



## TENTATIVE PROGRAM (as of 29/08/2023)

P: Plenary / K: Keynote lecture / I: Invited Lecture / O: Oral contribution



### Monday August 28, 2023

08:00 – 08:50: Registration

08:50 – 09:00: Opening/welcome

**Chairperson: Catherine Journet-Gautier** (Université Claude Bernard Lyon 1, France)

09:00 – 09:30: **Francesco Bonaccorso** (BeDimensional, Italy) K

Mass production of high quality 2D materials

09:30 – 10:00: **Hassan Arafat** (RIC2D, United Arab Emirates) K

Functionalized Graphene Oxide Enabled Hybrid UF Membranes for Water Treatment

10:00 – 10:30: **Lucia Gemma Delogu** (University of Padua, Italy) K

High-Dimensional Approaches for Immune Profiling of 2D Materials

10:30– 11:30: *Coffee Break / Poster Session*

**Chairperson: Stephan Roche** (ICREA / ICN2, Spain)

11:30 – 11:50: **Benoît Mahler** (Université Claude Bernard Lyon1 - CNRS, France) I

Colloidal synthesis of transition metal dichalcogenides – from nano-monolayers to heterostructures

11:50 – 12:10: **Marc Dubois** (Université Clermont Auvergne, France) I

Preparation of F-diamane-like nanosheets via exfoliation

12:10 – 12:30: **Blanca Biel** (University of Granada, Spain) I

Unveiling the Potential of Functionalized 2D Janus MXenes

12:30 – 12:50: **Marie-Laure David** (Université de Poitiers, France) I

Ion implantation and irradiation as a tool to engineer 2D transition metal carbides (MXenes)

12:50 – 13:50: *Cocktail Lunch*

13:50 – 14:30: *Poster Session I*

**Chairperson: Lucia Gemma Delogu** (University of Padua, Italy)

14:30 – 15:00: **Stephan Roche** (ICREA / ICN2, Spain) K

Marrying Spintronics with Topological Physics in low dimensional quantum materials

15:00 – 15:30: **Hyeon Suk Shin** (UNIST, South Korea) K

Hexagonal and Amorphous Boron Nitride Thin Films

15:30 – 15:45: **Philippe Lafarge** (Université Paris Cité, France) O

Thermoelectric and thermal properties of supported few layers 2D materials

15:45 – 16:15: *Coffee Break / Poster Session*

**Chairperson: Francesco Bonaccorso** (BeDimensional, Italy)

16:15 – 16:45: **Jean-Christophe Charlier** (UCLouvain, Belgium) K

Structural and electronic properties of low-angle twisted bilayer graphene

16:45 – 17:05: **Marianna Sledzinska** (ICN2, Spain) I

Controlling thermal transport in 2D materials and their heterostructures

17:05 – 17:25: **Roberta Farris** (ICN2, Spain) I

Understanding thermal transport in 2D Transition Metal Dichalcogenides

17:25 – 17:40: **Christophe Adessi** (Université Claude Bernard Lyon1, France) O

Quantum transport properties of gas molecules adsorbed on Fe doped armchair graphene nanoribbons

17:40 – 17:55: **Luis Canonico** (Institut Catala de Nanociencia i Nanotecnologia (ICN2), Spain) O

Hot electron dynamics in graphene –a linear-scaling atomistic approach

17:55 – 18:25: **Eugenio Coronado** (UV - Instituto de Ciencia Molecular (ICMol), Spain) K

Tuning the properties of 2D magnets by twisting or by molecular strain



Tuesday August 29, 2023

**Chairperson: Artur M. Pinto** (LEPABE - University of Porto, Portugal)

09:00 – 09:30: **Christophe Bichara** (CINaM/CNRS & AMU, France) K

Swinging Crystal Edges of Growing Carbon Nanotubes

09:30 – 09:50: **Salomé Forel** (CNRS/Université Claude Bernard Lyon 1, France) I

Diameter-dependent stacking of dye molecules inside single-wall carbon nanotubes

09:50 – 10:05: **Antonin Louiset** (IRIG-CEA, France) O

Atomic scale characterization of carbon nanotubes combining transmission electron microscopy and deep learning image analysis

10:05– 10:45: *Coffee Break / Poster Session*

**Chairperson: Christophe Bichara** (CINaM/CNRS & AMU, France)

10:45 – 11:15: **Marc Georg Willinger** (Technical University of Munich, Germany) K

In-situ electron microscopy observation during CVD growth of Graphene and controlled stacking of graphene

