



CONFERENCE PROGRAMME

€-MRS **2026 Fall Meeting**

14th - 17th September

Warsaw University
of Technology



CONFERENCE PROGRAMME

14 - 17 September



2026 FALL MEETING

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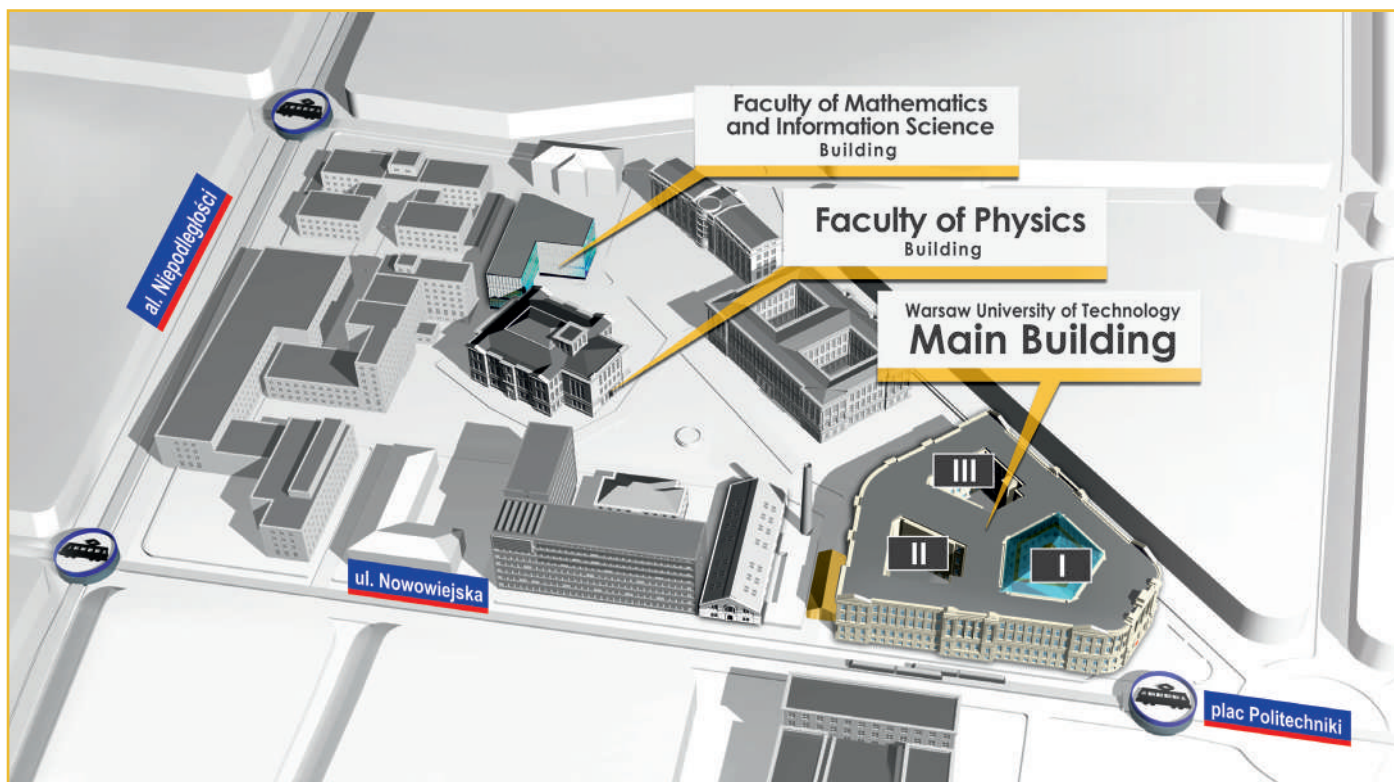
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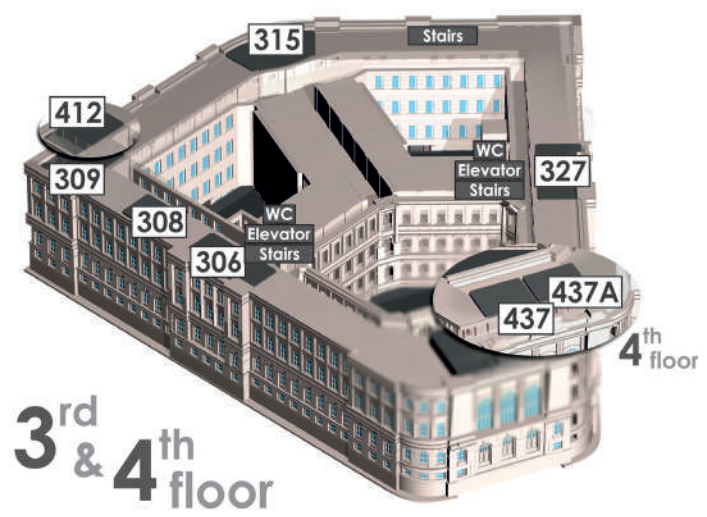
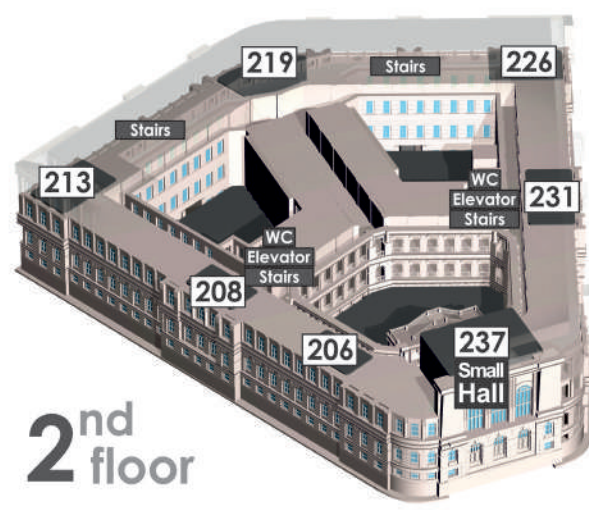
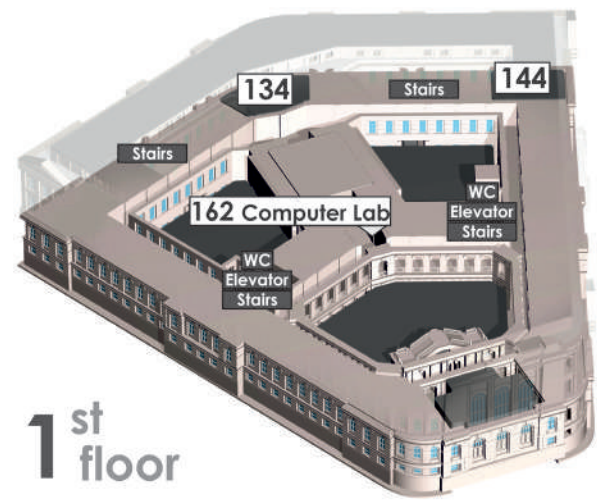
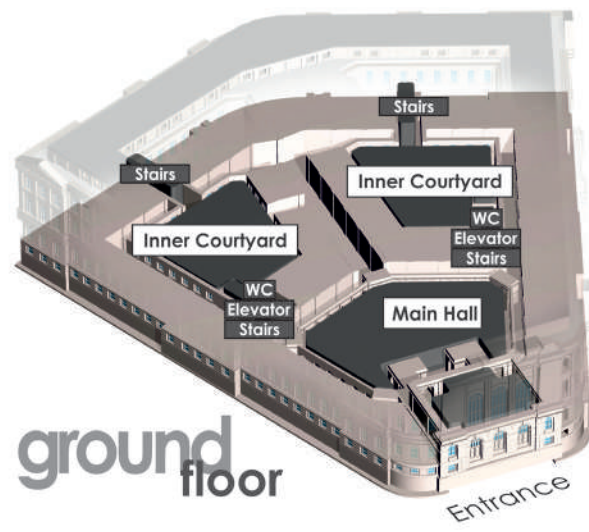
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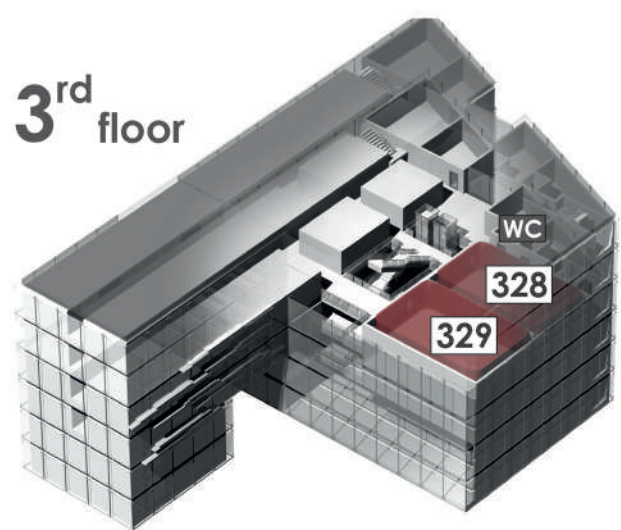
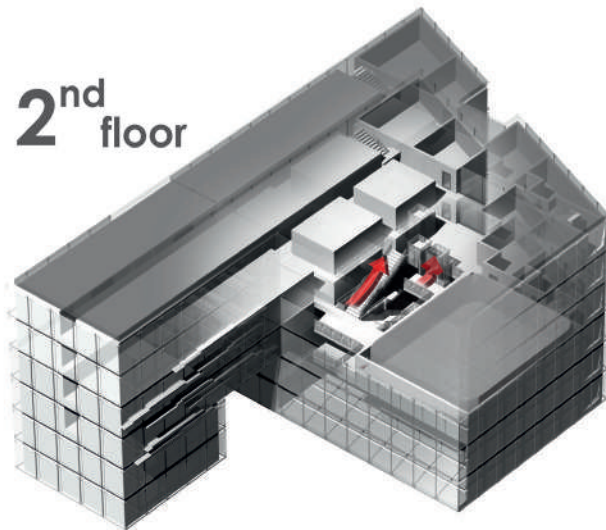
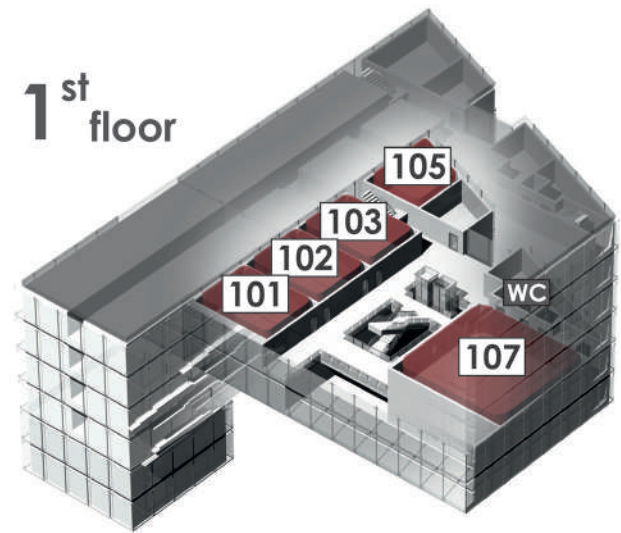
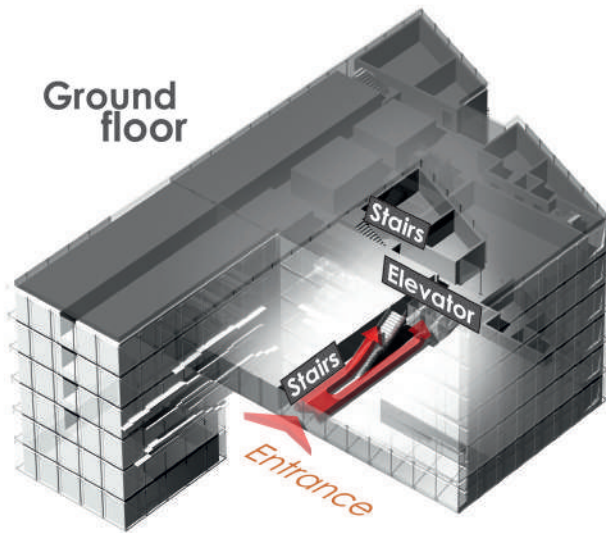




