

TENTATIVE PROGRAM (as of 15/05/2023)

K: Keynote lecture / I: Invited Lecture / O: Oral Contribution



Monday (15/05/2023)

08:00 – 08:45: *Registration*

08:45 – 09:00: *Opening - Welcome and Introduction*

Chairperson: **Vincenzo Palermo** (Italian National Research Council (CNR), Italy)

09:00 – 09:45: **Hyeon Suk Shin** (UNIST, South Korea) K

Growth and Applications of Hexagonal Boron Nitride

09:45 – 10:15: **Camilla Coletti** (Istituto Italiano di Tecnologia (IIT), Italy) I

Moving from fundamental studies to industrial applications with CVD-grown 2D materials

10:15– 11:00: *Coffee Break & Posters Session*

Chairperson: **Camilla Coletti** (Istituto Italiano di Tecnologia (IIT), Italy)

11:00 – 11:30: **Jong-Hyun Ahn** (Yonsei University, South Korea) I

Low temperature growth of MoS₂ on III-V compound semiconductor

11:30 – 12:00: **Gregory Schneider** (Leiden University, The Netherlands) I

From polycyclic aromatic hydrocarbons to two dimensional nanopores, nanogaps and energy devices

12:00 – 12:30: **Alexandr Talyzin** (Umeå University, Sweden) I

Graphene oxide in 2D and 3D: structures, defects and applications

12:30 – 13:30: *Cocktail Lunch*

13:30 – 14:00: *Poster Session*

Chairperson: **Gregory Schneider** (Leiden University, The Netherlands)

14:00 – 14:30: **Pablo Ordejon** (ICN2, Spain) I

Understanding thermal transport in Transition Metal Dichalcogenides: from the monolayer to the bulk

14:30 – 15:00: **Thomas Heine** (TU Dresden, Germany) I

Mattermorphosis

15:00 – 15:15: **Tommaso Forni** (CNR - ISMN, Italy) O

GrapheNet: A Novel Deep Learning Model for Predicting Physical and Electronic Properties of 2D Materials Using Images

15:15– 16:15: *Coffee Break & Poster Session*

Chairperson: **Paolo Samori** (Université de Strasbourg / CNRS, France)

16:15 – 16:45: **Claudia Backes** (University of Kassel, Germany) I

Assessing Degradation of Liquid-Exfoliated Nanosheets

16:45 – 17:15: **Yuta Nishina** (Okayama University, Japan) I

Electrochemical oxidation and reduction of graphite by continuous flow system

17:15 – 17:30: **Elena Mack** (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany) O

Functionalizing 2D transition metal dichalcogenides with electron-accepting phthalocyanines

17:30 – 17:45: **Alessandro Kovtun** (Istituto per la Sintesi Organica e la Fotoreattività ISOF-CNR, Italy) O

Covalent surface functionalization of graphene-based materials controlled by blue light

17:45 – 18:00: **Sara Domenici** (Politecnico di Torino, Italy) O

Hybrid hydrogels based on 2D MoS₂ for applications in wearable devices



Tuesday (16/05/2023)

PARALLEL SESSION A

Chairperson: **To be defined**

- 09:00 – 09:30: **Rainer Adelung** (Kiel University, Germany) I
Graphene & related Aeromaterial Devices by chemistry only
- 09:30 – 09:45: **Shibin Thomas** (University of Southampton, UK) O
Electrodeposition of Transition Metal Dichalcogenide Thin- films from Non-aqueous Solvents
- 09:45 – 10:00: **Miquel Garcia Lleo** (Graphene XT, Italy) O
Industrial exfoliation of 2D graphene analogues for functional coatings.