11:15 – 11:30: **Camille Maestre** (LMI, France) O

h-BN crystal growth: from synthesis to functional properties

11:30 – 11:45: **Joyce Matsoso** (VSCHT Praha, Czech Republic) O

Enhancing alkaline media nitrogen reduction reaction through formation of 2D/2D hybrid structures of MoS<sub>2</sub>/rGO

11:45 – 12:00: **Nicole De Giorgi** (BeDimensional, Italy) O

Wet-jet milling exfoliated hexagonal boron nitride for anticorrosive coating

12:00 – 12:15: **Artur M. Pinto** (LEPABE - University of Porto, Portugal) O

New two-dimensional nanomaterials and devices for phototherapy

12:15 – 14:00: *Lunch Break*

**Chairperson: Stephen Purcell** (Université Claude Bernard Lyon1, France)

14:00 – 14:30: **Lydéric Bocquet** (CNRS/ENS, France) K

Water and ion flows in 1D and 2D nanochannels, from carbon memories to quantum friction

14:30 – 15:00: **Pablo Ordejón** (ICN2, Spain) K

DFT and QM/MM simulations of nanoconfined water between electrified gold surfaces using Non-Equilibrium Green's Functions

15:00 – 15:15: **Ernane de Freitas Martins** (Catalan Institute of Nanoscience and Nanotechnology (ICN2), Spain) O

A QM/MM-NEGF approach to address electrified metallic/water interfaces

15:15 – 15:30: **Artem Mishchenko** (The University of Manchester, UK) O

Dielectric properties of 2D water confined in gypsum

15:30 – 15:50: **Anne-Laure Biance** (Université Claude Bernard Lyon 1, France) I

Soft Nanofluidics

15:50 – 16:20: **Qian Yang** (The University of Manchester, UK) K

Towards the molecular-scale van der Waals capillaries and their applications in nanofluidics

16:20 – 17:00: *Coffee Break / Poster Session*

**Chairperson: Hanako Okuno** (CEA, France)

17:00 – 17:30: **Alfonso San Miguel** (Université Lyon 1-CNRS UMR-5306, France) K

Buckling, Binding, Bending: the spell of High Pressure in Low-Dimensional Systems

17:30 – 18:00: **Yarjan Abdul Samad** (Khalifa University of Science & Technology (KUST), UAE) K

Liquid Phase Exfoliation of GRMs & Their Applications in Space and Beyond

18:00– 18:15: **Mathieu Maillard** (University of Lyon, France) O

Synthesis of ultra-high temperature nanoparticles and nanowire ceramics for spatial applications



Wednesday August 30, 2023

**Chairperson: Eugenio Coronado** (UV - Instituto de Ciencia Molecular (ICMol), Spain)

09:00 – 09:30: **Jordi Arbiol** (ICREA / ICN2, Spain) K

The Nanowire (R)evolution viewed at atomic scale: from VLS vertical systems to planar quantum networks

09:30 – 10:00: **Sonia Conesa-Boj** (TU Delft, The Netherlands) K

Tunable van der Waals Materials as Building Blocks for Quantum Nanoptoelectronics

10:00 – 10:30: **Silvano de Franceschi** (CEA, France) K

Hole-based quantum nanoelectronics

10:30– 11:00: *Coffee Break / Poster Session*

**Chairperson: Lluís F. Marsal** (URV, Spain)

11:00 – 11:30: **Rémi Carminati** (Institut Langevin, ESPCI Paris, France) K

Disorder as a degree of freedom for photonic nanomaterials

11:30 – 12:00: **Elizabeth Boer-Duchemin** (CNRS-Université Paris-Saclay, France) K

Local Electrical Excitation of Excitons in 2D Semiconductors and of Surface Plasmons in Metallic Structures

12:00 – 12:20: **Nicolas Chauvin** (CNRS/INSA de Lyon, France) I

Telecom-band single photon sources monolithically grown on silicon

12:20 – 12:35: **Kuntheak Kheng** (Univ. Grenoble-Alpes/CEA-Grenoble, France) O

Room-temperature single-photon emitter in the blue-green spectral range using a CdSe/ZnSe nanowire quantum dot

12:35 – 14:00: *Lunch Break*

**Chairperson: Elizabeth Boer-Duchemin** (CNRS-Université Paris-Saclay, France)

14:00 – 14:30: **Lluís F. Marsal** (URV, Spain) K

Engineering Tamm Plasmons Resonances in Nanoporous Anodic Alumina Photonic Crystals

14:30 – 14:45: **Sreyash Sarkar** (INSA, France) O

Thermal radiation across a water nanobubble induced by a heated gold nanoparticle