CONFERENCE VENUE







Wednesday, 17 September 2026 - Main Hall

- 9:15 Introduction - Conference Organizers
- 9:25 Welcome address by the Rector of the Warsaw University of Technology
- 9:35 Welcome Address by E-MRS President Giuseppina Padeletti
- 9:45 Laudation and Presentation of the Jan Czocharlski Award to Prof. Robert Langer

- 10:00 **Czocharlski Award laureate - Prof. Robert Langer**
 Massachusetts Institute of Technology, Cambridge, USA
 represented by **Prof. V. Prasad Shastri**,
 Institute for Macromolecular Chemistry, University of Freiburg, Germany
Topology and chirality
Biomaterials and how they will change our lives



- 10:45 **L. Cario**
 Nantes Université, CNRS, Institut des Matériaux de Nantes Jean Rouxel, IMN, Nantes, France

Correlated quantum materials for data storage and artificial intelligence



- 11:30 **Prof. Dr.-Ing. habil. Jörg Schulze**
 Director of Fraunhofer IISB · Chair of LEB, FAU Erlangen–Nürnberg, Germany

Powering the Power: The Relevance of Novel Semiconductor Materials for Future Power Electronics



SYMPOSIA

MATERIALS FOR ELECTRONICS, OPTOELECTRONICS AND SENSING

- A** New frontiers in wide-bandgap semiconductors and heterostructures for electronics, optoelectronics and sensing – III
- B** Diamond and nanocarbon materials for advanced sensing and opto-electronic devices
- C** Emerging materials for biointegrated and sustainable (opto)electronic devices
- D** 8th E-MRS & MRS-K bilateral symposium “X-tronics”: optoelectronic and bioelectronic - from materials to devices
- E** Wide and ultra-wide-bandgap semiconductors challenges: from materials to applications

FUNCTIONAL MATERIALS

- F** Applied optical materials for emerging functionalities
- G** Ferro- and antiferroelectric materials and related compounds: from fundamentals to applications
- H** Sustainable perovskites: from advanced processing to emerging applications
- I** Materials technologies for controlling wetting, icing and liquid-surface interactions
- J** Emerging nitride materials with novel combinations of functional properties – fundamental properties, crystallization, and prospective applications
- K** Ferroelectric materials and devices for next-generation computing

BIOINSPIRED AND BIOMATERIALS

- L** Bioinspired and photonic materials for advanced sensing and diagnostics
- M** Functional materials at the biointerface: multiscale interactions and approaches
- N** Bio-based high-performance textile coatings
- O** Joint symposium E-MRS/FEMS on biomaterials

NANO AND SMART MATERIALS

- P** Metal oxide nanomaterials for advanced optoelectronics and environmental applications II
- Q** Synthesis and characterization of functional nanocomposite materials
- R** Nanomaterials for the future: advancements in optoelectronics and sensing
- S** Smart materials for nanoelectronics – nanophotonics
- T** Electrical transport in low-dimensional and nanostructured materials: fundamentals to applications

MODELLING AND CHARACTERISATION

- U** From atoms to applications: multiscale modeling and data-driven strategies for advanced materials
- V** Advanced x-ray techniques for materials characterizations: from in-house instrumentations to large-scale synchrotron facilities

ENERGY AND ENVIRONMENTAL APPLICATIONS

- W** Advanced ceramics for energy and environment
- X** E-MRS/C-MRS Joint symposium on critical applications of sustainable materials in reducing environmental impact and promoting the circular Economy

SATELLITE EVENT

- Y** European Doctorate Network: Physics and Chemistry of Advanced Materials (PCAM) Summer School 2026

GENERAL TIMETABLE

Symposium symbol	Symposium location		Monday September 14 th	Tuesday September 15 th	Wednesday September 16 th	Thursday September 17 st
Symposium A	Main Building	134	09:00-17:30 (1)	09:00-15:30 (2)	14:00-17:30	09:00-17:30
Symposium B	Main Building	144		08:15-17:30	14:00-15:45 (3)	08:30-17:15
Symposium C	Main Building	208		08:30-17:50	14:00-15:30 (3)	08:10-15:50
Symposium D	Main Building	206	09:00-15:15 (1)			
Symposium E	Main Building	226	09:00-17:30	09:00-17:30	(3)	09:00-17:15
Symposium F	MINI Building	102	08:30-17:00 (1)	08:30-17:15		
Symposium G	MINI Building	329	09:30-17:15 (1)	09:00-17:00 (2)	14:00-17:30	09:00-17:30
Symposium H	MINI Building	107	09:00-17:45	09:00-17:30	14:00-15:30 (3)	
Symposium I	MINI Building	103		09:00-15:15	14:00-15:15 (3)	
Symposium J	MINI building	101	08:15-17:45	08:00-17:30	13:45-17:30 (3)	
Symposium K	MINI Building	105			14:00-15:30 (3)	09:00-15:15
Symposium L	MINI Building	102			14:00-17:30	09:30-15:15 (4)
Symposium M	Main Building	437a		09:00-18:00	14:00-15:30 (3)	
Symposium N	Main Building	308a	09:30-15:30	09:30-15:45		
Symposium O	Main Building	213			14:00-17:30	09:00-12:30 (4)
Symposium P	Main Building	231	10:00-17:15	09:00-17:15	14:00-17:00	09:00-12:30 (4)
Symposium Q	Main Building	219	09:00-17:30	09:30-15:30 (2)	14:00-17:30	09:00-15:30 (4)
Symposium R	Main Building	437	09:00-17:30	09:00-15:30 (2)	14:00-17:30	09:00-17:15
Symposium S	Main Building	315	08:30-18:00	08:30-16:00 (2)	14:00-18:00	08:30-17:45
Symposium T	MINI Building	328		09:00-15:30 (2)	14:00-17:30	09:00-17:30
Symposium U	Main Building	306	09:00-15:15 (1)	09:00-17:30 (2)	14:00-17:30	09:00-17:15
Symposium V	Main Building	327		09:15-17:30	14:00-15:30	09:00-15:30 (4)
Symposium W	Main Building	309	09:30-15:45 (1)	08:30-18:30	14:00-17:30	09:00-17:30
Symposium X	Main Building	213	09:30-17:30 (1)	09:00-12:30		
Symposium Y	Main Building	412	14:00-15:30(1)	09:00-17:30	14:00-17:45	11:00-12:30
Poster Session Poster Session may vary depending on symposium timing	Main Building - 237 (Small Hall) (1)		(1) 17:30-19:30	(2) 17:30-19:30	(3) 16:00-18:00	(4) 16:00-18:00
Plenary Session	Main Building - Main Hall				09:00-12:30	
Thesis Competition			17:30-19:00 Room 144 (Main Building)	17:30-19:00 Room 102 (MINI Building)		
Conference reception, Young Researcher & Thesis Competition Awards	Main Building Main Hall				18:00-21:00	
Computer Lab - Main Building 162						
LUNCH - Main Building ground floor - I and area II, III						



Exhibition

14-16 September 2026, 09:00-17:15

Location: Main Hall | Main Building



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Symposium A

Sessions: Room 134 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

MATERIALS FOR ELECTRONICS, OPTOELECTRONICS AND SENSING

NEW FRONTIERS IN WIDE-BANDGAP SEMICONDUCTORS AND HETEROSTRUCTURES FOR ELECTRONICS, OPTOELECTRONICS AND SENSING – III

Symposium organizers:

Elke **MEISSNER**

– Fraunhofer Institute for Integrated Systems and Device Technology

Fabrizio **ROCCAFORTE**
(Main Organizer)

– Institute for Microelectronics and Microsystems

Michał **BOCKOWSKI**

– Institute of High Pressure Physics, Polish Academy of Science

Vanya **DARAKCHYEVA**

– Lund University

Monday, 14 September 2026

NITRIDES BULK AND EPITAXIAL GROWTH

A01

09:00	GaN/AlGaIn heterostructures grown by ammonia-MBE on GaN bulk substrates Benjamin DAMILANO	102
09:30	Dislocations and related inhomogeneities in Ammonothermally grown GaN Magdalena Alicja ZAJAC	1094
09:45	First Ammonothermal Bulk AlGaIn Crystal: Growth and Characterization Tomasz SOCHACKI	1615
10:00	Investigation of Carbon-doped GaN Grown by MOCVD Using Methane Precursor Auditee Majumder MOMO	2137
10:15	Mn-doped semi-insulating GaN buffer layers grown by metal-organic chemical vapor deposition Stefano LEONE	1268
10:30	Coffee break	

NITRIDES POWER DEVICES MATERIALS AND TECHNOLOGY

A02

11:00	Vertical GaN Diode and Transistor Devices on Native and Foreign Substrates Oliver HILT	243
11:30	Development of drift regions for Vertical GaN 3kV Class devices on bulk Ammono-GaN substrates Pawel PRYSTAWKO	2422
11:45	Wide and Ultrawide Bandgap Semiconductors based Devices/Sensors Qin WANG	732
12:00	100°C Operation of a-plane AlGaIn (2.5%) Vertical Field Effect Transistors Navya Sri GARIGAPATI	2651
12:15	Optimisations for the selective area growth of GaN on foreign substrates for high breakdown voltage diodes Thibaud GUILLEMIN	2112

12:30 Lunch

SILICON CARBIDE DEVICE TECHNOLOGY AND RELIABILITY

A03

14:00	New generation of Silicon Carbide Materials for power devices and sensors Philippe GODIGNON	350
14:30	Impact of ion implantation channeling on the electrical performance of 4H-SiC Junction Barrier Schottky (JBS) diodes with voltage ratings of 650 V and 1200 V Paola MANCUSO	632
14:45	Multi-Epitaxy with Channeling Ion Implantation Design for 3.3 kV Semi-Superjunction MOSFET Kyrylo MELNYK	2046
15:00	Study of Al-doped HfO ₂ /SiO ₂ /SiC MOS interfaces for Enhanced SiC MOSFET Short Circuit Robustness and Reliability Xinkai TIAN	2410
15:15	Insights on the role of NO annealing in the Dit generation in lateral MOSFETs during Gate Switching stress Patrick FIORENZA	176
15:30	Coffee break	

SiC: MEMS, DETECTORS AND OTHER PROCESSES

A04

16:00	Heteroepitaxial 3C-SiC for MEMS Applications Francesco LA VIA	386
16:15	Advancements in SiC-based CMUTs for harsh environments Quentin DAVID	412
16:30	Single-Crystalline 3C-SiC and Heterostructures: From Epitaxial Growth to Solar Energy Conversion Jianwu SUN	569
16:45	HRXRD and Raman Investigations of Crystal Structure Recovery in Highly Doped Implanted 4H-SiC After High-Temperature Annealing Marek GUZIEWICZ	146

17:00	Wide reverse-bias response of a 100- μ m 4H-SiC P-i-N detector: UVTCT probing, γ sources and D-T neutron	550
	Alfio Samuele MANCUSO	
17:15	Mo-based contacts on silicon carbide	484
	Marilena VIVONA	

POSTER SESSION I AP01

17:30	Conduction band offset of alternative gate dielectrics on 4H-SiC	01_1019
	Arnar VIDARSSON	
17:30	Effect of High-Pressure O ₂ Annealing on SiO ₂ /SiC Interface and Radiation-Induced Defects	02_1109
	Gianmarco LAURELLA	
17:30	Differences between the charge-carrier recombination at p+ doped vs. Schottky-type contacts in Merged PiN Schottky SiC diodes unveiled by multi-modal synchrotron X-ray microscopy	03_1329
	Niklas PYRLIK	
17:30	Modelling of the ON-state gate leakage in p-GaN HEMTs	04_133
	Simone MILAZZO	
17:30	Deep-UV Photodetectors based on Low-Temperature physical vapor Deposited Ga ₂ O ₃ Films	05_1489
	Jiatong DONG	
17:30	ZnO-Based Heterojunctions for Advanced Applications with Emphasis on Polymer/ZnO Systems	06_156
	Geordy VARGHESE	
17:30	Advanced Packaging of Wide Bandgap Devices: SiPFAB Pilot Line Activities and Research at Tampere University	07_1718
	Jukka VIHARIÄLÄ	
17:30	Capacitive response of deep traps in implanted p-MOS by frequency-dependent and quasi-static measurements at low temperature or under UV illumination	08_178
	Patrick FIORENZA	
17:30	Effects of Post-Oxidation Annealing in N ₂ and Ar on the SiO ₂ /4H-SiC interface properties	09_181
	Patrick FIORENZA	
17:30	Physical Limits of Metal Contacts to p-Type GaN and a New Multilayer Tunneling Concept	10_1851
	Konrad SAKOWSKI	