10:00– 11:00: *Coffee Break & Poster Session*

Chairperson: **Rainer Adelung** (Kiel University, Germany)

- 11:00 – 11:30: **Aldo Di Carlo** (University of Rome "Tor Vergata", Italy) I
Leveraging 2D Materials to Boost Perovskite Photovoltaic Performance and Durability
- 11:30 – 11:45: **Ahmad Bagheri** (iit, Italy) O
A comparative study on the application of synthetic 2D MOFs as active materials in hybrid supercapacitors
- 11:45 – 12:00: **Jinhua Sun** (Chalmers University of Technology, Sweden) O
Graphene/MXene based self-assembling structures for energy storage applications
- 12:00 – 12:15: **Valentina Mastronardi** (BeDimensional S.p.A, Italy) O
Graphene vs. carbon black supports for Pt nanoparticles: towards next-generation cathodes for advanced alkaline electrolyzers
- 12:15 – 12:30: **Hossein Beydaghi** (BeDimensional, Italy) O
Graphene-based printed reference electrodes for next-generation lithium-ion batteries

12:30 – 13:30: *Cocktail Lunch*

13:30 – 14:00: *Poster Session*

Chairperson: **Claudia Backes** (University of Kassel, Germany)

- 14:00 – 14:15: **Chiara Zanardi** (Institute for Organic Synthesis and Photoreactivity (ISOF-CNR), Italy) O
Amino acid modified graphene as smart material for glyphosate capture and electrochemical detection
- 14:15 – 14:30: **Michal Otyepka** (CATRIN, Palacký University Olomouc, Czech Republic) O
Graphene derivatives for electrochemical sensing
- 14:30 – 14:45: **Vittorio Ricci** (University of L'Aquila, Italy) O
2D-Layered Amorphous Metal Oxide Gas Sensors (LAMOS): perspectives and gas sensing properties
- 14:45 – 15:00: **Tomasz Chudziak** (Uniwersytet im. Adama Mickiewicza w Poznaniu, Poland) O
Investigation of correlation between rigidity of graphene-based hybrid materials and responsiveness of sensors device
- 15:00 – 15:15: **Anna Zhuravlova** (Université de Strasbourg, France) O
Highly sensitive and selective chemical sensing with functionalized 2D MoS₂: a supramolecular approach

15:15– 16:15: *Coffee Break & Poster Session*

Chairperson: **Aldo Di Carlo** (University of Rome "Tor Vergata", Italy) - TBC

- 16:15 – 16:30: **Zhenyuan Xia** (Chalmers University of Technology, Sweden) O
Electrochemical synthesis of metal sulfide/3D-graphene composites for energy storage applications
- 16:30 – 16:45: **Marc Morant Giner** (Università degli Studi di Trieste, Italy) O
DoE-Assisted Development of a 2H-MoS₂-Catalyzed Approach for the Production of Indole Derivatives
- 16:45 – 17:00: **Giacomo Foli** (University of Bologna, Italy) O
Graphene multilayers for gas sieving
- 17:00 – 17:15: **Anna Lewandowska-Andralojc** (Adam Mickiewicz University, Poland) O
Dye-sensitized 2D materials composites for photocatalytic hydrogen production
- 17:15 – 17:30: **Cecilia de Carvalho Castro Silva** (MackGraphe-Mackenzie Institute for Research in Graphene and Nanotechnologies, Brazil) O
Simple Low-Cost Fabrication of Laser-Induced Graphene-Based Electrochemical Sensors

PARALLEL SESSION B

Chairperson: **Gonzalo Abellán** (Universitat de València, Spain) .- TBC

- 09:00 – 09:30: **Zdenek Sofer** (UCT Prague, Czech Republic) I
Chemistry and applications of monoelemental 2D materials beyond graphene
- 09:30 – 09:45: **Jose M. Pereira** (CIC nanoGUNE, Spain) O
Superconductivity in Organic-Ion Intercalated MoS₂
- 09:45 – 10:00: **Daniel Tezze** (CIC nanoGUNE, Spain) O
Tuning the magnetism of NiPS₃ and MnPS₃ through organic ion intercalation
- 10:00 – 10:15: **Bin Han** (Universite De Strasbourg, France) O
Chemically Functionalized Top-contact Electrodes: Boosting the Performance of MoS₂ Field-Effect Transistors by Tuning the Charge Injection

10:15– 11:00: *Coffee Break & Poster Session*

Chairperson: **Zdenek Sofer** (UCT Prague, Czech Republic)