14:45 – 15:00: **Florent Tournus** (Institut Lumière Matière, France) O

Surface/Interface effects for size-selected FeRh nanomagnets deposited on perovskite oxide crystals

15:00 – 15:20: **Stephen Purcell** (Université Claude Bernard Lyon1, France) I

Direct in situ Electron Microscope Synthesis of CNTs with Applied Electric Field and Field Emission

15:20 – 16:20: *Coffee Break / Poster Session*

**Chairperson: Sonia Conesa-Boj** (TU Delft, The Netherlands)

16:20 – 16:50: **Xavier Blase** (CNRS/NEEL, France) K

Molecular systems in complex environments: an embedded many-body perspective

16:50 – 17:05: **Cornelia Palivan** (University of Basel, Switzerland) O

Clusters of active nanocompartments as efficient nanotheranostics

20:00 – TNT2023 Conference dinner - [Brasserie L'Est](#) - 14 Pl. Jules Ferry, 69006 Lyon - [Google Maps](#)



Thursday August 31, 2023

**Chairperson: Catherine Journet-Gautier** (Université Claude Bernard Lyon 1, France)

09:00 – 09:30: **Tullio Scopigno** (Sapienza University of Rome, Italy) K

Out-of-equilibrium Raman spectroscopy of graphene and related 2D heterostructures

09:30 – 09:45: **Matthieu Bugnet** (CNRS, France) O

From electronic state to atomic orbital mapping in graphene in the transmission electron microscope

09:45 – 10:00: **Karine Masenelli-Varlot** (INSA Lyon, MATEIS, France) O

In situ Transmission Electron Microscopy experiments on individual nanoparticles

10:00 – 10:15: **Louis Biadala** (CNRS-IEMN, France) O

Atomic Structure and Electronic Trap States in Individual CdSe Colloidal Nanoplatelets by Low-Temperature Scanning Tunneling Microscopy

10:15 – 10:30: **Séverine Gomes** (Université de Lyon, CETHIL, France) O

Investigation of Heat Transport in an Individual Nanostructure by Dual Scanning Electron and Thermal Microscopies

10:30– 11:15: *Coffee Break / Poster Session*

**Chairperson: Tullio Scopigno** (Sapienza University of Rome, Italy)

11:15 – 11:45: **Christophe Voisin** (LPENS, France) K

Broad-band single-photon sources based on carbon nano-emitters boosted by Cavity Quantum Electrodynamics

11:45 – 12:05: **Venkata Kamalakar Mutta** (Uppsala University, Sweden) I

Enabling practical two-dimensional spintronic circuits

12:05 – 12:20: **Alain Rochefort** (Polytechnique Montréal, Canada) O

Spin-Density Interactions in Metal-Organic Networks/Graphene Heterostructures

12:20 – 13:30: *Cocktail Lunch*

13:30 – 14:00: *Poster Session II*

### PhD Students Session (Topic: Graphene & 2DM)

**Chairperson: Hanako Okuno** (CEA, France)

14:00 – 14:10: **Wafa Alimi** (Laboratoire des Sciences des Procédés et des Matériaux, France) O

Single crystal monolayer graphene and hexagonal boron nitride by inductive heating CVD

14:10 – 14:20: **Eva Desgué** (THALES Research & Technology, France) O

PtSe<sub>2</sub> films grown by molecular beam epitaxy for high frequency optoelectronics

14:20 – 14:30: **Djordje Dosenovic** (CEA IRIG-MEM, France) O

Mapping structural information in 2D materials using 4D-STEM

14:30 – 14:40: **Riccardo Galafassi** (Institut lumière Matière, France) O

Substrate and environment roles on the high pressure tuning of carbon low-dimensional system's properties

14:40 – 14:50: **Ali Hossain** (LMI, UMR CNRS 5615, University of Lyon, France) O

One-dimensional hBN/CNT Van der Waals Heterostructures Fabricated by Atomic Layer Deposition

14:50 – 15:00: **Neil Richard Innis** (Laboratoire des Multimatériaux et Interfaces (LMI) UMR 5615/UCBL, France) O

Boron-carbon thin films deposited via plasma-enhanced atomic layer deposition (PE-ALD)

15:00 – 15:10: **Ana Florencia Juarez Saborio** (Institut Lumiere Matière, France) O

An Innovation on deterministic Graphene origami

15:10 – 15:20: **Ravalika Sajja** (University of Manchester, UK) O

Hydrocarbon Contamination in Angström-scale Channels

15:20 – 15:30: **Thomas Souvignet** (Laboratoire des multimatériaux et interfaces, France) O