17:30	Impact of micro-pits defects on the low temperature electrical characteristics of 650 V 4H-SiC power MOSFETs Marco ZIGNALE	11_191
17:30	Quantifying Oxide/SiC Interface Traps with a New Analytical Approach Marco ZIGNALE	12_194
17:30	Characterization of the anodic polarization behavior of 4H-SiC Roberta VITALE	13_199
17:30	Optical and structural characterization of gallium oxynitride thin films deposited by reactive sputtering Marcell GAJDICS	14_2032
17:30	Ultra-wide bandgap semiconductors (UWBG) for next generation Power Electronics Elke MEISSNER	15_2194
17:30	Wafer-scale heterogeneous integration of functional materials and devices by ion-slicing technique Tiangui YOU	16_2359
17:30	Characterization of thin GaN layers after hydrogen implantation Patrik SCAJEV	17_2462
17:30	Thin film technology for WBG MEMS devices Balasubramanian SUNDARAPANDIAN	18_2902
17:30	The role of Si/C ratio on the high-temperature stability of PECVD a-Si _x C _{1-x} :H thin films on Al ₂ O ₃ substrates Ryan RAAD	19_3049
17:30	Morphological, structural and electrical investigation of AlGaIn/GaN heterostructures grown on 2-degrees off-axis 4H-SiC epilayers Fabrizio ROCCAFORTE	20_34
17:30	Correlating Substrate Quality with Transport Mechanisms in Vertical GaN Schottky Diodes Giuseppe GRECO	21_359
17:30	Integrated α /E detector realization and testing for nuclear physics experiments Francesco LA VIA	22_385
17:30	WBG power and HF devices: materials & devices processing, characterization, modelling and reliability Fabrizio ROCCAFORTE	23_388

17:30	Plastic Relaxation without Dislocations in α -Ga ₂ O ₃ Heteroepitaxy: A Structural Peculiarity of Ga ₂ O ₃ Polymorphs Ilaria BERTONI	24_466
17:30	Bulk Materials Growth and Nitride Epitaxy Part 1 Michal BOCKOWSKI	25_511
17:30	TCAD-Based Optimization of Junction Termination Extension for High-voltage 4H-SiC p-i-n Diodes Alfio Samuele MANCUSO	26_556
17:30	Surface Morphology Evolution During Hydrogen Etching of 4H-SiC (0001) in limited regions Alfio Samuele MANCUSO	27_563
17:30	Bulk Materials Growth and Nitride Epitaxy Part 2 Andrzej TAUBE	28_616
17:30	Power device integration enabled by innovative engineered substrates Yann LAMY	29_806
17:30	Advanced Packaging of Wide Bandgap Devices: SiPFAB Pilot Line Activities and Research at Tampere University Balasubramanian SUNDARAPANDIAN	30_2902
17:30	Advanced Packaging of Wide Bandgap Devices: SiPFAB Pilot Line Activities and Research at Tampere University Jukka VIHRIALA	31_1718

Tuesday, 15 September 2026

NOVEL PROCESSES FOR VERTICAL GAN DEVICES

A05

09:00	Developing Vertical GaN JBS Diodes via Material and Device Innovations Spyridon PAVLIDIS	236
09:30	Regrowth-Free Ex-Situ Mg-Diffused GaN-Based HBTs with High Gain of ~200 Jia WANG	796
09:45	Mg activation and post-growth diffusion strategies for high-conductivity p-GaN grown by MOCVD Damiano BARRESI	844

10:00	GaN-GaN Bonding for a Novel Double-Sided Ammonothermal Seed Architecture Krzysztof GOLYGA	1975
10:15	Sub-Deca-Nanometer Magnesium-Annealed Gallium Nitride Surfaces in a GaN/AlN Heterostructure Haitao WANG	2976
10:30	Coffee break	

ADVANCED PROCESSING OF GAN-BASED DEVICES

A06

11:00	High-purity single photon emitters and room-temperature exciton-polariton condensates with group III-nitride nanophotonic structures Yong-Hoon CHO	116
11:30	Conduction mechanisms in sputtered Au-free Schottky contacts on AlGaIn/GaN Simone MILAZZO	209
11:45	Atomic Layer Deposition of HfO2 on (Al)GaN studied by AP-XPS Shreemoyee CHAKRABORTY	685
12:00	Atomic Layer Etching (ALE): The next evolution in fabricating high electron mobility transistor devices Robin KLAUSE	1949
12:15	Post-Growth Fabrication of Semi-Insulating Ammonothermal GaN by Ion Implantation and Ultra-High-Pressure Annealing Wojciech JASLOWSKI	1976
12:30	Lunch	

WBG PILOT LINE SESSION

A07

14:00	Growth-Mode-Induced Defects in Bulk GaN Crystals Tomasz SOCHACKI	1627
14:15	Unlocking the Potential of Bulk AlN: Current Progress and Perspectives Sven BESENDÖRFER	893
14:30	Homoepitaxial AlN/Al _{0.1} Ga _{0.9} N HEMTs on AlN substrates: Enhanced 2DEG properties and thermal management Minho KIM	2831

14:45	Optimization of Annealing Temperature for Improved Yield-Performance Trade-Offs in Fully-Ion-Implanted 4H-SiC Bipolar Transistors David FLOGNFELDT	2653
15:00	Impact of nitrogen-based pre-ALD treatments and post-deposition annealing on SiO ₂ /4H-SiC and Al ₂ O ₃ /4H-SiC MOS capacitors Emanuela SCHILIRO	407
15:15	Cathodoluminescence Investigation of High-Energy Al Channeling Implantation for SiC Superjunction Applications Enrico SANGREGORIO	923
15:30	Coffee break	

POSTER SESSION II AP02

17:30	Structural, optical, vibrational and nanoscale electrical properties of 1L-MoS ₂ integrated on GaN by different approaches Salvatore Ethan PANASCI	01_1103
17:30	Performance evolution of MOCVD-grown zinc gallium oxide thin film-based photodetector in the harsh ambience of swift heavy ions Vandana SHARMA	02_1326
17:30	InGaN cap enhancement mode AlGaIn/GaN HEMTs fabrication and characterization Rudolf SHYMON	03_1375
17:30	MoS ₂ heterostructures with GaN: scalable fabrication and electro-optical properties Filippo GIANNAZZO	04_1454
17:30	Optimisation of the fabrication of Sidewall-Implanted Trenches in a 3.3kV SiC Semi-Superjunction Schottky Barrier Diode Marina ANTONIOU	05_1564
17:30	Optical defect spectroscopy of wide-band-gap semiconductors using continuous spectra monochromator Paul FEILER	06_1582
17:30	Engineering the UV Photoresponse of Graphene/SnO ₂ Phototransistors through Strain Modulation: A Multiscale DFT-NEGF Investigation Rabia OUCHEN	07_1606
17:30	Quantum Dot-Engineered Wide-Bandgap IGZO/Tellurium Heterojunction Photodiodes for Broadband Synaptic Image Sensing Dayeong HUR	08_1732

- | | | |
|-------|--|---------|
| 17:30 | Variational Calculations of Exciton Binding Energies in (Ga,Al)N-AIN Quantum Wells Emitting Deep Ultraviolet Light
Alexandra IBANEZ | 09_1803 |
| 17:30 | Electrode Ratio-Dependent Photoresponse in Self-Powered GaN Metal–Semiconductor–Metal UV Photodetectors
Kasif TEKER | 10_1915 |
| 17:30 | Electron microscopy structural analyses of yellow light emitting diode based on In-rich InGaN/GaN quantum well grown on emerging ScAlMgO4 substrate
Rawjan JALMOOD | 11_2728 |
| 17:30 | Comparison of hBN, Al ₂ O ₃ , and SiNx dielectric materials for depletion-mode AlGaIn/GaN HEMTs
Halyna KOZAK | 12_1983 |
| 17:30 | Atomic Layer Etching for SiC Photonics: Smoothing SiCOI and Epitaxial 4H SiC
Martin SIEBERT | 13_2018 |
| 17:30 | Interaction of Ni and Ni/Ti layers deposited on GaN under different deposition conditions studied by (S)TEM
Zsolt FOGARASSY | 14_2038 |
| 17:30 | Scalable growth and characterization of 2D MoS ₂ /wide-bandgap semiconductor heterostructures via pulsed laser deposition
Marianna ŠPANKOVÁ | 15_217 |
| 17:30 | Towards High-Quality Al ₂ O ₃ /GaN Interfaces: The Impact of an Ultra-Thin AlN Buffer
Emanuela SCHILIRO | 16_2257 |
| 17:30 | High Forward Gate Breakdown Voltage in Diode-Embedded p-GaN Gate HEMTs
Myeongsu CHAE | 17_2466 |
| 17:30 | Fully relaxed porous InGaIn layers on GaN
Benjamin DAMILANO | 18_2609 |
| 17:30 | Thermal stability of epitaxial α -Ga ₂ O ₃ thin films grown by ALD and its full conversion to β -Ga ₂ O ₃
Ilyass JELLAL | 19_2749 |
| 17:30 | Photoluminescence investigation of Mn-doped HVPE-grown GaN using a metal-organic precursor doping approach
Kuei-Shen HSU | 20_2840 |
| 17:30 | Synchrotron VUV Spectroscopic Fingerprint of a Pristine YAlO ₃ Single Crystal at Cryogenic Temperature
Marina KONUHOVA | 21_2999 |

17:30	Temperature Dependence of Non-Equilibrium Carrier Transport Processes in SiC MOSFET Yuki HAYAKAWA	22_313
17:30	Evaluation of Activation Energy for Keyhole-shaped Crystal Defects in the GaN Layer of AlGaIn/GaN HEMTs Yuzuki SAWADA	23_314
17:30	Atomistic Kinetic Monte Carlo simulations of SiC growth and defect evolution with the MulSKIPS code Antonino LA MAGNA	24_3305
17:30	Interface States Density reduction at SiC surface by Decoupled Plasma Nitridation in 4H-SiC MOS Capacitors G LORITO	25_3307
17:30	Time-Resolved Analysis of RF Gain Recovery and Carrier Recombination Processes in AlGaIn/GaN HEMTs under High Electric Fields Naohi HIRAKO	26_536
17:30	Activation Processes in GaN Grown by Layer by Layer Codeposition Zurab KUSHITASHVILI	27_564
17:30	Plasma-Enhanced Atomic Layer Etching of AlGaIn/GaN: Process Optimization, Stability Analysis, and Recess Etching for Source, Drain, and Gate Structures Christian MIERSCH	28_608
17:30	Defect spectroscopy over ultrawide bandgaps by modulated surface photovoltage on powders, layers and crystals Thomas DITTRICH	29_628
17:30	Optimization of Vertical GaN-on-GaN FinFETs for Power Applications: A Numerical Simulation Study Katerina GHIRARDINI	30_631
17:30	SiC Defect Detection Using Polarized Microscopy and AI-Based Image Processing Pasquale MEMMOLO	31_700
17:30	Fabrication, characterization, simulation and packaging of D/E mode GaN HEMTs on SiC and Si substrates with breakdown electric field beyond 1.0 MV/CM Qin WANG	32_740

