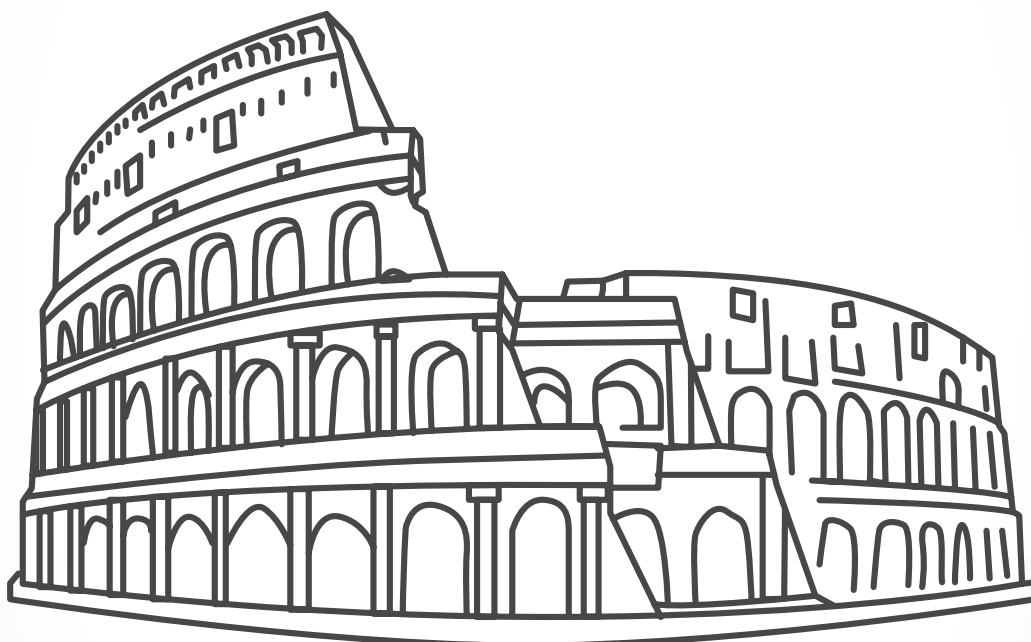


2nd International Conference on
**Carbon Chemistry
and Materials**

October 10-14, 2022 | Roma RM, Italy | Hybrid



Timezone: **CEST, Italy**



secretary@carbon-conferences.com



+1-469-854-2280/81



Sheraton Parco de' Medici Rome Hotel
Viale Salvatore Rebecchini 39
Rome, Italy

IN-PERSON MEETING GUIDELINES

Face-coverings

Wearing mask is recommended in the meeting premises / in-doors.

Hand sanitizer stations

Hand and washing facilities and/or sanitizing systems easily accessible to everyone throughout the event.

No contact policy

To assist in minimizing potential physical contact, elbow bumps are a great alternative to handshakes.

WiFi

WiFi network and pass code will be shared on arrival to the meeting room.

Q & A

Moderator/Chair will pick up questions from the audience in the meeting room (at venue) and also from the zoom chat function – and ask the speaker to answer live.

MEETING JOINING LINKS (LIVE STREAMING ON ZOOM PLATFORM)

CEST, ITALY TIMEZONE

As the conference is hybrid, the virtual attendees can access the in-person presentations and queries can be asked through zoom chat box.

Meeting links shared will be for the complete meeting to join at any point of time.

October 10-11, 2022 – Room Boncompagni

**Topic: 2nd International Conference on Carbon Chemistry and Materials
October 10-14, 2022 | Roma RM, Italy | Hybrid**

Join Zoom Meeting

<https://zoom.us/j/91660825769?pwd=UzJEM05jSkZFmZWZW5ta0dIRGtSZz09>

Meeting ID: 916 6082 5769

Passcode: 470959

October 12, 2022 – Room Cervini

**Topic: 2nd International Conference on Carbon Chemistry and Materials
October 10-14, 2022 | Roma RM, Italy | Hybrid**

Join Zoom Meeting

<https://zoom.us/j/91660825769?pwd=UzJEM05jSkZFmZWZW5ta0dIRGtSZz09>

Meeting ID: 916 6082 5769

Passcode: 470959

October 13-14, 2022 – Virtual

**Topic: 2nd International Conference on Carbon Chemistry and Materials
October 10-14, 2022 | Roma RM, Italy | Hybrid**

Join Zoom Meeting

<https://zoom.us/j/91660825769?pwd=UzJEM05jSkZFmZWZW5ta0dIRGtSZz09>

Meeting ID: 916 6082 5769

Passcode: 470959

Join Zoom Meeting:

<https://zoom.us/j/91660825769?pwd=UzJEM05jSkZFRmZWZw5ta0dlRGtSzZ09>

Meeting ID: 916 6082 5769

Passcode: 470959

Meeting Room: Boncompagni

08:00-08:20 Registrations & Badge Pickup

@ foyer

08:20-08:30 Opening Ceremony

Plenary Presentation

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

08:30-09:10

Synthesis and Applications of Carbon Dots

Maurizio Prato, University of Trieste, Italy

Professor Maurizio Prato is an Italian Organic Chemist, who is best known for his work on the functionalization of carbon nanostructures, including fullerenes, carbon nanotubes and graphene. He developed a series of organic reactions that make these materials more biocompatible, less or even non-toxic, amenable to further functionalization, and easier to manipulate. He is currently working in the Department of Organic Chemistry at the University of Trieste and Research Professor at CIC BiomaGUNE in San Sebastián, Spain. His main scientific focus is the investigation, functionalization and application of carbon nanostructures such as fullerenes, graphene and carbon nanotubes in biomedical applications, energy conversion, storage and material sciences. In 2021, he was awarded by Honorary degree Honoris Causa, University of Salento. He is one among the most prolific European chemists, with a scientific production of more than 600 scientific papers, that received more than 70'000 citations (h-index = 122, Google Scholar).