Tuning the crystallinity of Boron Nitride using Chemical Vapor Deposition

15:30 – 16:30: *Coffee Break / Poster Session*

## PhD Students Session

(Topics: High spatial resolution spectroscopies under SPM probe / Low dimensional materials (nanowires, clusters, quantum dots, etc.) / Nanomagnetism and Spintronics / Nanomaterials for Energy / Nanobiotechnologies & Nanomedicine / NanoOptics / NanoPhotonics / Plasmonics / Nanophononics / Theory and modelling at the nanoscale)

**Chairperson: Stephen Purcell** (Université Claude Bernard Lyon1, France)

- 16:30 – 16:40: **Juan Carlos Acosta Abanto** (CNRS-CETHIL, France) O  
Thermal contact resistance measurements on metal-semiconductor structures by scanning thermal microscopy and  $3\omega$  method
- 16:40 – 16:50: **Victor Champain** (CEA, France) O  
Real-time millikelvin thermometry in a spin qubit architecture
- 16:50 – 17:00: **Daniel Doménech** (BCMaterials, Spain) O  
Magnetic Anisotropy of Ultrathin Co-Layers Deposited by Electron Beam Evaporation in Moderate Vacuum Conditions
- 17:00 – 17:10: **Rongrong Qi** (University of Manchester, UK) O  
Universal method for preparing two-dimensional metal dihalides
- 17:10 – 17:20: **Océane Terral** (Institut Néel - CNRS, France) O  
Graphene nanodevices for biochemical detections: from neural spike to ion channel detection within living cells
- 17:20 – 17:30: **Hugo Quard** (INL: Institut des nanotechnologies de Lyon, France) O  
Femtosecond laser induced creation of color centers on the silicon-on-insulator platform and control of their emission directivity with Mie resonators
- 17:30 – 17:40: **Pegah Ghanizadeh** (Bogazici University, Turkey) O  
Phonon Mean Free Path - Thermal Conductivity Relation of Beta Form Gallium Oxide
- 17:40 – 17:50: **Onurcan Kaya** (ICN2, Spain) O  
Amorphous Boron Nitride: Atomistic Characterization and Performances



Friday September 01, 2023

**Chairperson: Eva Monroy** (CEA, France)

- 09:00 – 09:15: **Cécile Delacour** (Institut Néel, France) O  
Graphene nanoelectronics meets neurofluidics for versatile labs on chip
- 09:15 – 09:30: **Lucian Roiban** (INSA Lyon, Université Claude Bernard Lyon 1, CNRS, MATEIS, UMR5510, France) O  
Electron tomography of hydrated beam-sensitive samples
- 09:30 – 10:00: **Danny Porath** (The Hebrew University of Jerusalem, Israel) K  
Molecular Electronics with DNA towards Detection of Nucleic Acids
- 10:00 – 10:15: **Colin Bousige** (CNRS - UCBL, France) O  
High-dimensional neural network potential for borophene on metallic surfaces
- 10:15 – 10:35: **Magalie Faivre** (Claude Bernard University Lyon 1 / INL, France) I  
Optical nanotweezer for single cell deformability measurements

10:35– 11:15: *Coffee Break / Poster Session*

**Chairperson: Magalie Faivre** (Claude Bernard University Lyon 1 / INL, France)

- 11:15 – 11:45: **Eva Monroy** (CEA, France) K  
AlGa<sub>N</sub>/AlN Quantum Dots and Dots-in-a-Wire for UVC Emission
- 11:45 – 12:00: **Rodolphe Valleix** (ENS de Lyon, France) O  
Synthesis and surface modification of Quantum Dots for solid-state lighting applications
- 12:00 – 12:15: **Giorgia Giovannini** (Empa, Swaziland) O  
Lab-On-Fiber: Wearable Multi-Sensing Device Enabling the Assessment of Wound Healing
- 12:15 – 12:30: **Wei Wu** (Wuhan University, China) O  
Fully-Printing Methods for Flexible Supercapacitors and Soft Sensors
- 12:30 – 12:45: **Željko Janićjević** (Institute of Radiopharmaceutical Cancer Research, Helmholtz-Zentrum Dresden-Rossendorf, Germany) O  
Multiplexed Extended-Gate Field-Effect Transistor-Based Immunosensor with Gold Nanoparticle-Amplified Potentiometric Response
- 12:45 – 13:00: **Catherine Marichy** (LMI - UMR5615 UCBL/CNRS, France) O  
Direct surface structuration and functionalization using localized Atomic Layer Deposition
- 13:00 – 13:15: **Aron Cummings** (ICN2, Spain) O  
Design and Numerical Simulation of a Quantum Graphene Gyroscope

13:15: Closing remarks