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

GALLIUM OXIDE MATERIALS AND POWER DEVICES

A08

14:00	Ga ₂ O ₃ epilayers: deposition, properties and applications Roberto FORNARI	82
14:30	Two barrier model for non-ideal Thermionic Emission Ni/Ga ₂ O ₃ Schottky contacts Giuseppe GRECO	23
14:45	Demonstration of kilowatt-class switching operation in large-periphery α -Ga ₂ O ₃ power transistors Kornelius TETZNER	465
15:00	The Electric Field Influence On Carrier Emission From Trap Levels In (100)-oriented α -Ga ₂ O ₃ Crystals Grown By The Czochralski Method. Piotr KRUSZEWSKI	717
15:15	Defect Profiling in Al ₂ O ₃ /Ga ₂ O ₃ MOS devices: Effect of the ALD oxygen source Khushabu. S. AGRAWAL	761
15:30	Coffee break	

INTEGRATION OF 2D MATERIALS WITH WBG SEMICONDUCTORS

A09

16:00	Wafer-Scale Single-Crystalline Monolayer Graphene Lara-Avila SAMUEL	81
16:30	Synthesis of artificial graphene in the AlGa _N /Ga _N heterostructure through block copolymer self-assembly Anita PATELLI	2243
16:45	Growth optimization of large-area 1L-MoS ₂ on SiO ₂ and on 4H-SiC by Direct Liquid Injection Gianluca MARCELLINO	215
17:00	Electro-optical features and band alignment of nearly unstrained and high-quality monolayer MoS ₂ with Ga _N grown by LPI-CVD Salvatore Ethan PANASCI	475
17:15	MoS ₂ layers on single crystalline diamond Bela PECZ	1308
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

WBG: FUNDAMENTALS AND MODELLING

A10

09:00	First principles-based modeling of compound semiconductor surfaces: Implications for epitaxial growth and material properties Liverios LYMPERAKIS	95
09:30	Ion Beam Engineering of Color Centers in Wide-Bandgap Solids and Material Modifications Across Diverse Material Systems Haidong LIANG	84
09:45	Diffusion of group-IV donors in GaN: Insights from DFT calculations and ion implantation experiments Karol KAWKA	888
10:00	Si and Mg Diffusion in GaN-Based WBG Heterostructures: Experiment and First-Principles Insights Roman HRYTSAK	1058
10:15	Near surface defectivity and the functionality of SiC based quantum and classical devices Rosario Gaetano VIGLIONE	1835
10:30	Coffee break	

QUANTUM TRANSPORT, DEFECTS AND ELECTRONIC PROPERTIES

A11

11:00	Quantum transport in new nitride heterostructures H. Grace XING	75
11:30	Single Electron Transistors based on low density III-N heterostructures Eleftherios ILIOPOULOS	2586
11:45	Si dopants, vacancy defects and short-range order in high Al content AlGaIn Filip TUOMISTO	2486
12:00	GaN/InN/GaN Quantum Wells with Atomically Flat Interfaces Michael CARTER	440

12:15	Apparent versus true critical thickness in InGaN heteroepitaxy Joanna MONETA	1164
12:30	Lunch	

III-NITRIDE DEVICES: PROCESSING & RELIABILITY A12

14:00	Ohmic Contact Formation and Atomic Layer Processing for Nitrid Devices Johannes HEITMANN	101
14:30	Reduction of strain-related facet degradation in blue nitride laser diodes Anna KAFAR	1204
14:45	Oxygen as a trigger for rapid degradation of InGaN-based laser diodes Piotr PERLIN	1383
15:00	Electrically Driven Cryogenic Lasing in InGaN-Based Laser Diodes Mateusz HAJDEL	1042
15:15	Blue-violet laser diodes without quantum wells Pragya PARASAR	1092
15:30	Coffee break	

THz TECHNOLOGIES AND NOVEL DEVICE CONCEPTS A13

16:00	Defect-Optical Property Correlations in N-polar GaN LEDs by Plasma-Assisted MBE Karolina PERET-MALESSA	2704
16:15	GaN-Based Plasmonic Crystals for Terahertz Applications Maksym DUB	2477
16:30	Dual Use of Nitride Technology for Monolithic Integration of Passive and Active Components in Sub-THz Antenna Modules Grzegorz CYWINSKI	857
17:00	Simultaneous XEOL and _Laue X-ray Mapping to Reveals Defect-Driven Optical Variability in InGaN/GaN Micro-LED Arrays Beatriz DE GOES FOSCHIANI	3240

17:15 GaN _-platelets on metallic substrates for vertically integrated photonics
Mikel GÓMEZ RUIZ

2834



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Symposium B

Sessions: Room 144 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

MATERIALS FOR ELECTRONICS, OPTOELECTRONICS AND SENSING

DIAMOND AND NANOCARBON MATERIALS FOR ADVANCED SENSING AND OPTO-ELECTRONIC DEVICES

Symposium organizers:

Alessandro **BELLUCCI**

Anke **KRUEGER**

Robert **BOGDANOWICZ**
(Main Organizer)

Soumen **MANDAL**

– CNR-ISM

– Universität Stuttgart

– Gdansk University of Technology

– University of Cardiff

Tuesday, 15 September 2026

NV-DIAMOND & BIOSENSING

B05

8:15	Diamond based quantum sensing for drug testing Romana SCHIRHAGL	86
8:30	Multimodal intracellular biosensing based on nanodiamonds with NV-centers Kirstine BERG-S_RENSEN	157
8:45	Quantum Sensing of Intracellular Free Radicals: Towards Cancer Diagnostics and Evaluation of Treatment Daniela RASSLER	1629
9:30	Charge state equilibration of nitrogen-vacancy center ensembles in diamond: The role of electron tunneling Lukas RAZINKOVAS	1910
9:45	RAFT polymerization provides better antifouling coatings on inorganic nanoparticles than grafting-through polymerization Jitka NEBURKOVA	558
10:00	Coffee break	

NANODIAMOND FUNCTIONALIZATION & COLOR CENTERS

B06

10:30	Surface engineering of nanodiamonds with NV centers for quantum sensing Petr CIGLER	161
11:00	Direct functionalization of nanodiamond crystal lattice by azidation and amination Filip STEINER	640
11:15	Nanoscale Sensing using FRET and NV Center Relaxometry Emma HERBST	753
11:30	Synthesis of photoluminiscent nanodiamonds using MW microplasma torch Swaminathan PRASANNA	2394
11:45	Luminous Lead: Non-classical Lead-Vacancy Emitters in Nanodiamonds Kieran RAMASWAMI	2878

12:00	Influence of CVD Growth Conditions on the Photoluminescence of Germanium-Vacancy Centers in Diamond Rani MARY JOY	1372
12:30	Lunch	

DIAMOND & CARBON ELECTROCHEMISTRY

B07

14:00	Diamond materials for electrochemical applications Nianjun YANG	2338
14:30	Fabrication and electrochemical properties of flow-through boron-doped diamond electrodes Andrew TAYLOR	159
14:45	Hydrogen-Substituted Graphdiyne as an Alkyne-Rich Nanocarbon Platform for Selective Molecular Sensing and Electrochemical Interfaces Nian LIU	363
15:00	Hierarchically Engineered Electrochemical Interfaces on Laser-Induced Graphene for Molecular Sensing Jacek RYL	1699
15:15	Expected and Unexpected Pathways of Surface and Sub-Surface Reconstruction in (111) Homoepitaxial Deuterium-grown Boron-Doped Diamond under High-Temperature Vacuum Annealing Michal SOBASZEK	2467
10:30	Coffee break	

BORON-DOPED DIAMOND: PROPERTIES & PROCESSING

B08

16:00	Using superconductivity to probe disorder in boron-doped diamond Georgina KLEMENCIC	778
16:30	Hall-based methodology to extract transport parameters in boron-doped diamond using a dual-fit strategy Gabriel MESAS	2207
16:45	Quantum effects observed by CL Spectroscopy on high-quality Boron-doped CVD diamond layers Antonio FREIRE DE RIVAS	1872
17:00	CARS Microscopy for Chemical and Structural Visualization of Micro- and Nanostructures Renata KARPICZ	689

17:15 Atomic layer etching (ALE) using argon and oxygen for diamond surface control
Alma Beatrice SERGI

1101

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

ELECTROCHEMICAL SENSORS & DEVICES

B09

- | | | |
|-------|--|------|
| 14:00 | Towards field applications of boron doped diamond electrodes for electroanalysis
Emmanuel SCORSONE | 1072 |
| 14:30 | High-performing carbon materials for correlative electrochemical detection of faradaic and capacitive processes at nanomaterials
Paula COLAVITA | 686 |
| 15:00 | SMARTSens; A Miniaturized Nano Carbon and Metal Cluster-based Hand-held Device for the Real-Time Electrochemical Detection of Carcinogens in Ultra-processed Foods
Saisree SADHASIVA KURUP | 506 |
| 15:15 | Advanced MPECVD-Grown Carbon Nanowalls for Trace Detection of Nitroaromatic compounds in Real-Life Samples
Pawel RUTECKI | 1572 |
| 15:30 | Development of a Smartphone-Assisted Electrochemical Analytical Platform for Real-Time Monitoring of Chloramphenicol antibiotic
Sanjay Kumar SRIVASTAVA | 1970 |
| 15:30 | Coffee break | |

POSTER SESSION III

BP03

- | | | |
|-------|--|---------|
| 16:00 | Porosity-engineered graphitic carbon nitride for sensing tert-butylhydroquinone in food samples: A metal-free catalyst approach
Ganesh PATTAN SIDDAPPA | 01_1392 |
| 16:00 | Local Electrochemical Co-Sintering of Carbon Fibers Enables Stable All-Solid-State Silicon Anodes in Li-Ion Batteries
Jiangshan QI | 02_1499 |

16:00	Exploiting Deep Sulfur Conversion by Tandem Catalysis for All-Solid-State Lithium–Sulfur Batteries Huilin GE	03_1502
16:00	Oxygen, Nitrogen, and Fluorine Termination of Single-Crystal Diamond (100) Surfaces by Plasma-Enhanced CVD Angelika KAISER	04_1731
16:00	A Dense Fluorinated Composite Polymer Electrolyte Featuring Fluoride-Rich Interface for Long-Life Lithium Batteries Sisi LIU	05_1805
16:00	Arc Welder based Synthesis of Graphene As a Cost-Effective Alternative to the Flash Joule Heating Method Armin GHOLIZADEH	06_2081
16:00	Effect of crystallographic orientation and growth-sector structure on Schottky and ohmic contacts to boron-doped HPHT diamond Denys MAZIAR	07_2123
16:00	Functionalized nanodiamond for biomedical sensing and drug delivery Anke KRUEGER	08_2125
16:00	Defect Engineering of B,N-Codoped Carbon Nanowalls Robert BOGDANOWICZ	09_2526
16:00	Low-temperature sol-gel synthesis of COOH-functionalized nanodiamond-silica composite films for solid-state NV-center quantum sensing Sultan Mulisa DENBOBA	10_2530
16:00	Thermally-induced nanostructuring and structural stability of amorphous carbon thin films for wearable resistive sensor application Sergii SIDORENKO	11_2632
16:00	Laser Induced Graphene based Flexible Zn-Ion Hybrid Energy Storage Devices Sameen ANWAR	12_2767
16:00	Advanced Ultrashort Laser Processing and Thin-Film Engineering of Diamond: From Surface Nanostructuring to Functional Devices Alessandro BELLUCCI	13_2846
16:00	Low Noise Surfaces for Next Generation NV Diamonds Christian OSTERKAMP	14_2983
16:00	Electrostatic Actuation Characteristics of Carbon Nanotube Microstructures Fabricated via Meniscus-Guided 3D Printing Myung-Nam JEONG	15_41
16:00	Exploiting Deep Sulfur Conversion by Tandem Catalysis for All-Solid-State Lithium–Sulfur Batteries Huilin GE	16_690

16:00	A quantum diamond sheet current sensor for battery investigations Markus MOHR	17_738
16:00	Evaluation of Double-Layer PMMA Approach for Low-Residual Graphene Transfer Monika CHOUDHARY	18_763
16:00	Laser patterning of boron-doped diamond films for thermal and liquid-phase sensing Bernardo L. TAVARES	19_889
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