Keynote Presentations

09:10-09:40

Novel Carbon Fiber Precursors Based on Polyethylene Copolymers

T. C. Mike Chung, The Pennsylvania State University, Pennsylvania, PA, USA

Professor Mike Chung, was a Senior Research Staff in Corporate Research, Exxon Company in between 1984 to 1989. In 1989 he joined the faculty of the Pennsylvania State University as an associate professor and became professor of Polymer Science in the Department of Materials Science and Engineering in 1993. He is author of more than 240 publications, including 2 books and 56 US and international patents. He was interested in the development of new polymer chemistry that can lead to new materials with unique chemical and physical properties for applications. Functionalization of polyolefins via the combination of metallocene catalysts and reactive chain transfer agents. Polyolefin-based ion conductors for fuel cells, batteries, electrodialysis, etc. B/C/M graphitic materials for hydrogen storage. Oil super-absorbent polymers (oil- SAP) for oil spill recovery and natural gas storage.

09:40-10:10

Tailored Graphene Functionalization to Better Device Performance

Martin Kalbac, UFCH JH, Czech Republic



Professor Martin Kalbac currently working at J. Heyrovsky Institute of Physical Chemistry of the Academy of Sciences of the Czech Republic as a research scientist since 2001. From 2010 he is a vice-director of the institute. He is member of Expert commission of the Scientific council of the Czech Republic and, member of the Scientific Board of the Regional Centre of Advanced Technologies and Materials. From 2010 he is holding a teaching appointment at the Palacky University in Olomouc. His research interest mainly includes the areas such as Carbon nanotubes, Graphene, Raman spectroscopy and spectroelectrochemistry and Low-Dimensional systems. He is an author of more than 80 publications in scientific journals. In 2004 he received Humboldt research fellowship. His research work was also honored with Otto Wichterle award (2007) and the Award of the ASCR for excellent results of great scientific impact (2008).

10:10-10:20 Discussion Time

10:20-10:40 Networking Break

Oral Presentations

Carbon Allotropes

10:40-11:00 **High Carbon Yielding Polyarylenes via Melt Processable Bis-o-diynylarene (BODA)-derived Resins for Carbon Composites**

Dennis Smith, Mississippi State University, Mississippi State, MS, USA

11:00-11:20 **Laser-controlled Carbon Nanotube Assemblies**

Norbert Hampp, University of Marburg, Germany

11:20-11:40 **Fullertubes: From Discovery to Applications**

Steven Stevenson, Purdue University, West Lafayette, IN, USA

11:40-12:00 **Individualization and 'Networking' of Carbon Nanotubes: Interdependent Chemical Modifications in the Quest for Novel Nanomaterials**

Slawomir Boncel, Silesian University of Technology, Poland

12:00-12:20 **Progresses in Long Acenes**

Andre Gourdon, CNRS CEMES, France

12:20-12:40 **Coal-derived Carbon Products: Lessons Learned and Opportunities**

Alexander Azenkeng, University of North Dakota, Grand Forks, ND, USA

12:40-12:45 Group Photo

12:45-13:45 Networking Lunch

Chair: Volker Strauss, Max-Planck-Institute of Colloids and Interfaces, Germany

13:45-14:05 **Colloidal Stability and Spatial Arrangement of Hydrogenated Milled Nanodiamonds in Water**

Jean-Charles Arnault, CEA, NIMBE, France

14:05-14:25 **Effect of Chlorine on undoped and Heteroatom doped Carbon Nanomaterials: Their Applications in Electrochemistry**

Winy Maboya, Vaal University of Technology, South Africa

- 14:25-14:45 **Ultrafast Strong-field Emission of Electron in Carbon Nanostructures**
Doo Jae Park, Hallym University, South Korea
- 14:45-15:05 **Spatially Resolved Covalent 2D-patterning of Graphene**
Tao Wei, Friedrich-Alexander University of Erlangen-Nürnberg, Germany
- 15:05-15:25 **The Theory of Surface-enhanced Raman Spectroscopy on Organic Semiconductors: Graphene**
John Lombardi, The City College of New York, New York, NY, USA
- 15:25-15:45 **Synthesis of ZnO on 3D Graphene/Nickel Foam for Photoelectrochemical Water Splitting**
Rozan Mohamad Yunus, Universiti Kebangsaan Malaysia, Malaysia
- 15:45-16:05 **Laser-induced Carbonization—setting New Standards for the Application of Bio-based Carbon in Flexible Electronics**
Volker Strauss, Max-Planck-Institute of Colloids and Interfaces, Germany
- 16:05-16:25 **CO₂ Assisted Synthesis of Novel Copper-based Cu_xC/Cu₂O MXene-like Material**
Ahmed Abdel-Wahab, Texas A&M University, Qatar
-
- 16:25-16:40 **Networking Break**
-
- 16:40-17:00 **Bifunctional Polymer Binders for Silicon Anode-based Lithium-ion Batteries**
In Hwan Jung, Hanyang University, South Korea
- 17:00-17:20 **Importance of Interface: Flavin Mononucleotide Mediated Formation of Highly Electrically Conductive Hierarchical Monoclinic Multiwalled Carbon Nanotube-polyamide 6 Nanocomposites**
Sang-Yong Ju, Yonsei University, South Korea
- 17:20-17:40 **Nanocomposite Derived from Local Ilmenite and Monazite for Solid Oxide Fuel Cell Cathode Material**
Sahrim Ahmad, Universiti Kebangsaan Malaysia, Malaysia
- 17:40-18:00 **Predicting Thermally Induced Damage in CFRP by Means of Multivariate Data Analysis**
Tanja Vetter, Bundeswehr University Munich, Germany
- 18:00-18:20 **Carbon Nanofiber-assisted Construction of 1D Functionalized Nanocomposites for Electrocatalysis and Energy Storage**
Feili Lai, KU Leuven, Belgium
- 18:20-18:40 **Highly Efficient Blue Organic Materials with Long OLED Device Lifetime and Perovskite Emitters**
Jongwook Park, Kyung Hee University, South Korea
- 18:40-19:00 **On-surface Carbon Chemistry Probed by Electron Spectroscopies**
Eric Salomon, CNRS Aix Marseille University, France