- 11:00 – 11:30: **Gonzalo Abellán** (Universitat de València, Spain) I
Hexagonal hybrid bismuthene by molecular interface engineering
- 11:30 – 11:45: **Natalia Vassilyeva** (Instituto de Ciencia Molecular de UV, Spain) O
Solution approach for smart asymmetric 2D heterostructures
- 11:45 – 12:00: **Rahul Sasikumar** (KU Leuven, Belgium) O
Modulation of charge carriers in TMDs using covalent chemistry
- 12:00 – 12:15: **Liubov Belyaeva** (ETH, Switzerland) O
Hydrogel platforms for strain-free and homogeneous 2D materials and devices
- 12:15 – 12:30: **Sara Gullace** (Institut de Science et d'Ingénierie Supramoléculaires (I.S.I.S.), France) O
Investigation of the Ionic Conductivity and Relaxation of COF/polymer Composite Solid Electrolytes

12:30 – 13:30: *Cocktail Lunch*

13:30 – 14:00: *Poster Session*

Chairperson: **Jiyoung Kim** (The University of Texas at Dallas, USA)

- 14:00 – 14:30: **Stephan Roche** (ICREA / ICN2, Spain) I
Amorphous 2D Materials for Applications in Nanoelectronics and Neuromorphic Computing
- 14:30 – 14:45: **Rossella Galli** (CNR- IMM, Italy) O
Sensitive Piezoresistive sensors made of Graphene/PDMS 3D porous structures for wearable electronics
- 14:45 – 15:00: **Pradip Kumar Roy** (University of Chemistry and technology, Czech Republic) O
PEC based Self powered Photodetector and sensors using Hydrogen-terminated 2D Germananes and silicene
- 15:00 – 15:15: **Gangamallai Velpula** (KU LEUVEN, Belgium) O
Ionic Liquids – Graphene Interface: Effect of ions of Ionic liquids on the Fermi Level

15:15– 16:15: *Coffee Break & Poster Session*

Chairperson: **To be defined**

- 16:15 – 16:45: **Jiyoung Kim** (The University of Texas at Dallas, USA) I
In-situ Electrical Characterization of Atomic Layer Deposition of Top Gate Dielectrics for 2D TMD Transistors
- 16:45 – 17:00: **Tainah Dorina Marforio** (University of Bologna UNIBO, Italy) O
In the crib: how Graphyne cradles the natural amino acids
- 17:00 – 17:15: **Stefan Bromley** (University of Barcelona, Spain) O
From Molecular Radicals to 2D Quantum materials: 2D Covalent Organic Radical Frameworks (CORFs)
- 17:15 – 17:30: **Rico Friedrich** (Helmholtz-Zentrum Dresden-Rossendorf, Germany) O
Discovering Two-Dimensional Non-van der Waals Materials
- 17:30 – 17:45: **José J. Baldoví** (ICMOL, University of Valencia, Spain) O
Spin waves engineering in 2D van der Waals materials
- 17:45 – 18:00: **Dario Calvani** (Leiden University, The Netherlands) O
Covalent benzenesulfonic functionalization of graphene and graphene nanopore for enhanced and selective proton transport



Wednesday (17/05/2023)

Chairperson: **Alberto Bianco** (IBMC-CNRS-Université de Strasbourg, France)

- 09:00 – 09:30: **Manuela Melucci** (ISOF-CNR, Italy) I
Graphene based materials and technologies for advanced drinking water monitoring and treatment
- 09:30 – 09:45: **Ludovic Dumee** (Khalifa University, United Arab Emirates) O
Photocatalytic-triggered nanopores across multilayer graphene for high-permeation membranes
- 09:45 – 10:00: **Zhiyong Wang** (Max Planck Institute of Microstructure Physics, Germany) O
On-Water Surface Synthesis of Two-Dimensional Polymer Membranes toward Effective Ion Transport

10:00– 10:30: *Coffee Break & Poster Session*

Chairperson: **Manuela Melucci** (ISOF-CNR, Italy)