DIAMOND POWER & ENERGY DEVICESB11

8:30	High-Temperature Solar Cells based on Black Diamond Daniele Maria TRUCCHI	635
9:00	Diamond-Based Devices for Solar Energy Utilisation Raffaella SALERNO	2848
9:15	Innovating in both materials and devices: a must for fully leveraging diamond semiconductor technology and turning it into an industrial reality Gauthier CHICOT	1195
9:45	Development of Monolithic Diamond Capacitors with Advanced Field-Modulated Architectures for High-Power Electronics Raid GOURAD	1099
10:00	Coffee break	

DIAMOND & NANOCARBON GROWTH AND MODELINGB12

10:30	Research and Application of CVD Diamond in Thermal Management Junjun WEI	265
11:00	Chemical Vapor Deposition of Graphene on Ge/Si: hydrogen effect on crystallinity and morphology Moriom AKTER	782

11:15	Programmable 3D Carbon Nanotube Architectures Enabled by Catalyst-Controlled Growth Dynamics O. Tolga GUL	2408
11:30	Diamond-Coated Nanostructured Photonic Crystal Slabs for Label-Free Sensing: Optical Performance and Perspectives for Multi-Domain Sensing Mehdi RAJI	2968
11:45	Ab initio emission lineshape modeling of color centers in semiconductors Rokas SILKINIS	1902
12:30	Lunch	

FUNCTIONAL CARBON NANOTUBES & GRAPHENE

B13

14:00	Rapid Functionalization of Single-Walled Carbon Nanotubes in High Dipole Moment Media for Advanced Optical Sensing Dawid JANAS	883
14:30	Integrated High-Performance Double-Wall Carbon Nanotube Fibers: From Record Conductivity and Ampacity to Optical Communication Hao-Zike WANG	2464
14:45	Fabrication of Ultrathin CNT Fibers and Construction of CNT/Cu Core-Shell High-Current-Carrying Fibers Chunyang SUN	2493
15:30	Coffee break	

CARBON-BASED ENERGY STORAGE DEVICES

B14

16:00	Carbon Marries Silicon for High-Performance Anodes Quan-Hong YANG	1334
16:30	Local Electrochemical Co-Sintering of Carbon Fibers Enables Stable All-Solid-State Silicon Anodes in Li-Ion Batteries Jiangshan QI	560
16:45	Regulating Carbon Support-Catalyst Interactions for Stable Sulfur Electrocatalysis in Lithium-Sulfur Batteries Chuannan GENG	1340
17:00	Thermal Redistribution of Laser Engraving to Achieve High Performance Laser Induced Graphene and Boron Doped Carbon Nanowalls (B:CNWs) Composites for Electrochemical Biosensors Sourav SAIN	2844



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Symposium C

Sessions: Room 208 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

MATERIALS FOR ELECTRONICS, OPTOELECTRONICS AND SENSING

EMERGING MATERIALS FOR BIOINTEGRATED AND SUSTAINABLE (OPTO)ELECTRONIC DEVICES

Symposium organizers:

Daniela **IACOPINO**

– Tyndall National Institute

Francesca **LEONARDI**

– IMEC the Netherlands

Giovanni Antonio **SALVATORE**
(Main Organizer)

– Ca' Foscari University of Venice

Seung-Kyun **KANG**

– Seoul National University

Tuesday, 15 September 2026

NEUROMORPHIC & MEMRISTIVE DEVICES

C05

8:30	Yield Optimization of Ultra-Thin Polymer Bilayers for Organic Memristor Arrays Zahra SARIBAL	354
8:50	Fructose-Carbon Nanotube Resistive Switching Random Access Memory (Fructose-CNT ReRAM) for Sustainable Neuromorphic Computing Applications Feng ZHAO	137
9:10	Eutectic Gel-Gated Graphene Transistors with Neuromorphic and Logic Functionality Matteo BRILLI	411
9:30	Materials Development Strategies for Low-Energy Memristors: From Halide Perovskites to Organic Electrochemical Transistors Antonio GUERRERO	759
10:30	Coffee break	

ORGANIC ELECTROCHEMICAL TRANSISTORS, BIOELECTRONIC PLATFORMS & PRINTED ELECTRONICS

C06

10:30	Enabling printed electrolytes for Organic Electrochemical Transistors (OECTs) with a universal material framework based on biocompatible materials Moritz FLEMMING	661
10:50	Wearable and Stretchable LIG-PDMS Microstrip Antenna for Next-Generation Wearable Communication Systems Naveen TIWARI	668
11:10	Laser-Scribed Biodegradable PLA/GO Bioelectronic Platform for Neurotransmitters Sensing and Tunable Stimulation of Astrocytes Emanuele TREOSSI	2077
11:30	Printed Electronic Functionalities for Monomaterial Automotive Door Panels Carlos FERREIRA	1213
11:50	Hydrogel Elastomer-Based Conductive Nanomembranes for Soft Bioelectronics Bongsoo KIM	2403
12:30	Lunch	

GRAPHENE & 2D MATERIALS

C07

13:40	Transfer-Free Graphene Directly Grown on Sapphire for Scalable GFET Biosensing Applications Ksenija ARSLANOVA	1047
14:00	Fabric-based lamina emergent MXene-based electrode for electrophysiological monitoring Sanghyun LEE	326
14:20	Thermal oxidation of monolayer-thin two-dimensional WS ₂ crystals for area-selective deposition of Al ₂ O ₃ Nader HOZAIEN	1349
14:40	High-Quality, Robust, and Scalable Dry Colloidal Self-Assembly on Arbitrary Substrates Sanjay Singh ESWARA SINGH	2537
15:00	Liquid metal engineering for bio-integrated machines Gun-Hee LEE	832
15:30	Coffee break	

NEURAL INTERFACES, IMPLANTABLE & BIODEGRADABLE BIOELECTRONICS

C08

16:00	A Self-Deploying Biodegradable Neural Interface for Large-Area Brain Monitoring Seung-Kyun KANG	1642
16:20	Cellulose-Based Conductive ECG Electrodes for Sustainable Electrophysiological Monitoring Aleix MARTI MAYMO	1192
16:40	An organic photodetector array for calcium signals recording in neuroscience Jules MERCIER	1162
17:00	Ultra-Sensitive Crack-Based Strain Sensor for Real-time Monitoring of Cortical Dynamics Do-Hoon KWON	820
17:20	Miniaturized Electrochemtronic Biomedical System for Electrotherapy and Drug Delivery Yamin ZHANG	534

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

SUSTAINABLE & BIO-SOURCED FUNCTIONAL MATERIALS FOR SENSORS AND BIOINTERFACES C09

- | | | |
|-------|---|------|
| 13:30 | From Skin to Orchard: Flexible Biointerfaces for Monitoring Living Systems
Luisa PETTI | 821 |
| 14:00 | Biosourced Conjugated Polymers for Sustainable Organic Electronics: From Vanillin to Functional Materials
David GENDRON | 103 |
| 14:20 | Engineering Chiroptical Interactions through Integrating Plasmonic Arrays with Cholesteric Nanocellulose
Eero KONTTURI | 197 |
| 14:40 | Environmentally Friendly p-Cymene-Based Silver Nanoparticle Ink for Selective Laser Sintering with 455 nm CW laser
Boris POLYAKOV | 1085 |
| 15:00 | Edible Electronics: Materials, Progress, and Open Challenges
Alessandro LUZIO | 1182 |

POSTER SESSION CP03

- | | | |
|-------|---|---------|
| 16:00 | Plasma-Activated Textile Electrodes with Borophene Nanosheets for High-Performance Flexible Supercapacitors
Nitesh CHOUDHARY | 01_1242 |
| 16:00 | Architecture - Property Relationships in Additively Manufactured TPU and PLA Structures for Self-Powered Sensing Applications
Nishank VERMA | 02_1551 |
| 16:00 | Electronic Structure and Physical Properties of Copper-Substituted Lead Vanadate Apatites
Nataliia KURGAN | 03_164 |
| 16:00 | Structural and Memristive Properties of Mist-CVD-Grown Ga-Sn-O Thin Films as a Function of Deposition Temperature
Syuto TOYOOKA | 04_1764 |

16:00	Fully Solution-Processed, Semi-Transparent Organic Solar Cells with Spray-Coated Ag Nanowire Electrodes for High-Performance Building-Integrated Photovoltaics Parwaz ASIF	05_2695
16:00	Electrostatic Ion Trapping in Organic Electrochemical Transistors for Record Neuromorphic Memory Performance Junseo KIM	06_306
16:00	SWIR Photonic Synapse with Persistent Memory for In-Sensor Computing Chan SO	07_307
16:00	Development of PbS Quantum Dot-Based SWIR Avalanche Photodiodes Using a Novel Photocrosslinkable Ligand for LiDAR Applications Kyobin PARK	08_329
16:00	Enhancing Organic Photodiodes Performance in the SWIR Region by Tuning Open/Closed-shell Characteristics Seung-Gi LEE	09_334
16:00	Doping Strategies and Proton Migration in High-Performance n-Type Organic Electrochemical Transistors Antonio GUERRERO	10_764
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

ADVANCED MATERIAL FOR OPTOELECTRONICS & ROBOTICS

C11

8:10	Inorganic Antiperovskite Derivatives Ba ₃ MA ₃ (M = P, As, Sb, Bi; A = Cl, Br, I): Next-Gen Materials for Optoelectronics Surajit ADHIKARI	3183
8:30	Flexible and Wearable Narrow-Band UV-B Emitting Phototherapeutic Bandage for Psoriasis Treatment Aachal SHARMA	1760
8:50	Pyridine-Embedded Silver Nanowire Electrodes with Tunable Surface Energy for ITO-Free, High-Performance Thick-Film Organic Solar Cells Parwaz ASIF	2691
9:10	Compostable Soft Robots Using Zero-Waste Electronics Seung-Kyun KANG	1645

9:30	Proprioceptive Artificial Muscles for Next-Generation Intelligent Robotics Inho KIM	3313
10:00	Coffee break	

LCA, CIRCULAR ELECTRONICS & ECO-DESIGN C12

10:30	Fabrication, performance, and environmental impact assessment of temperature sensors on flexible cellulose substrate Dianne CORSINO	54
10:50	Environmental impact assessment of diamond power devices at R&D stage Murielle FAYOLLE-LECOCQ	2715
11:10	Advancing Sustainable Soft Electronics with Enzymatically Crosslinked Organohydrogels Adrián TAMAYO	1660
11:30	Material Strategies for Circular Electronics: Recyclable Inks and Dissolvable Interfaces Emily BEZERRA	1507
11:50	Beyond Rigid and Planar Systems: Toward Soft and Sustainable Electrochemical Biointerfaces through Advanced Electrode Design and Microfabrication Irene TAURINO	1474

BIOBASED MATERIALS FOR ENERGY HARVESTING & SUSTAINABLE ENERGY DEVICES C13

14:20	Integrating biogenic materials for energy harvesting technologies Jesus BANDA-VAZQUEZ	20
14:40	Towards Sustainable Self-Powered Bioelectronics: Triboelectric Nanogenerators for Wearable and Implantable Medical Devices Akshpreet KAUR	1748
15:00	Iron-Catalyzed Laser-Induced Graphitization: Turning Bio-Based Materials into Functional Electronics and Energy Materials. Christopher, Hubert DREIMOL	2119



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Symposium D

Sessions: Room 206 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

MATERIALS FOR ELECTRONICS, OPTOELECTRONICS AND SENSING

8TH E-MRS & MRS-K BILATERAL SYMPOSIUM “X-TRONICS”: OPTOELECTRONIC AND BIOELECTRONIC - FROM MATERIALS TO DEVICES

Symposium organizers:

Antonio GUERRERO

– University Jaume I

Byungha SHIN
Technology

– Korea Advanced Institute of Science and

Hyacinthe **RANDRIAMAHAZAKA** –
(Main Organizer)

Université Paris Cité - CNRS,
PRINTUP Institute

In-Hwan LEE

– Korea University

SESSION 1			D01
9:00	Soft Energy Harvesting and Self-Powered Sensors Using Gel Materials Chang Kyu JEONG		26
9:30	Bioelectronics for Physiological Fluid Monitoring Jihye KIM		46
10:00	Biological Transistors for Direct Biosensing of L-Dopa in Ultrasmall Samples of Unprocessed and Unwashed Whole Blood Surbhi RAJPOOT		2389
10:15	Beyond Monotonicity: Unveiling Thickness-Dependent Reverse Dark Current in Organic Photodetectors for Enhanced Specific Detectivity Fred KRETSCHMER		2039
10:30	Coffee break		