19:00-20:00 **Poster Presentations & Drinks**

- CCMP-01 **Larger Diameter Selection of Carbon Nanotube by Two Phase Extraction using Amphiphilic Polymeric Surfactant**
Seokhyeon Son, Yonsei University, South Korea
- CCMP-02 **Vibronic Features in Single Chirality Enriched Single-walled Carbon Nanotubes Wrapped by Flavin Surfactant**
Seongjoo Hwang, Yonsei University, South Korea
- CCMP-03 **Sulfide Interlayered Co-(NiFe) Oxynitride Towards Efficient Oxygen Evolution Reaction in Neutral pH Environments**
Ahmed Badreldin, Texas A&M University, Qatar

- CCMP-04 **Characterization of Different Types of Carbons for Energy Storage Applications**
Albena Aleksandrova, Bulgarian Academy of Sciences, Bulgaria
- CCMP-05 **Investigation of Different Types of Carbons as Additives in Electrode Materials for Energy Storage Applications**
Maria Matrakova, Bulgarian Academy of Sciences, Bulgaria
- CCMP-06 **Metformin Degradation using TiO₂/CuO Heterojunction Supported on Sand Granules in a Fluidized Bed Photoreactor (FBF)**
Ricardo Solano Pizarro, University of Cartagena, Colombia
- CCMP-07 **Carbide-derived Carbons: WAXS and Raman Spectra for Detailed Structural Analysis**
Laura Kalder, University of Tartu, Estonia
- CCMP-08 **Laser Direct Writing of BaTiO₃ Thin Films to Applications in Nonlinear-optical Devices**
Jose Luis Clabel Human, University of São Paulo, Brazil
- CCMP-09 **A Study on the Electrochemical Performance of Silicon/Graphene Compounds as Efficient Negative Electrode for Lithium Batteries Prototype**
Atef Youssef Shenouda, CMRDI, Egypt
- CCMP-10 **Effect of Carbon Additives in a Cathode Electrode for Sulfide-based All Solid-state Batteries**
Ji-Sang Yu, Korea Electronics Technology Institute, South Korea
- CCMP-11 **Biomass-derived Carbon Transition Metal Oxide Composites for Photodegradation**
Kaiying Wang, University of South-Eastern Norway, Norway

END OF DAY-1



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Meeting ID: 916 6082 5769

Passcode: 470959

Meeting Room: Boncompagni

Plenary Presentation

Chair: **Vittoria Pischedda**, CNRS UCB LYON ILM, France

08:00-08:35

Mesoporous Silica Materials and their Applications in Bone Diseases**Maria Vallet-Regi**, CIBER-BBN, Universidad Complutense de Madrid, Spain

Professor Maria Vallet-Regi is a Spanish chemist, scientist and Professor at Universidad Complutense de Madrid, Spain. She is the manager of the Intelligent Biomaterials Research Group (GIBI), CIBER-BBN, at Complutense University of Madrid, where currently she is developing different strategies to cure bone related diseases such as cancer, osteoporosis or infections in implants. **She was the first woman to receive the gold medal from the European Federation of Materials Science Societies (FEMS) and the George Winter Award from the European Biomaterials Society (ESB).** She has received the Prix Franco-Espagnol 2000 from Société Française de Chimie, the Spanish Royal Society of Chemistry (RSEQ) award in Inorganic Chemistry 2008, the Spanish National Research Award in Engineering 2008, FEIQUE Research award 2011 and the RSEQ Research Award and Gold Medal 2011. She is a Highly Cited Researcher 2018 (Clarivate Analytics). Her publications have been cited over 46.000 times and her h-index is 112. She has recently obtained an **ERC Advanced Grant** entitled "Polyvalent mesoporous nanosystem for bone diseases."

Oral Presentations

Carbon Materials Properties & Applications

08:35-08:55

Lock-in Thermography for the Analysis of Graphene**Christoph Geers**, NanoLockin GmbH, Switzerland

08:55-09:15

High Pressure for Tuning Properties of Carbon Materials for Energy Applications**Vittoria Pischedda**, CNRS UCB LYON ILM, France

09:15-09:35

Structural Properties of Ice in Confinement**Malgorzata Sliwinska-Bartkowiak**, Adam Mickiewicz University, Poland

09:35-09:55

Invited Talk**Exotic Behavior of Liquids Confined in Nanocarbons****Jana Kalbacova Vejpravova**, Charles University, Czech Republic

09:55-10:15

Networking Break

10:15-10:35

Small Angle X-ray Scattering as a Tool to Characterize Carbon Structure**Heinz Amenitsch**, Graz University of Technology, Austria

10:35-10:55

Density Functional Theory in Cartesian Grid**Amlan Kusum Roy**, IISER, India

10:55-11:15

Raman Scattering of Neutron Irradiated Nuclear Graphite**Mohamed-Ramzi AMMAR**, CNRS - ICMN, France

