15-17:35 **Amorphous Carbon Nitride Integration as Ultramicroelectrode in Microfluidics for Specific Nucleic Acids Capture and Detection**  
**Jean Gamby**, Sorbonne University, France
- 17:35-17:40 **Session Poster**  
**The Synthesis of Free-Standing Carbon Pellicles and Application for Energy Storage**  
**Yanfeng Yue**, Delaware State University, Dover, Delaware

17:40-17:50 **Break**

**Chair: Katia Guerin**, University of Clermont Auvergne, France

- 17:50-18:10 **PANI/rGO Porous Ammonia Gas Sensor**  
**Hamed Mirzaei**, University of British Columbia, Canada
- 18:10-18:30 **Impact of Nanocarbon Dimensionality onto SnO<sub>2</sub>-C Composite Used as Anode in Secondary Lithium Battery**  
**Katia Guerin**, University of Clermont Auvergne, France
- 18:30-18:50 **Carbon Quantum Nanodots for Mercury Sensing**  
**Douglas Austin**, Delaware State University, Dover, DE
- 18:50-19:10 **None-Metallic Hermetic Fusion of Diamond Micro-Components**  
**Melanie Stamp**, University of Sherbrooke, Canada
- 19:10-19:30 **Graphene/PDMS Touch Sensor Fabrication using Sugar Cube Method**  
**Sara Ghaderahmadi**, University of British Columbia, Canada
- 19:30-19:50 **The Catalytic Effects of Iron on the Carbonization Process of Electrospun Carbon/Iron Nanofibers and their Utilization as Nanoadsorbents for Enhanced Cr (VI) Removal from Water**  
**Evan K Wujcik**, The University of Alabama, Tuscaloosa, AL
- 19:50-20:10 **Characterization of Carbon-Carbon Composite Wear Debris from Brake Applications**  
**Matthew Noor**, National Institute of Standards and Technology, Gaithersburg, MD

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## ORAL PRESENTATIONS

## CARBON CHEMISTRY &amp; PROPERTIES

**Chair: Shuhei Inoue**, Hiroshima University, Japan

- 06:40-07:00 **Detection to Polar and Non-Polar Organic Solvents by Flexible Gas Sensor Based on Multi-Walled Carbon Nanotube Paper**  
**Mengli Zhang**, Hiroshima University, Japan
- 07:00-07:20 **CNT Gas Sensor: Detection Mechanism and Physisorption**  
**Shuhei Inoue**, Hiroshima University, Japan
- 07:20-07:40 **Asymmetric Ir-Catalyzed Carbene C–H Insertion**  
**Tatsuya Uchida**, Kyushu University, Japan
- 07:40-08:00 **Superdense Hydrogen Adsorption on Carbon Materials at 20K**  
**Takayuki Ichikawa**, Hiroshima University, Japan
- 08:00-08:20 **High-Throughput Screening of 2D Materials for Hydrogen Evolution**  
**Lei Shen**, National University of Singapore, Singapore
- 08:20-08:40 **C Deposited 2D LDH to Promote Formation of Plated Black Mg Alloy on AZ31**  
**Puwakdandawe Vishakha Thilini**, Singapore University, Singapore
- 08:40-09:00 **Advanced Carbon Film on Bipolar Plate for Proton Exchange Membrane Fuel Cell**  
**Hong Zhu**, School of Engineering, Temasek Polytechnic, Singapore