SESSION 2			D02
11:00	Epitaxial van der Waals Heterostructures for High-Dimensional In-Sensor Computing Joonki SUH		60
11:30	Electrochemical Pb-free memristors for sustainable neuromorphic synaptic emulation Ignacio SANJUÁN MOLTÓ		693
12:00	All-printed chip-less wearable neuromorphic system for multimodal physicochemical health monitoring Sanghyun LEE		136
12:15	Modifying the Dielectric-Semiconductor Interface in Organic Field-Effect Transistors via Polymer Blending Yingpu HUANG		562
12:30	Lunch		

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D03

14:00	Engineering Interfaces to Control Hot Carriers for Sustainable Photoelectrocatalysis Hyosun LEE	61
14:30	Influence of ZAZ thickness, metal and substrate type on the properties of flexible multilayer transparent conducting electrodes Carmen BREAZU	540
15:00	Transfer-Printed Laser-Induced Graphene Flexible Energy Storage Devices from Plastic Waste Van BUI-THI-TUYET	2916
15:30	Coffee break	

POSTER SESSION 1

DP01

17:30	Molecularly engineered memristors for reconfigurable neuromorphic functionalities Pallavi GAUR	01_1323
17:30	Dual-Input Optoelectronic Synaptic Transistor for Neuromorphic Reinforcement Learning Seongil IM	02_1522
17:30	Ultrafast-Laser Heating Post-Treatment for Controlled Recrystallization of Femtosecond-Laser Hyperdoped Silicon using Different Processing Atmospheres Anna-Lena GRELL	03_1650
17:30	Pseudo-Heterojunction Organic Photodetectors: A Novel Architecture for Ultra-Low Dark Current and Enhanced Specific Detectivity Fred KRETSCHMER	04_2054
17:30	A multifunctional MWCNTs-Reinforced Chitosan-Gelatin Conducting Hydrogel for Triboelectric Nanogenerator and Artificial Opto-electronic Synapse Applications Niloy MRIDHA	05_2057
17:30	Device Architecture Optimization for High-Bandwidth Wavelength-Specific Organic Photodiodes Young Gyoung LEE	06_211
17:30	Metal-Free Homo Junction Organic Thin-Film Transistors: Linking Dopant Diffusion, Contact Formation, and Device Performance Elias MAKHOUL	07_2283

- 17:30 Specific, Label Free and Real time Sensing of Glial Fibrillary Acidic Protein (GFAP) using Meta- Nano-Channel BioFET09_2384
Pooja VERMA
- 17:30 Specific, Label Free and Real time Sensing of Glial Fibrillary Acidic Protein (GFAP) using Meta- Nano-Channel BioFET10_2387
Pooja VERMA
- 17:30 Investigating the Link Between Self-Doping and Morphology in Dual-Acceptor Conjugated Polyelectrolytes for11_2446
Cathode Interlayers
Jeongsu KIM
- 17:30 Optoelectronic characterization of Light-Tunable Memristive Nb2O5 Metal-Insulator-Metal Capacitors 12_2929
Soumaya LATRACH
- 17:30 CMOS-Integrated Transparent Near-Infrared Organic Photodiodes for Pixel-Aligned VIS-NIR Dual-Mode Imaging 13_298
Sangjun LEE
- 17:30 Novel gating mechanism employed on nano bio-FET towards real-time, point-of-care diagnostics in human whole15_3121
blood
Vijay Kumar GARICA
- 17:30 Meta-Nanochannel Field-Effect Transistor for Real-Time, High-Sensitivity and Selective Single-Nucleotide Mismatch16_3133
Detection
Vijay Kumar GARICA
- 17:30 Deterministic Chaos-Driven Gyroscopic Thermal Evaporation (GTE) for Isotropic Nanomanufacturing of 3D 17_332
Curvilinear Optoelectronics
Kim TAEK MIN
- 17:30 Aggregation-Oriented Molecular Design for High-Performance Vacuum-Deposited NFA OPDs 18_403
Geoneop CHOI
- 17:30 X-Ray Diffraction Imaging of Warpage 19_52
Nima GORJI
- 17:30 Enhancement Power Cconversion Efficiency of Ultra-thin Films Flexible Solar Cells by PDMS Micro-lenses Array 20_672
Elena MANEA
- 17:30 IGZO/Te Complementary Thin-Film Transistor Platform for Color-Stable MicroLED Pixel Driving 21_814
Hyungjun KIM

Symposium Sponsor



Symposium E

Sessions: Room 226 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

MATERIALS FOR ELECTRONICS, OPTOELECTRONICS AND SENSING

**WIDE AND ULTRA-WIDE-BANDGAP SEMICONDUCTORS CHALLENGES:
FROM MATERIALS TO APPLICATIONS**

Symposium organizers:

Daniel **ARAUJO**

Henryk **TEISSEYRE**

Matthias **BICKERMANN**

Yvon **CORDIER**

(Main Organizer)

– Universidad de Cádiz

– Institute of Physics, PAS

– IKZ Berlin

– Univ. Côte d'Azur, CNRS, CRHEA

ANTIMONY CHALCOGENIDES I E01

9:00	MOVPE Growth and Characterization of β -(Al _x Ga _{1-x}) ₂ O ₃ for High-Power Device Applications Saud BIN ANOOZ	259
9:30	Study of Zn-doping induced defects in MOCVD β -Ga ₂ O ₃ by PICTS Ouissal HERIBI	2334
9:45	Adsorption-controlled growth and doping of a-(Al,Ga) ₂ O ₃ on Al ₂ O ₃ (10-10) by suboxide molecular-beam epitaxy (S-MBE) Sushma RAGHUVANSY	1478
10:00	Improvement of electrical properties of Al ₂ O ₃ capacitors on (001) and (010) planes of β -Ga ₂ O ₃ using dummy-SiO ₂ process Toshihide NABATAME	1667
10:15	On the wide variety of vacancy defects in β -Ga ₂ O ₃ Filip TUOMISTO	2484
10:30	Coffee break	

DIAMOND AND Ga₂O₃ E02

11:00	Doping of CVD diamond Satoshi KOIZUMI	824
11:30	Photoluminescence Qualification of Diamond Multilayer Structures for High-Voltage Schottky Diodes Rachel GROSSET-DARRACQ	1533
11:45	Exploring Damage-Free Etching of Ultra-Wide Bandgap Semiconductors Using Self-Limiting Ionic Chemical Etching Processes Jestin JOHNY	2962
12:00	Diamond as semiconductor: its n-type challenge Marie-Amandine PINAULT-THAURY	1200

12:15	Deep level-mediated photoresponse of self-powered NiO/ β -Ga ₂ O ₃ UVC detectors Roberto FORNARI	473
12:30	Lunch	

AlN E03

14:00	Aluminum Nitride: the Ultimate Semiconductor for Power Devices? Christoph MARGENFELD	2211
14:30	Deep-UV-Assisted MOCVD for Enhanced Donor Activation in Si-Doped AlN Fikadu ALEMA	1225
14:45	Stable Step-Flow Growth of Homoepitaxial AlN by Plasma-Assisted Molecular Beam Epitaxy Xin DU	1440
15:00	Uniformity And Reproducibility of High-Current, High-Voltage AlN Schottky Barrier Diodes Ramon COLLAZO	2272
15:15	Surface potential and surface photovoltage spectroscopy across zonal structures in AlN crystals Thomas DITTRICH	2474
15:30	Coffee break	

III-NITRIDES E04

16:00	Growth and Evaluation of 100 mm Aluminum Nitride Crystals Connor CARR	2262
16:30	Effect of Miscut on Pattern Formation on Al _{1-x} Ga _x N Crystal Surfaces Marta CHABOWSKA	1027
16:45	From Ammonothermal Crystal Growth Mechanisms to Epi-ready Native GaN Substrates Karolina GRABIANSKA	553

17:00	Understanding X-Ray Diffraction from Nonpolar Aluminum Nitride Epitaxial Films Christoph MARGENFELD	2202
17:15	Analysis of strain in GaN grown on compliant substrates with various thicknesses of mesoporous silicon Tan Hoang Vu NGUYEN	1079

Tuesday, 15 September 2026

GALLIUM OXIDE II

E05

9:00	Growth and evaluation of β -Ga ₂ O ₃ single crystals 4 inches in diameter by the vertical Bridgman (VB) method Toshinori TAISHI	1679
9:30	Pulsed-Liquid Injection MOCVD of epitaxial Ga ₂ O ₃ thin films Eirini SARIGIANNIDOU	863
9:45	Investigation of the structure and chemistry of interfaces in Ga ₂ O ₃ based heterostructures using scanning transmission electron microscopy Marty VOLANT	839
10:00	Electron microscopy investigation of laterally overgrown α -Ga ₂ O ₃ Lewis PENMAN	481
10:15	Edge-Dependent Stacking Fault Upward Transformation in Pseudo-Symmetric (100) β -Ga ₂ O ₃ HVPE Epitaxy: A Common Source of Hillocks Ye HAOHAN	2566
10:30	Coffee break	

DIAMOND AND III-NITRIDES

E06

11:00	Diamond-based non-volatile memory Julien PERNOT	3198
11:30	Progress in the Growth of Bulk, Single Crystal Cubic Boron Nitride Siddha PIMPUTKAR	2607

12:00 Phonon-Photon Coupling in Nitride Semiconductors 939
Mayssoune MINA

12:30 Lunch

OXIDES AND SELENIDES E07

14:00 Process development of r-GeO₂ power devices for high-voltage applications 464
Kornelius TETZNER

14:30 A 228 nm UV-C emitter based on rock-salt Zn_{1-x}Mg_xO/MgO heterostructures 938
Aleksander ZAWADA

14:45 Growth of Rocksalt CaO Layers by Mist Chemical Vapor Deposition 1704
Kosuke KIMURA

15:00 Formation of a Two-Dimensional Electron Gas in Wide Bandgap BaSrSnO₃/BaSnO₃ Heterostructures with High Thermal Stability 1259
Dongho WON

15:15 Wurtzite MnSe as a Barrier for CdSe Quantum Wells with Built-in Electric Field 2170
Michal GRZYBOWSKI

15:30 Coffee break

III-NITRIDE DEVICES I E08

16:00 Vertical GaN Power Devices on Silicon 2945
Farid MEDJODOUB

16:45 Trap Characterization in Vertical GaN MOS Capacitors Using Different Dielectrics and Surface Pretreatments 2945
Adamantia LOGOTHETI

17:00 Comparative Investigation of Current Collapse and Threshold Voltage Instability in InAlGa_N/Ga_N HEMT and MIS-HEMT Devices 852
Pallavi KUMARI

17:00 Capping strategies for NH₃-MBE grown ScAlN/GaN HEMTs
Valentina GALLARDO MÖDINGER

1759

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

POSTER SESSION III EP03

16:00	Finite-element assisted extraction of the specific contact resistivity for the optimisation of Ti/Au Ohmic contacts on (-201) β -Ga ₂ O ₃ Juan Carlos TRUJILLO YAGUE	1091
16:00	MOCVD Growth and Characterization of Al(Ga)ScN Alloys William BRAND	1223
16:00	Tailoring the Optoelectronic Properties of ALD-Grown Hf-Doped ZnO Thin Films via Rapid Thermal Annealing Meenakshi .	1260
16:00	Area-Selective Deposition as a Solution to Edge-Induced Shunting in Solar Cells Nilesh NILESH	1343
16:00	Engineering the UV Photoresponse of Graphene/SnO ₂ Phototransistors through Strain Modulation: A Multiscale DFT-NEGF Investigation Faycal DJEFFAL	1608
16:00	Scintillation Performance of InGa _N /Ga _N Heterostructures under α , β , and γ Radiation Tomáš HUBÁČEK	1702
16:00	UIS Avalanche Characterization of 4H-SiC Power Diodes: Junction Temperature Extraction and Anode Design Parameter Influence Tiffany KEUMEDJEU	1745
16:00	Understanding stress evolution mechanisms in CVD diamond films via phosphine-induced microstructural changes Rani MARY JOY	1854
16:00	Study of temperature-dependent trap dynamics in GaN nanodiodes under large RF power excitation Elsa PÉREZ-MARTÍN	1880