- 11:15-11:35 **Ultrafast Supercapacitor for AC Line Filtering**
Miao Zhang, University of Salerno, Sweden
- 11:35-11:55 **Crumpled Carbon Nanotubes as Advanced Electrode for Supercapacitor**
Xinying Liu, University of South Africa, South Africa
- 11:55-12:15 **PdNPs/Carbon Dots/Silica Hybrid Nanostructure: Development of an Electrochemical Sensor**
Thiago C Canevari, Universidade Presbiteriana Mackenzie, Brazil
- 12:15-12:35 **Amorphous Carbon Layer by Atomic Layer Deposition for Phase Change Memory Electrode**
Seung-min Chung, Yonsei University, South Korea
-
- 12:35-12:45 Discussion Time
-
- 12:45-13:45 Networking Lunch
-
- Chair: **Ralph-Uwe Dietrich**, German Aerospace Center, Germany
- 13:45-14:05 **Activated Carbons as Electrode Material for use in Super Capacitors**
Antonia Stoyanova, Bulgarian Academy of Sciences, Bulgaria
- 14:05-14:25 **Structure Design of Carbon Nanomaterials for their Enhanced Performance in Electrochemical Energy Storage and Conversion**
Pai Lu, University of South-Eastern Norway, Norway
- 14:25-14:45 **Influence of Carbon Porosity on the Sulfur Utilization in Lithium-Sulfur Battery Cells with Sulfidic Electrolyte**
Magdalena Fiedler, Fraunhofer Institute for Material and Beam Technology, Germany
- 14:45-15:05 **Carbon Capture and Utilization towards a Future Sustainable Europe**
Ralph-Uwe Dietrich, German Aerospace Center, Germany
- 15:05-15:25 **Water Interactions with Polar C₁N₁ Nanopores**
Mateusz Odziomek, Max Planck Institute, Germany
- 15:25-15:45 **Nanosized Photothermal-responsive Carbon Dots for Light-triggered Drug Release**
Salvatore Petralia, University of Catania, Italy
- 15:45-16:05 **Single-molecule Enzymology using Carbon Nanocircuits**
Gregory Weiss, University of California, Irvine, CA, USA
- 16:05-16:25 **Carbon-based Materials for Reading and Writing in the Central Nervous System**
Picaud, Sorbonne Université, INSERM, CNRS, France
- 16:25-16:45 **Zeolite@Carbon Monolithic Adsorbent with Efficient CO₂ Capture Performances**
Matjaz Mazaj, National Institute of Chemistry, Slovenia
-
- 16:45-17:00 Networking Break
-
- Chair: **Cristina IOJOIU**, LEPMI, France
- 17:00-17:20 **Carbon Materials in Lithium Sulfur Batteries**
Guillermina Luque, INFIQC-CONICET/FCQ-UNC, Argentina
- 17:20-17:40 **TiO₂ Photocatalyst Loaded onto Activated Carbon Support from Wood Waste for Visible Light Photocatalysis**
Luminita Andronic, Transilvania University of Brasov, Romania
- 17:40-18:00 **Metal Chloride Activation Revisited: A Sol-gel Process to Functional Carbons**
Tim-Patrick Fellinger, Technical University of Munich, Germany
- 18:00-18:20 **Adsorption of Anionic Dye by Chitosan – date Palm Seed-derived Activated Carbon Composites**
Mohamed Bassyouni, Port Said University, Port Said, Egypt

- 18:20-18:40 **Peroxidase Mimicking of Fe₃C/Nitrogen-doped Carbon and the Application in Colorimetric Sensors**
Sadaf Saeedi Garakani, Stockholm's Universitet, Sweden
- 18:40-19:00 **Chemical and Molecular-level Insight into on-surface Reactions of Organic Molecular Tectons**
Francesco Allegretti, Technical University of Munich, Germany
- 19:00-19:20 **Boron-doped Diamond Cathodes for Electrochemically Assisted Ozonation Processes**
Elisabetta Petrucci, Università di Roma, Italy

END OF DAY-2



Join Zoom Meeting:

<https://zoom.us/j/91660825769?pwd=UzJEM05jSkZFRmZWZW5ta0dlRGtSZz09>

Meeting ID: 916 6082 5769

Passcode: 470959

Meeting Room: Cervini

Oral Presentations

Nano Research

Chair: **Rasmus Palm**, KTH Royal Institute of Technology, Sweden

- 08:00-08:20 **Probing Single Molecule Magnets with Graphene Quantum Dots**
Paola Barbara, Georgetown University, Washington, DC, USA
- 08:20-08:40 ***In-situ* Investigation of the Crystalline Phase Composition During (De)Deuteration of NaAlD₄ Confined in Mesoporous Carbon Black**
Rasmus Palm, KTH Royal Institute of Technology, Sweden
- 08:40-09:00 **Mode coupling, Bi-stability, and Spectral Broadening in Buckled Carbon Nanotube Mechanical Resonators**
Yuval E. Yaish, Technion, Israel
- 09:00-09:20 **Tailoring Multifunctional and Lightweight Hierarchical Hybrid Graphene Nanoplatelet and Glass Fiber Composites**
Patrick C Lee, University of Toronto, Canada
- 09:20-09:40 **The Role of Molybdenum Disulfide for Solar Cell Applications: Properties, Mechanism and Application**
Norasikin Ahmad Ludin, Universiti Kebangsaan Malaysia, Malaysia
- 09:40-10:00 **Networking Break**
- Chair: **Narges Yaghoobi Nia**, University of Rome Tor Vergata, Italy
- 10:00-10:20 **Clean Energy and Decarbonization Research at Oak Ridge National Laboratory**
Xin Sun, Oak Ridge National Laboratory, Oak Ridge, Tennessee, TN, USA
- 10:20-10:40 **Carbon-incorporated Titanate Nanotubes as Catalyst Support for PEM Fuel Cells**
Julia Hoppe, Nuremberg Institute of Technology, Germany
- 10:40-11:00 **Developing Highly Stable Solid-state Organic Lithium Metal Batteries Powered by 3D Carbon Current Collector and Single Ion Polymer Electrolyte**
Cristina IOJOIU, LEPMI, France
- 11:00-11:20 **Pathway Toward Fabrication of Efficient and Stable Perovskite Solar Modules**
Narges Yaghoobi Nia, University of Rome Tor Vergata, Italy
- 11:20-11:40 **Applications of Functional Activated Carbon Impregnated with Elementary Iodine**
Spaziani Fabio, ENEA, Italy
- 11:40-12:00 **Fabrication of 2D materials based Nanoarchitectures via Innovative CVD Processes**
Marc Gonzalez Cuxart, Technical University Munich, Germany
- 12:00-12:20 **Optical Band Gap of Carbon Modified TiO₂**
Dominik Eitel, Nuremberg Institute of Technology, Germany
- 12:20-12:40 **Discussion Time**
- 12:40-13:40 **Networking Lunch & In-Person Departures**

Join Zoom Meeting:

<https://zoom.us/j/91660825769?pwd=UzJEM05jSkZFRmZWZW5ta0dlRGtSZz09>

Meeting ID: 916 6082 5769

Passcode: 470959

06:25-06:40 Opening Remarks & Introduction

Moderator: **Toshihiro SHIMADA**, Hokkaido University, Japan

Plenary Session I

06:40-07:20

Multifunctional Synergy Strategies for Materials Design, Processing and Applications**Shi Xue Dou**, University of Wollongong, Australia