09:00-09:30 **Break**

**Chair: Bernd Smarsly**, Justus-University-Giessen, Germany

- 09:30-09:50 **Critical Analysis of the Heat Capacities of Diamond and Graphite**  
**Valery P. Vassiliev**, Lomonosov Moscow State University, Russia
- 09:50-10:10 **On the Role of Impurities on Spheroidal Graphite Degeneracy in Cast Irons**  
**Mayerling Martinez Celis**, University of Caen Normandie, France
- 10:10-10:30 **Probing the Nature of Defects in Polished sp<sup>2</sup> Carbons by Polarized Raman Spectroscopy**  
**Mohamed-Ramzi Ammar**, University of Orleans, France
- 10:30-10:50 **Recent Advances in the Synthesis of Graphite Intercalation Compounds**  
**Sebastien Cahen**, Institute Jean Lamour Campus, France
- 10:50-11:10 **Isotopic Exchange Inside Impregnated Activated Carbons**  
**Hantao Lin**, Institute for Radiation Protection and Nuclear Safety, France
- 11:10-11:30 **Laser-Induced Graphitization and White Light Emission of Microdiamonds**  
**Adam Olejniczak**, Polish Academy of Sciences, Poland
- 11:30-11:50 **TiO<sub>2</sub>/AC Composites for Methylene Blue Removal Over Solar Light**  
**Ana Paula Carvalho**, University of Lisbon, Portugal

- 11:50-12:10 **Langmuir Layers of Fullerene C60 and its Mixtures with Amphiphilic Polymers**  
**Boris Noskov**, St. Petersburg State University, Russia
- 12:10-12:30 **Comparative Microstructural Analysis of Non-Graphitic Carbons (NGCs) based on Wide-Angle X-Ray (WAXS) / Neutron (WANS) Scattering as well as Pair Distribution Function (PDF) Analysis**  
**Bernd Smarsly**, Justus-University-Giessen, Germany
- 12:30-12:50 **Ni-Decorated Highly Nitrogen Doped Carbon Electrocatalysts for Unconventional CO2 Reduction Reaction to Formic Acid**  
**Nieves Lopez Salas**, Max Planck Institute of Colloids and Interfaces, Germany
- 12:50-13:10 **Inspired by Nature: Controlled Condensation of Nucleobases to Functional Materials**  
**Janina Kossmann**, Max Planck Institute of Colloids and Interfaces, Germany
- 13:10-13:15 **Session Poster**  
**Sustainable Conversion of Corncob Biomass Waste into Economic, High Performance Carbon Materials**  
**Ella Linganiso**, University of the Witwatersrand, South Africa
- 13:15-13:20 **Session Poster**  
**Effect of Reinforcement of Carbon Foams with Graphene Structures on Morphology and Mechanical, Thermal and Tribological properties of Epoxy-Carbon Composites**  
**Karolina Olszowska**, Polish Academy of Sciences, Poland
- 
- 13:20-13:40 **Break**
- 
- Chair: Rasmus Palm**, KTH Royal Institute of Technology, Sweden
- 13:40-14:00 **Non-Covalent Nido-Cage- $\pi$ -Ring Interaction**  
**Jordi Poater**, University of Barcelona, Spain
- 14:00-14:20 **Reversible Formation and Disappearance of Graphitic Domains in Carbide-Derived Carbons Under H2 Loading**  
**Rasmus Palm**, KTH Royal Institute of Technology, Sweden
- 14:20-14:40 **The Mobility of H2 Adsorbed in Mo2C Derived Carbon Materials with Different Porous Structures Studied with Quasi-Elastic Neutron Scattering**  
**Miriam Koppel**, University of Tartu, Estonia
- 14:40-15:00 **Carbide-Derived Carbons: WAXS and Raman Spectra for Detailed Structural Analysis**  
**Riinu Harmas**, University of Tartu, Estonia
- 15:00-15:20 **The Role of Carbon and Vacancy Defects in the Myricetin Functionalization of MnFe2O4 Nanoparticles**  
**Oscar E. Cigarroa Mayorga**, UPIITA-National Polytechnic Institute, Mexico
- 15:20-15:40 **Quantum Monte Carlo Approaches to Molecules and Solids with Dispersive Interactions**  
**Olle Heinonen**, Argonne National Laboratory, Lemont, IL
- 15:40-16:00 **Synthesis, Characterization, and Mechanical Properties of Light-Weight Boron-Carbon Based Composites**  
**Babak Omranpour Shahreza**, University of Quebec in Trois Rivieres (UQTR), Canada
- 16:00-16:20 **Soft-metamaterials: CD Responsive Liquid Crystal-Gold Nanoparticles**  
**C. V. Yelamagad**, Centre for Nano and Soft Matter Sciences (CeNS), India
- 
- 16:20-16:30 **Concluding Remarks**
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