16:00	Atomic Structures and Thermodynamics of Steps on the Off-Axis 4H-SiC Substrates Tingqiang YANG	189
16:00	Ga ₂ O ₃ -based High-Voltage Schottky Diode Changzi LU	1974
16:00	Performance-Reliability Envelopes of Implantation-Based and Implantation-Free GaN Trench MOSFETs: A TCAD Design Space Study Michael MENSING	2056
16:00	Process Sensitivity and Scalability of 4H-SiC Superjunction Drift Layers for High-Voltage MPS Diodes Using Process Modelling Michael MENSING	2078
16:00	Phase-Pure p-Type Cuprous Oxide via Low-Temperature CVD for 3D BEOL Applications Swagatika NAYAK	2108
16:00	Deep level defects characterization in Ni/ β -Ga ₂ O ₃ vertical Schottky diodes Philippe NUGUES	2212
16:00	Nitrogen Assisted Magnetic Ordering in In ₂ O ₃ and Fe Doped In ₂ O ₃ Vishal Dev ASHOK	2263
16:00	Defect analysis in Ga ₂ O ₃ epitaxial layers by combined surface photovoltage and photocurrent spectroscopy Sven AHUES	2543
16:00	Correlating Chemical Vapor Deposition Growth Dynamics with Defect formation in Hexagonal Boron Nitride Sakshi CHANDOLA	2800
16:00	Sn-Induced Defect Engineering in β -Ga ₂ O ₃ : A Combined Experimental and First-Principles Study Andres ESTEBAN E CASTANO HURTADO	2921
16:00	Effect of Internal Radiation and Growth Parameters on Interface Morphology and Thermal Stress of β -Ga ₂ O ₃ Crystals Grown by the Czochralski Method Hai-Dang NGUYEN	2959
16:00	Synchrotron-Based VUV Excitation-Emission Mapping of β -Ga ₂ O ₃ Single Crystal Marina KONUHOVA	2990

16:00	Se/MoOx Hole-Selective Contact for β -Ga ₂ O ₃ Heterojunction Diodes Jean-Marie BLUET	3035
16:00	Electrical Compensation in Sn doped β -Ga ₂ O ₃ film grown on Fe-doped β -Ga ₂ O ₃ (-201) substrate Akash PATNAIK	3084
16:00	Defect-induced ferromagnetism in undoped oxide thin films: the case of WO ₃ Nguyen Sy PHAM	365
16:00	Effects of precursor variation in MOVPE-grown m-plane a-Ga ₂ O ₃ on topography and luminescence Lewis PENMAN	482
16:00	Ternary Dumbbell Structured MoS ₂ Tipped Mn _{0.2} Cd _{0.8} S Nanorods for Enhanced Photoelectrocatalytic Hydrogen Evolution Muhammad TAYYAB	51
16:00	Swift Heavy Ion Induced Radiation Effects in Gallium oxide Lijun XU	547
16:00	Ga ₂ O ₃ /(GaAl) _{2-x} O _{3-y} Homojunction for Memristor Application Amiran BIBILASHVILI	722
16:00	Water-driven sol as a tool for subtle tuning of sol-gel alumina thin film properties. Aleksandra PRZYBYLA	773
16:00	Vacancy related defects in GaN MOVPE epitaxial layers grown on different substrates Alice HOSPODKOVÁ	795
16:00	Breaking the Mobility-Reliability Trade-Off in IGZO Transistors Via Interfacial Ga ₂ O ₃ Engineering Toward Next-Generation DRAM Cell Transistors Taeyoon LEE	812
16:00	Impact of Wide-Bandgap Rear Functional Layers on Carrier Transport Mechanisms in CIGSe Solar Cells with TCO Back Contacts Oliver WOLF	952
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

III-NITRIDE DEVICES II

E11

9:00	AlGa _N /AlN Based Cathodoluminescent UVC Emitters Ettore COCCATO	2473
9:30	Deep UV-C emission down to 218 nm from a-plane AlGa _N surface Houssein MOHAIDLY	2737
9:45	Single-event burnout of AlN diodes under heavy-ion irradiation Cristyan E. QUI_ONES	703
10:00	Excitonic dissociation and carrier escape in Al-rich (Ga,Al)N-AlN multiple quantum wells emitting at 215 nm Alexandra IBANEZ	1824
10:15	Low dark current Deep-UV Solar Blind AlN-based Photodetector Using Asymmetric contacts Hadeel ALAMOUDI	2301
10:30	Coffee break	

GALLIUM OXIDE III

E12

11:30	Raman and Photoluminescence Characterization of β -Ga ₂ O ₃ epitaxial layers Enora VUILLERMET	1132
11:45	Electro-optical properties of MoS ₂ / β -Ga ₂ O ₃ heterostructures realized by direct CVD growth and transfer methods Filippo GIANNAZZO	1463
12:00	“Transmutation Doping of Float-zone β -Ga ₂ O ₃ Bulk Crystals via Thermal Neutron Irradiation” Evan GLASER	499
12:15	Charge-State-Dependent Sn Implantation in β -Ga ₂ O ₃ : Defect Engineering for High-Detectivity, Fast Solar-Blind Photodetectors Kishor UPADHYAYA	2930
12:30	Lunch	

DIAMOND AND SiC

E13

14:00	Research and development of transfer-doped diamond for electronic devices David MORAN	925
14:30	Thick heavily boron-doped diamond films with sup-centimetric area. Ovidiu BRINZA	1114
14:45	Diamond vertical device: gate with n+ localized over-doping Ndamkou GEORGES	2980
15:00	Optimizing a CVD multistep process for SiC-graphene-SiC heterostructures growth: a route for high quality SiC membrane fabrication? Marc PORTAIL	2719
15:15	Enhanced Channel Mobility in ALD SiO ₂ /4H-SiC MOS Devices via High-Temperature Hydrogen Surface Pretreatment Mustafa YILDIRIM	2658
15:30	Coffee break	

GALLIUM OXIDE IV

E14

16:00	Oxide-based Schottky and heterojunction diodes on β -Ga ₂ O ₃ Aleksandra WÓJCICKA	1002
16:30	Orientation-Dependent NiO/ β -Ga ₂ O ₃ Heteroepitaxy for Reliable High-Performance Oxide p-n Diode Liru ZENG	664
16:45	MOCVD Growth and Characterization of β -Ga ₂ O ₃ Field Effect Transistors grown on 2" (010) substrates William BRAND	1235
17:00	Study of Gd-Doped and Gd-Implanted Gallium Oxide Grown by Molecular Beam Epitaxy Martin S. WILLIAMS	1511
17:15	Influence of substrate temperature and gallium-to-oxygen ratio on the crystalline quality of β -Ga ₂ O ₃ thin films grown on (0001) AlN by PAMBE Ilyass JELLAL	2168



Symposium Sponsor



Protochips

Symposium F

Sessions: Room 102 | MINI Building

Poster Sessions: Room 237 (Small Hall) | Main Building

FUNCTIONAL MATERIALS

APPLIED OPTICAL MATERIALS FOR EMERGING FUNCTIONALITIES

Symposium organizers:

Gianni JACUCCI

Pedro David GARCÍA FERNÁNDEZ
(Main Organizer)

- University of Calabria
- Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC)

Monday, 14 September 2026

		LIVING BIO-OPTICS	F01
8:30	Photonic architectures with diatoms microalgae Gianluca Maria FARINOLA		1663
9:00	Phototactic microalgae as active and reconfigurable systems Biagio AUDIA		1106
9:30	Photosynthetic photonic organisms as blueprints for applied optical materials Martin LÓPEZ GARCÍA		1995
10:00	Coffee break		

		LOW-DIMENSIONAL & QUANTUM OPTICAL MATERIALS	F02
10:30	Towards defect-based optomechanics with high quality factor monolayer MoS2 nanodrums Eva WEIG		1197
11:00	WSe2 Monolayers Grown by Molecular Beam Epitaxy on Hexagonal Boron Nitride Julia KUCHARÉK		2004
11:15	Optical Properties and Sensing Applications of High-Quantum-Yield Ti2N MXene Quantum Dot Jeongyong KIM		1076
11:30	Temperature- and excitation-dependent carrier transport in epitaxial GeSn layers Patrik SCAJEV		1408
12:30	Lunch		

		CHIRAL, STRUCTURED & NONLINEAR OPTICS	F03
14:00	Bio-inspired self-assembled chiral architectures for optics and plasmonics Antonio CARONE		2438

14:30	Generation of Circularly Polarized Light by Perovskite-Coupled Chiral Plasmonic Metasurfaces Leyre CURRÁS	55
14:45	Shape-Optimised TiO ₂ Metamaterial Solid Immersion Lenses with Deep-Learning-Assisted Super-Resolution Imaging Zengbo WANG	1430
15:00	Photophysical behavior of pyrylium salts from ambient to extreme conditions: counterion engineering and pressure-tunable optical response Egor EVLYUKHIN	2412
15:30	Coffee break	

ACTIVE COLLOIDS & OPTICAL SENSING

F04

15:45	Photonic computing with second-order nonlinear disorder Romolo SAVO	3382
16:15	Computing with the complex nonlinear dynamics of an optomechanical oscillator Marcos MENENDEZ DIAZ	2541
16:30	Cost-efficient Capillary-based SPR Optical Temperature Sensor Using Ag/PDMS Gourav SHARMA	1887
17:00	Nanoscale Engineering of J-Aggregate Architectures: From Colloidal Flakes to Anisotropic Hyperbolic Metamaterials José N. GAMA	1887

POSTER SESSION I

FP01

17:30	Substantial Enhancement of Light Yield in LYSO:Ce Crystals via Trace Co ²⁺ Co-Doping Peng QIU	01_149
17:30	Explainable Machine Learning-Assisted Thermal Reliability Assessment of Lead-Free Cs ₂ TiBr ₆ Perovskite Solar Cells Using SCAPS-1D Simulations Faycal DJEFFAL	02_1612

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|-------|---|---------|
| 17:30 | Ternary Solvent Engineering for Controlling Evaporation-Driven Flow in Inkjet-Printed OLED Emissive Layers
Youngwook NOH | 03_1670 |
| 17:30 | Hansen Solubility Parameter-Guided Solvent Design for Inkjet-Printed Quantum-Dot Light-Emitting Diodes with Improved Interlayer Compatibility and Film Uniformity
Kwan Hyun CHO | 04_1916 |
| 17:30 | Liquid crystal molecular orientation determination by advanced ellipsometry
András MARTON | 05_2141 |
| 17:30 | Copper Micro-Path Electrodes for Transparent Electrochromic Devices: Effects of Line Spacing, Electrochromic Layer, and Electrolyte Composition on Performance
Dainius BALKAUSKAS | 06_247 |
| 17:30 | Substrate Temperature-controlled Structural Ordering and Enhanced Optoelectronic Properties in Ti-Doped Indium Tin Oxide Thin Films
Pooja KUMARI | 08_2924 |
| 17:30 | Rational Molecular Design of p-Extended Thiazolothiazole for High-Performance UV-OPDs Seamlessly Integrated with CMOS
Pyo WON JUN | 09_303 |
| 17:30 | Visible-Light Photoprogrammable Transistors Enabled by an All-Organic Triplet-Sensitized Diarylethene Channel Layer
Kwon JIEUN | 10_311 |
| 17:30 | Anion Engineering for Ionic Organic Nonlinear Optical Crystals with Halogenated Electron Donors
Haneul KIM | 11_709 |
| 17:30 | Fluorinated Ionic Crystals for Ultrabroadband Terahertz Wave Generation
Seungmin KIM | 12_710 |
| 17:30 | Atomic-level ionic polarization in poly(heptazine imides) towards enhanced photocatalytic H ₂ O ₂ production
Yuqing WANG | 13_825 |
| 17:30 | Modeling the viscoplastic deformation of azopolymers under the influence of structured light
Nikolai LIUBIMTSEV | 14_996 |