Professor Shi Xue Dou is an Australian Professorial Fellow and Director of the Institute for Superconducting and Electronic Materials (ISEM) in University of Wollongong. He was elected as a Fellow of the Australian Academy of Technological Science and Engineering in 1994. He was awarded a DSc by the University of New South Wales in 1998 and awarded three Australian Professorial Fellowship by Australian Research Council from 1993-2012. Australian Government awarded him the Centenary Medal for his achievements in materials science and engineering in 2003. He received Vice-Chancellor Excellent Senior Researcher Award in 2008 and Outstanding Partnership award in 2012. He was highly cited researcher with *h* index of 143. He has supervised or co-supervised 60 PhD graduates and more than 30 postdoc fellows. Dou is specialised in energy and electronic materials including high performance lithium ion battery for electric vehicles and patented magnesium diboride superconductor wires for applications in magnetic resonance imaging and electric power system such as fault current limiter for smart grid and electric generator for wind turbine.

07:20-08:00

Identification and Detailed Characterization of Metal Oxides and Carbon Nitrides**Bunsho Ohtani**, Hokkaido University, Japan

Professor Bunsho Ohtani currently working as a Professor at Hokkaido University, Institute for catalysis in Japan. A research work on photocatalysis by Professor Ohtani started in 1981 when he was a Ph. D. course student in Kyoto University. Since then, he has been studying photocatalysis and relating topics for more than 30 years and published more than 300 original papers (*h*-index: 82) and two single-author books. In 1996, he was promoted to an associate professor in Division of Chemistry, Graduate School of Science, Hokkaido University and then got a full professor position in Catalysis Research Center (presently Institute for Catalysis), Hokkaido University in 1998. He was awarded 2005 Scientific Achievement Award of The Electrochemical Society of Japan, The Japanese Photochemistry Association Award 2006, Catalysis Society of Japan Award for 2013, The Japanese Photochemistry Association Lectureship Award (2017) and The Award of The Electrochemical Society of Japan (Takei Award), 2018.

Keynote Session-I

08:00-08:30

Atomic Layer Deposition of Noble Metals with Low Concentration Ozone

Alfred ling Yoong Tok, Nanyang Technological University, Singapore



Professor Alfred Tok has been a faculty in the School of Materials Science and Engineering since 2003. He was also conferred the Dean's Award for Excellence for being top graduate on the course. After graduation, he had worked as a mechanical engineer at ST Aerospace Engineering. In 2009, he was bestowed the National Day Commendation Medal (PK) from the Singapore Prime Minister's Office. In the same year, he obtained his Nanyang MBA in the Dean's Honors List. He was then appointed Division Head of Materials Technology in MSE in 2009 and presently, he is the Deputy Director of the Institute for Sports Research. He also consults extensively for companies from various industries. His research mainly includes in these phenomena: Synthesis of Nanostructured Materials using Atomic Layer Deposition (ALD), Energy Thrust Program, Hard & Tough Materials for Ballistic Protection Application, Carbon-based Molecular Sensors, Institute for Sports Research.

Plenary Session II

08:30-09:10

Chemically Modified Graphene for Real-world Applications

Sang Ouk Kim, KAIST, South Korea



Professor Sang Ouk Kim is the Chair Professor in the Department of Materials Science & Engineering at KAIST, Daejeon, Korea. His main research interest focuses on the \tilde{O} -Directed Molecular Assembly of Soft Nanomaterials, which includes: i) Block copolymer self-assembly, ii) Carbon nanotube and graphene synthesis and assembly, and iii) Soft electronics and optoelectronics and iv) Nanoscale energy materials and devices. He was mainly focussed on Nanotechnology, Graphene, Carbon nanotube, Optoelec-tronics and Chemical engineering. His research on Nanotechnology often connects related areas such as Nanolithography. The study incorporates disciplines such as Flexible electronics, Oxide, Surface modification and Surface energy in addition to Graphene. Sang Ouk Kim has researched Carbon nanotube in several fields, including Organic solar cell, Carbon, Doping and Catalysis. He has included themes like Field electron emission and Resistive random-access memory in his Optoelectronics study. His studies deal with areas such as small-angle X-ray scattering, Polymer and Intercalation as well as Chemical engineering.

09:10-09:20 Break

Oral Session-I

Carbon Allotropes

Chair: **Toshihiro SHIMADA**, Hokkaido University, Japan

- 09:20-09:40 **The Effect of Carbon Atoms to the Ferroelectricity in ZnO:C Nanocolumnar: Experimental and Density-functional Studies**
Yudi Darma, Institut Teknologi Bandung, Indonesia
- 09:40-10:00 **Effect of Interfacial Chemistry on the Nanotribology of Graphite**
Arnaud Caron, KoreaTech, South Korea
- 10:00-10:20 **Superb Flexibility and Stretchability of Highly Conductive Large-area Graphene Grown Directly on PDMS Substrate at 100 °C**
Soon-Gil Yoon, Chungnam National University, South Korea
- 10:20-10:40 **Pair Distribution Function (PDF) Analysis of Multiwalled Carbon Nanotubes**
Bagautdin Bagautdinov, Japan Synchrotron Radiation Research Institute (JASRI), Japan
- 10:40-11:00 **Thermally Stable Graphene Oxide Fabricated by Modified Brodie's Method**
Joong Tark Han, Korea Electrotechnology Research Institute, South Korea
- 11:00-11:20 **Carbon Chemistry using Alkali Metals and Electrochemical Reduction**
Toshihiro SHIMADA, Hokkaido University, Japan
- 11:20-11:40 **The Effective Dispersion Method for Carbon Nanotube/Protein Composite Yarn**
Yongyoon Cho, NAIST, Japan
- 11:40-12:00 **Conductive Carbon Materials for Lithium-sulfur Battery**
Almagul Mentbayeva, Nazarbayev University, Kazakhstan
- 12:00-12:30 Break
- Chair: **Livia Giotta**, University of Salento, Italy
- 12:30-12:50 **Carbon Nano-onions: Fundamental Insights into their Potassium Intercalation, Functionalization and Statistical Characterization**
M. Eugenia Perez Ojeda, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany
- 12:50-13:10 **Production of Metal/Metal Oxide Decorated Carbon Nanotubes-based Inks for Application as Printable Gas Sensors on Industrial Work Clothes**
Rubia Young Sun Zampiva, Sapienza Università di Roma, Italy
- 13:10-13:30 **Fullerene/Nanocellulose Hybrid Materials: 2D-assemblies and (Photo) Electrochemical Properties**
Livia Giotta, University of Salento, Italy
- 13:30-13:50 **Electronic and Transport Properties of Suspended Porphine-GNRs and SWNTs**
Aldilene Saraiva Souza, Nano Academic Technologies, Brazil
- 13:50-14:10 **Structure and Properties of Periodic Porous Architectures Prepared by 3D Printing**
Alain CELZARD, Institut Jean Lamour, UMR 7198 CNRS and Université de Lorraine, France
- 14:10-14:30 **Carbon, a Key Piece to Positioning Hydrogen in the Energy Transition**
Vanessa Fierro, Université de Lorraine, CNRS, France
- 14:30-14:50 **Attempts to Enhance Surface Area and Graphitization Degree of Activated Carbon from Biomass Waste**
Ratna Frida Susanti, Parahyangan Catholic University, Indonesia