- 10:30 – 11:00: **Alberto Bianco** (IBMC-CNRS-Université de Strasbourg, France) I
In vivo lung fate and biotransformation of MoS₂ nanosheets
- 11:00 – 11:30: **Luigi Ambrosio** (CNR, Italy) I
Design of biofunctional nanostructures for theraregenerative medicine
- 11:30 – 11:45: **Artur M. Pinto** (LEPABE, University of Porto, Portugal) O
UV-C driven reduction of nanographene oxide opens path for new applications in phototherapy
- 11:45 – 12:00: **Valentina Castagnola** (Italian Institute of Technology, Italy) O
Interactions of Graphene Oxide and Few-Layer Graphene with the Blood–Brain Barrier
- 12:00 – 12:15: **Nikolaj Lopatik** (Technische Universität Dresden, Germany) O
Solid-State NMR Investigations of 2D Materials
- 12:15 – 12:30: **Vasiliki Benekou** (ISOF-CNR, Italy) O
Chemical, electrical, and thermal characterization of metal-organic coordination polymer multi-layers produced by sequential in situ self-assembly
- 12:30 – 12:45: **Ashok Kumar Yadav** (Synchrotron SOLEIL, France) O
In situ x-ray quantitative investigation of the grown of 2D TiS₂ transition metal dichalcogenide prepared by hybrid ALD/MLD
- 12:45 – 13:00: **Valentina Belova** (European Synchrotron Radiation Facility – ESRF, France) O
In Situ Characterisation of Graphene Growth on Liquid Metal Catalysts by Chemical Vapour Deposition

13:00 – 14:00: *Cocktail Lunch*

14:00 – 14:45: *Poster Session*

Innovation Forum

Chairperson: **Francesco Matteucci** (European Innovation Council, Green Tech Programme Manager, Belgium)

- 14:45 – 15:05: **Gloria Guidetti** (Tetra Pak Packaging Solutions, Italy) I
How to deal with big industries. Highlights for Tec-developers
- 15:05 – 15:25: **Filippo Giordanino** (LayerOne AS, Norway) I
Title to be defined
- 15:25 – 15:45: **Francesco Gazza** (Centro Recherche FIAT / Stellantis, Italy) / **Elio Sarotto** (CRF, Stellantis South Europe Technical Center, Italy) I
New paradigms for automotive innovative materials
- 15:45 – 16:05: **Simone Ligi** (Graphene-XT, Italy) I
Dry to touch lubricant graphene as new paradigm in lubrication

16:05– 16:40: *Coffee Break & Poster Session*

Chairperson: **Francesco Matteucci** (European Innovation Council, Green Tech Programme Manager, Belgium)

- 16:40 – 17:00: **Fouzia Hannour** (Qatar Free Zones Authority, Qatar) I
Investment trends and opportunities for the global industry sustainability demands

17:00 – 17:20: **Francesco Bonaccorso** (BeDimensional, Italy) I
The path toward mass production of high quality 2D materials
17:20 – 17:40: **Meganne Christian** (CNR-IMM & Member of the ESA Astronaut Reserve, Italy) I
2D Materials in Space
17:40 – 18:00: **Sabrina Conoci** (ST Microelectronics, Italy) I
From Invention to Innovation: the challenge of the Technology Transfer
18:00 – 18:30: Discussion



Thursday (18/05/2023)

Chairperson: To be defined

09:00 – 09:30: **Alberto Moscatelli** (Nature Nanotechnology, Germany) I
An Insider's view of Nature journals
09:30 – 09:45: **Andrea Liscio** (CNR-IMM, Italy) O
Dye-sorption in liquid for surface area analysis
09:45 – 10:00: **Petr Dementyev** (Bielefeld University, Germany) O
Molecular Permeation in 2D Silicon Dioxide

10:00– 11:00: *Coffee Break & Poster Session*

11:00– 11:15: *Award Ceremony*

Chairperson: **Vincenzo Palermo** (Italian National Research Council (CNR), Italy)

11:15 – 11:30: **Dimitrios Chronopoulos** (CATRIN-RCPTM/Palacky University Olomouc, Czech Republic) O
Preparation of graphene-based all-carbon hybrids based on fluorographene chemistry
11:30 – 11:45: **Qing Cao** (Free University of Berlin, Germany) O
Emerging field of few-layered intercalated 2D materials
11:45 – 12:00: **Marinos Dimitropoulos** (FORTH/ICE-HT and University of Patras, Greece) O
Synthesis and nanomechanical assessment of ultrathin carbon nanomembranes targeted for permeation applications
12:00 – 12:15: **Robert Menzel** (University of Leeds, UK) O
Hierarchical Nanocarbon Aerogel Catalysts

12:15: *Conclusions & Announcement of Chem2Dmat2025*