- 14:50-15:10 **Insights into Electronic Structure and Transport in Single Wall Carbon Nanotube-single Layer Graphene Hybrid Nanostructures**
Anshu Gaur, Indian Institute of Technology Kanpur, India
- 15:10-15:30 **Mass and Microporosity Contribution of Hemicellulose, Cellulose and Lignin in Activated Carbons Made from Agricultural Residues by Chemical Activation**
Benoit Cagnon, ICMN/ UMR 7374 CNRS, France

Keynote Session-II

- 15:30-16:00 **Resonance Raman Spectroscopy in Twisted Bilayer Graphene**
Marcos A. Pimenta, Federal University of Minas Gerais, Brazil



Professor Marcos Pimenta works with two of the biggest modern developments in nanoscience: graphene, thin 2-dimensional sheets, and nanotubes, carbon atoms arranged into a minuscule cylinder. Both of these pure carbon substances are extremely hard, excellent conductors of heat, and scientists and engineers often use them to produce electronic devices and new materials. In 1989 he became professor at the Department of Physics of Federal University of Minas Gerais (UFMG) in Belo Horizonte, Brazil. In 1992, he created the Raman Spectroscopy Laboratory at UFMG. He has served in high-level positions for several Brazilian nanoscience organizations and is currently director of the Brazilian Institute for Science and Technology (INCT) of Carbon Nanomaterials. He has won national and international awards, including the 2009 Somiya Award for International Collaboration from the International Union of Materials Research Societies, for collaborative works with scientists in the United States, Mexico and Japan. In 2010, he received the command of the Brazilian Order of Scientific Merit.

16:00 -16:10 Break

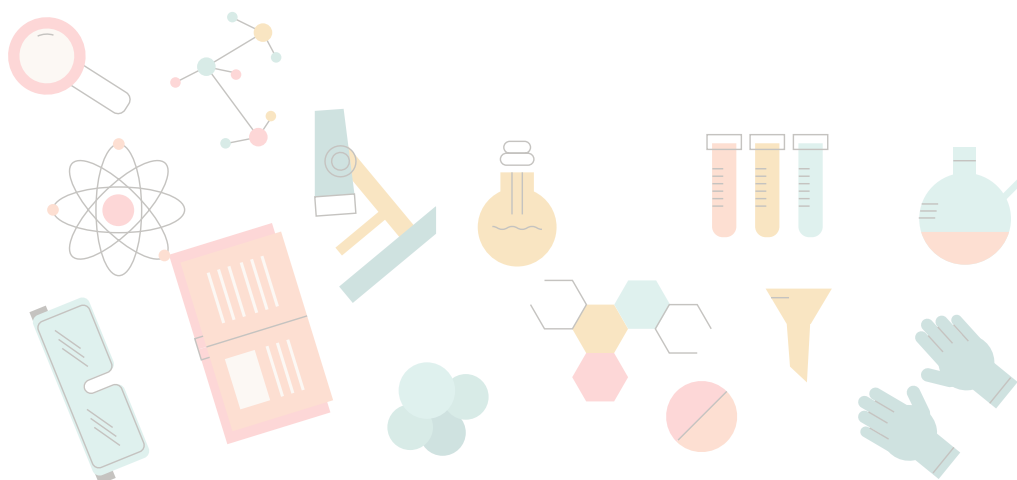
Oral Session-II

Chair: **Ruihua Cheng**, Indiana University Purdue University Indianapolis (IUPUI), Indianapolis, IN

- 16:10-16:30 **Resolving the Structural and Electronic Properties of Graphene/Ge (110)**
Luca Persichetti, University of Rome "Tor Vergata", Italy
- 16:30-16:50 **Study of Isothermal Spin State Switching in Spin Crossover Molecular Thin Film**
Ruihua Cheng, Indiana University Purdue University Indianapolis (IUPUI), Indianapolis, IN, USA
- 16:50-17:10 **Accelerating the Prediction of Large Carbon Clusters via Structure Search: Evaluation of Machine-Learning and Classical Potentials**
Bora Karasulu, University of Warwick, United Kingdom
- 17:10-17:30 **Synthesis, Functionalization and Assembly of Carbon Nanomaterials into 1D, 2D and 3D Structures**
Rina Tannenbaum, Stony Brook University, Stony Brook, NY, USA
- 17:30-17:50 **Evidence for Flat Band Dirac Superfluid Originating from Quantum Geometry**
Marc Bockrath, Ohio State University, Columbus, Ohio, OH, USA
- 17:50-18:10 **Nanostructure Characterization and Thermal Stability of Ultrathin Films of Amorphous Carbon Synthesized by Filtered Cathodic Arc and Their Applicability as Protective Overcoats in Heat-assisted Magnetic Recording**
Kyriakos Komvopoulos, University of California, Berkeley, CA, USA

- 18:10-18:30 **Kinetic Modelling of Hydrothermal Carbonization of Tea Processing Waste**
Basar Caglar, Izmir Institute of Technology, Turkey
- Chair: Per A. Lothman**, Kaiserslautern University of Applied Sciences, Germany
- 18:30-18:50 **Adsorption of Rhodamine B and Congo Red dyes on Bio Adsorbent: Carpobrotus Edulis Plant (HCl-treated and NaOH-treated)**
DABAGH Abdelkader, Ibn Zohr University Agadir, Morocco
- 18:50-19:10 **Graphene – a Laboratory for Electronic Analogues of Optics, only Better**
Avik Ghosh, University of Virginia, Charlottesville, VA, USA
- 19:10-19:30 **Beyond Graphene; the Novel Nanomaterials Graphyne, Graphene and ATQG**
Per A. Lothman, Kaiserslautern University of Applied Science & Foviatech GmbH, Germany
- 19:30-19:50 **Engineering Nano-biomaterials for Tissue Fabrication and Regenerative Medicine**
Su Ryon Shin, Harvard Medical School, Boston, MA, USA
- 19:50-19:55 **Poster:**
Liquid Quench Method to Obtain the Molecular Structure of Char Samples by Means of ReaxFF
Valentina Sierra, Washington State University, Pullman, WA, USA
- 19:55-20:15 **Thermal Stability of Thermally Reduced Graphene Oxide**
Maksym Barabashko, Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine, Ukraine
- 20:15-20:35 **Carbon Nanotube Thin-film Sheet for Low-voltage Heating Applications**
Megha Chitranshi, University of Cincinnati, Cincinnati, Ohio, OH, USA

END OF DAY-4



Join Zoom Meeting:

<https://zoom.us/j/91660825769?pwd=UzJEM05jSkZFRmZWZW5ta0dlRGtSZz09>

Meeting ID: 916 6082 5769

Passcode: 470959

Oral Presentations

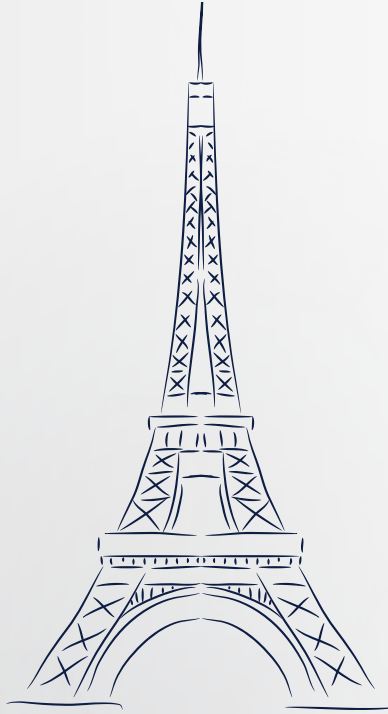
Carbon Materials Properties & Applications

Chair: **Kunasundari Balakrishnan**, Universiti Malaysia Perlis, Malaysia

- 05:00-05:20 **π -Structures with Different Topologies: Synthesis, Aromaticity and Electronic Properties**
Chunyan Chi, National University of Singapore, Singapore
- 05:20-05:40 **Proposal of Braiding Pattern of Carbon Nanotubes for the Fabrication of Fabric Composites and Consideration of Basic Mechanical Properties**
Fumio Ogawa, Tohoku University, Japan
- 05:40-06:00 **The Utilization of Waste Gelatin to Enhance the Performance of Bendable MnO₂/PAN Anode Membranes for the Flexible Lithium Ion Battery**
Supacharee Roddecha, Kasetsart University, Thailand
- 06:00-06:20 **Generation of Various Nanocarbon Allotropes in the Gas Phase During Diamond Hot Filament Chemical Vapor Deposition**
Nong-Moon Hwang, Seoul National University, South Korea
- 06:20-06:40 **Soft Stretchable Electronics using Self-healable Nanocomposite Conductor for Skin-like Wearable Sensors**
Sungjun Lee, Yonsei University, South Korea
- 06:40-07:00 **High-ampacity Freestanding CNT-Cu Composite Film with Controllable Fabrication**
NILUFER CAKMAKCI, Soongsil University, South Korea
- 07:00-07:20 **Solubilities of 4-aminoazobenzene in Supercritical Carbondioxide and Development of New Semiempirical Model**
Ratna Surya Alwi, National Research and Innovation Agency (BRIN), Indonesia
- 07:20-07:40 **Possible Metallization of Mn-DNA Based on the First-principles Calculation**
Takuya Sekikawa, Niigata University, Japan
- 07:40-08:00 **Functionalization of MWCNTS using Phosphoric Acid for Immobilization of Cellulase**
Kunasundari Balakrishnan, Universiti Malaysia Perlis, Malaysia
- 08:00-08:20 **Synthesize and Characterization of Beta Cyclodextrin Modified Chitosan for Adsorption of Aspirin**
Norzita Ngadi, Universiti Teknologi Malaysia, Malaysia
- 08:20-08:30 Break
- Chair: **Cristina Diaz**, Universidad Complutense de Madrid, Spain
- 08:30-08:50 **Conductive 2D Metal-organic Framework for High-performance Cathodes in Aqueous Rechargeable Zinc Batteries**
Kwan Woo Nam, Ewha Womans University, South Korea
- 08:50-09:10 **Desorption and Reduction Studies of Graphitic Carbon Nitride Supported Nickel**
Wan Nor Roslam Wan Isahak, Universiti Kebangsaan Malaysia, Malaysia

- 09:10-09:30 **Graphene Supported on Ru (0001) as Catalyst in Processes Involving Organic Molecules**
Cristina Diaz, Universidad Complutense de Madrid, Spain
- 09:30-09:35 **Poster:**
Synthesis of Heterogeneous Catalysts from Metal Complexes by the High-pressure High-temperature Method
Ichiro Yamane, Hokkaido University, Japan
- 09:35-09:55 **Electrochemical Dearomative Carboxylations of Heteroaromatics with Highly Negative Reduction Potentials**
Tsuyoshi Mita, Hokkaido University, Japan
- 09:55-10:15 **Graphite as Negative Electrodes for K-ion Batteries**
Laure Monconduit, ICGM, CNRS, France
- 10:15-10:35 **Highly Oriented Pyrolytic Graphite (HOPG) Anion Intercalation Followed *In-situ* and in Real Time by an Innovative Combined Raman Spectroscopy and Electrochemical Atomic Force Microscopy System**
Gianlorenzo Bussetti, Politecnico di Milano, Italy
- 10:35-10:55 **Synthesis of Nickel Nanostructured Microwires and their Composites with Carbon Nanotubes for Electrochemical Applications**
Mikhail Morozov, Kazan National Research Technical University, Russia
- 10:55-11:15 **Fabrication of a Stable CdS Photoanode for CO₂ Reduction under Visible-light Irradiation**
Masanobu Higashi, Osaka Metropolitan University, Japan
- 11:15-11:35 **Glassy Carbon Paste as a Promising Electrode Material for Stripping Voltammetry**
Agnieszka Krolicka, AGH University of Science and Technology, Poland
- 11:35-11:45 **Break**
- Chair: Anna Maria Ferrari**, University of Torino, Italy
- 11:45-12:05 **Biochar/Zinc Oxide Composites as Effective Catalysts for Electrochemical CO₂ Reduction**
Juqin Zeng, Istituto Italiano di Tecnologia, Italy
- 12:05-12:25 **Honeycomb Structure Made out of Protein: A Promising Biomaterial for Nanotechnology**
Elise Jacquier, Institut of Functional Genomic, France
- 12:25-12:45 **Synthesisation of Graphene Oxide: TiO₂ Nanorod/Nanourchin *via* a Single-step Facile Sonicated Aqueous Chemical Route**
Mohd Firdaus Malek, Universiti Teknologi MARA (UiTM), Malaysia
- 12:45-13:05 **Reduced Graphene Oxide-based Inverter Applied to Ion Detection in Aqueous Media**
Nicolas BATTAGLINI, Université Paris Cité - ITODYS, France
- 13:05-13:25 **Reactivity of Nanodiamond Aqueous Suspension Under Illumination**
Hugues Girard, Université Paris-Saclay, CNRS, France
- 13:25-13:45 **The NV⁻...N⁺ Charged Pair in Diamond: A Quantum-mechanical Investigation**
Anna Maria Ferrari, University of Torino, Italy
- 13:45-14:05 **How Disordered are Disordered sp²-based Carbons? Insights from Wide-angle Neutron Scattering Analysis.**
Bernd Smarsly, Justus-Liebig-University, Germany
- 14:05-14:35 **Break**
- Chair: GUERIN ARAUJO DA SILVA**, Clermont Auvergne University, France
- 14:35-14:55 **Revealing the Nature of Optical Activity in Carbon Dots Produced from Different Chiral Precursor Molecules**
Elena Ushakova, ITMO University, Russia

- 14:55-15:15 **Fungal Biosorbents: Smart Tools for Environmental Applications**
Asli Gocenoglu Sarikaya, Bursa Uludag University, Turkey
- 15:15-15:35 **CFx Electrodes and CFx-based batteries**
GUERIN ARAUJO DA SILVA, Clermont Auvergne University, France
- 15:35-15:55 **Biomimetic Polymer Capsules for Drug Delivery and Imaging**
Beata Miksa, Polish Academy of Sciences, Poland
- 15:55-16:15 **Carbon Dots Derived from Biomass Sources and their Biosensor Applications**
Saliha Dinc, Selcuk University, Turkey
- 16:15-16:35 **Utilization of Surfactants to Augment Decolorization Process by Biosorbents**
Ulkuye Dudu GuL, Bilecik Seyh Edebali University, Turkey
- 16:35-16:55 **Production of Delafossite CuCo₂ Nanoparticles and Their Use in Photocatalysis Applications with Semiconductors for the Removal of Pollutants in Wastewater**
Sami Dursun, Konya Technical University, Turkey
- 16:55-17:15 **Energy Storage in Super-activated Carbon-based Materials from Agrifood Wastes**
Chiara Milanese, University of Pavia, Italy
- 17:15-17:35 **Electrochemical Sensors based on Green Ionic Liquid Nanocomposites for Determination of Environmental Pollutants**
REENA Saxena, University of Delhi, India
- 17:35-17:45 **Break**
- Chair: **Sylvie BONNAMY**, CNRS/University of Orleans /ICMN, France
- 17:45-18:05 **Biomimetic Calcium-deficient Hydroxyapatite Deposited on a Carbon Cloth Substrate as a Biomaterial used to Accelerate Bone Regeneration**
Sylvie BONNAMY, University of Orleans, CNRS, France
- 18:05-18:25 **Functionalization of Carbon Materials for Pollution Detection and Remediation**
Mohamed Habila, King Saud University, Saudi Arabia
- 18:25-18:45 **Nitrogen Doped Activated Carbon Derived from Marula Nutshell Waste for Use in High Performance Supercapacitors**
Manoko Maubane-Nkadimeng, University of The Witwatersrand, South Africa
- 18:45-19:05 **Lithium Superoxide Stabilization through Ir₃Li/rGO and Implication Toward High Energy Capacity Li-O₂ Batteries**
Hsien Hau Wang, Argonne National Laboratory, Lemont, IL, USA
- 19:05-19:25 **Atomic layer Deposited Nickel Nanoparticle Catalysts for Dry Reforming of Methane**
Xinhua Liang, Washington University, St. Louis, MO, USA
- 19:25-19:45 **Use of Piperidine for CO₂ Capture**
Maohong Fan, University of Wyoming, Laramie, WY, USA
- 19:45-20:05 **Triboelectric Nanogenerators for Energy Harvesting and Self-powered Sensing**
Yanguang (Jack) Zhang, National Research Council, Canada
- 20:05-20:25 **The Unique Electrochemical Performance of Rotated Multilayer Graphene**
Tereza Paronyan, HeXalayer LLC, Louisville, KY, USA
- 20:25-20:30 **Concluding Remarks**



We wish to see you at
CCM-2023
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