Tuesday, 15 September 2026

BIO-ARCHITECTED PHOTONICS & STRUCTURAL COLOUR

F05

8:30	Structure-Directed Self-Assembly of Polysaccharides for Functional Photonic Materials Cecile CHAZOT	2857
9:00	Living Matter in Confinement for Functional Optical Materials Vera Marie TITZE	2424
9:30	Hierarchical scattering Optics at the Plant surface Rox MIDDLETON	2978
10:00	Engineered Fractal Disorder for Light Management in Silicon Nanowires Maria Jose' LO FARO	874
10:30	Coffee break	

ORGANIC & LIGHT-PROGRAMMABLE MATERIALS

F06

10:45	Holographic vectorial photomorphing of azopolymer films for reprogrammable structured surfaces Stefano Luigi OSCURATO	946
11:45	Exploring the role of the assisting beam in enhancing surface structuring in azobenzene-based thin films Miriam ALBERICO	1128
12:30	Lunch	

ENERGY & THERMAL OPTICAL MATERIALS

F07

14:00	Tailoring Thermochromic and Optical Properties of VO ₂ Thin Films via Magnetron Sputtering: Toward Radiative Cooling and Dynamic Optical Applications Julien CARDIN	2741
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14:15	Design and Control of Thermal Emissivity at Polymeric Material Surfaces based on Artificial Intelligence Gayeong KIM	3041
14:30	High-temperature thermal history coatings based on RE doped YAG Anna KOZLOWSKA	1919
14:45	Layer-Dependent Optical Properties of Orthorhombic B ₂ N ₂ : Prospects for Photovoltaics Pedro VENEZUELA	701
15:00	Angular Emission Properties of Strained Transition-Metal Dichalcogenides in the Low Strain Regime Moshe HARATS	835



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UNIVERSITY OF SILESIA
IN KATOWICE

Symposium G

Sessions: Room 329 | MINI Building

Poster Sessions: Room 237 (Small Hall) | Main Building

FUNCTIONAL MATERIALS

FERRO-AND ANTIFERROELECTRIC MATERIALS AND RELATED COMPOUNDS: FROM FUNDAMENTALS TO APPLICATIONS

Symposium organizers:

Anthony Michael **GLAZER**
(Main Organizer)

Krystian **ROLEDER**

Mario **MAGLIONE**

Philippe **GHOSEZ**

– University of Oxford

– University of Silesia

– ICMCB-CNRS Université de Bordeaux

– University of Liège

Monday, 14 September 2026

SESSION 1

G01

9:15	Arrays of Nanoscale Helices at Twisted Ferroelectric Interfaces Marty GREGG	169
9:45	Electron channelling contrast imaging of ferroelastic domains Singh ADITYA	
10:00	Nanoscale imaging of magnetoelectric coupling Tim A. BUTCHER	1848
10:15	Elastic and piezoelectric properties of domain walls in periodically poled lithium niobate Charlotte COCHARD	2232
10:30	Coffee break	

SESSION 2

G02

11:00	The latent heat of ferroelectric domains Gustau CATALAN	944
11:30	Domain Walls, Vortices and Nanodomains in Epitaxially Strained SrTiO ₃ Mauro A. P. GONCALVES	2950
11:45	Emergent inhomogeneous textures in SrTiO ₃ Fernando GOMEZ ORTIZ	223
12:00	Surface-orientation effects on domain structures in BaTiO ₃ : a phase-field study Xingchen TAN	1544
12:15	Nanoscale ferroelectrics; electrostatic effects and multilevel polarization Chiara GATTINONI	2504
12:30	Lunch	

SESSION 3

G03

14:00	Multi-Order Ferroics: A Playground for Domain Topologies Mads C. WEBER	2757
14:30	Interplay between antipolar displacements and electronic properties in the new layered perovskites $[\text{Ba}(\text{PO}_{4/2})_n\text{W}_{n-3}\text{O}_{3n-3}]$ Anders CANO	
14:45	Emergent domain topology in the multiferroic hexagonal manganites Aaron Merlin MÜLLER	842
15:00	Harnessing the Brownian motion of electric bubbles to create a random number generator Krishna PATEL	916
15:15	Altermagnetism revealed in G-type antiferromagnetic multiferroic BiFeO ₃ Andrea URRU	3036
15:30	Coffee break	

SESSION 4

G04

16:00	Avalanche criticality during ferroelastic domain switching in RbSCN Wilfried SCHRANZ	651
16:30	Thermodynamic Control of the boracite phase Shana FIGUEIREDO	1540
16:45	Harnessing Electrostatics Through Temperature Modulations to Control Ferroelectrics Cameron SCOTT	415
17:00	Domain-wall-to-domain conversion in a polar conducting oxide Martin F. SAROTT	846

POSTER SESSION I GP01

17:30	Resilient 3D Printed Porous Biodegradable Polylactic Acid Coated with Bismuth Ferrite for Piezo enhanced Photocatalysis Degradation Assisted by Machine Learning Manshu MANSHU	01_1250
17:30	Nanoscale Polar Heterogeneity Engineering in Lead-Free BNT-Based Relaxor Ferroelectrics for Enhanced Energy Storage Performance Ankur KHOKHAR	02_151
17:30	Investigation of piezo- and ferroelectric catalysts using atomistic methods Britanny KLASSEN-GONZÁLEZ	03_1876
17:30	Theoretical Investigation of Ordering-Dependent Phase Transitions in Lead Scandium Tantalate Nils Andre SCHÄFER	04_220
17:30	Machine-Learned Interatomic Potentials for Modelling Water Splitting on Ferroelectric Surfaces David NDRIO	05_374
17:30	First-principles investigation of a polar triclinic phase in strained WO ₃ Chloé GULPEN	06_769
17:30	Phase transformations and Resonance properties of the antiferromagnet YFe ₃ (BO ₃) ₄ Andrey PROKHOROV	07_87

Tuesday, 15 September 2026

SESSION 5 G05

9:00	Domains and domain walls in noncollinear antiferroelectrics Dennis MEIER	2353
9:30	The band gaps and semiconducting nature of ferroelectrics Andreas KLEIN	2436
9:45	Direct determination of charge transition levels in BaTiO ₃ by X-ray photoelectron spectroscopy Andreas KLEIN	2440

10:00	Giant photostriction in lead-free ferroelectric stemming from photo-excited thermalized carriers Gaëlle VITALI-DERRIEN	413
10:30	Coffee break	

SESSION 6

G06

11:00	New Insights into the Low-Temperature Structure of PbZrO ₃ Peter GEHRING	486
11:30	Modelling of antiferroelectricity in perovskites Jiri HLINKA	1821
12:00	Antiferroelectrics Inc.: NaNbO ₃ versus AgNbO ₃ Elena BUIXADERAS	1084
12:15	Impact of A-Site Ordering and Defects on Sr Diffusion in NBT-ST Relaxor Perovskite Marc TUNICA	928
12:30	Lunch	

SESSION 7

G07

14:00	Structural relaxations in BaTiO ₃ based epitaxial artificial multiferroics Antoine BARBIER	437
14:30	Epitaxial Strain-induced Ferroelectricity : why some oxides respond and others don't Christian DIEHL Ngoma MANICKA	2023
14:45	Tuning the Properties of the Organic Supramolecular Ferroelectric BTA by Dipole Engineering Sophia KLUBERTZ	1774

15:00	Harnessing ferroelectric switching to drive selectivity in catalytic reactions Cara-Lena NIES	2893
15:30	Coffee break	

SESSION 8

G08

16:00	Complex structural evolution in BaTiO ₃ single crystals caused by the coexistence of competing anharmonic potentials Annette BUSSMANN-HOLDER	423
16:30	From ML to Kinetics: Modelling the Switching in Ferroelectric Wurtzites Andrew RAPPE	3386
17:00	Ab initio calculations of ABO ₃ Perovskite (001), (011), and (111) Surfaces, Interfaces, and Oxygen Vacancies Therein Roberts EGLITIS	757
17:15	Meta-GGA SCAN functional for an accurate description of perovskite polymorphism Jakub KACZKOWSKI	838

POSTER SESSION II

GP02

17:30	Frustrated magnetism in BaHoFeO ₄ : magnetic phase transitions and spin-driven ferroelectricity Filip KADLEC	01_1052
17:30	Phase transformations and Resonance properties of the antiferromagnet YFe ₃ (BO ₃) ₄ Andrey PROKHOROV	02_109
17:30	The Impact of Annealing of Zirconium Oxide Films Grown by Mist CVD Yudai YONA	03_1701
17:30	Interplay of Ferroelectricity and Metallicity in Monolayered PtBi ₂ : A first-principles investigation Arpita KOLEY	04_2547
17:30	Engineering Strain-Gradients in SrTiO ₃ Free-Standing Membranes Oliver LIEBE	05_2912

17:30	Machine-learned interatomic potentials of ZrO ₂ -based solid solutions for energy storage Anurag VERMA	06_699
17:30	Polar Textures Beyond Statics: Dynamics, Transport and Chirality in Ferroelectric Skyrmion Bubbles Hugo ARAMBERRI	07_912
17:30	Theoretical study of electric bubble dynamics in ferroelectric/paraelectric superlattices Manjunath Raj BETHA	08_698

Wednesday, 16 September 2026

9:00 **PLENARY SESSION**

12:30 Lunch

SESSION 9 G09

14:00	The investigations of polar domain walls by using second harmonic generation microscopy Hiroko YOKOTA	718
14:30	Oxide Twistronics: From Polar Vortices to Dislocation Networks Hugo ARAMBERRI	477
15:00	Polar vortices in ferroelectric nanocubic inclusions embedded in a paraelectric matrix Mónica GRAF	921
15:15	Calcium titanate as a playground for ferroelectric and antiferroelectric engineering Louis BASTOGNE	2037
15:30	Coffee break	

SESSION 10 G10

16:00	Trans-switching in layered ferroelectrics: A theoretical perspective Javier JUNQUERA	730
16:30	What is the extent of the metallic layer formed upon different reduction conditions on undoped SrTiO ₃ crystals? Krzysztof SZOT	2917

17:00	Proper versus improper ferroelectric transition and strain sensitive electro-optic response of Carpy-Galy La ₂ Ti ₂ O ₇ from first-principles Arijit SINHA	1041
17:15	Emergent large ferroelectric bulk photovoltaic effect along non-polar direction in hybrid perovskite ferroelectrics Yuzhong HU	1054
17:30	Electronic properties of inhomogeneous polar textures in BaTiO ₃ : A second-principles study Binayak MUKHERJEE	1021
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

		SESSION 11	G11
9:00	Optical soft modes and the chiral phase transition in K ₃ NiO ₂ Stanislav KAMBA		981
9:30	Development of Shell-Model Potentials for Mixed Ferroelectrics Materials Antonín KLÍČ		2309
9:45	Development of shell-model potentials for mixed perovskites Pavel MARTON		2216
10:00	Application of Machine Learning Interatomic Potentials for Ferroelectric Perovskites Owain BEYNON		1056
10:15	Fine tuned GRACE machine learning potential for ferroelectric perovskites Mukesh KHANORE		2247
10:30	Coffee break		

SESSION 12

G12

11:00	Hybrid Electronic-Ionic Ferroelectricity in Superlubric van der Waals Heterostructures Daniel BENNETT	327
11:30	Tracing the origin of ambient ferroelectricity in bulk Td-WTe ₂ Rajarshi ROY	377
11:45	Exploring Topological Defects in Janus Bilayers of Chromium Trihalides Cr(I, Cl) ₃ Taksh PATEL	399
12:00	Decoupling Substrate and Top-Surface Roughness Effects in Low-Temperature Hydrothermal PZT Thin Films on Flexible Ti Foils Hao Lun FANG	574
12:15	Resonant Magnetoelectric MEMS Sensors Based on Epitaxial PZT Thin-Film Hidayat ELOURAJINI	112
12:30	Lunch	

SESSION 13

G13

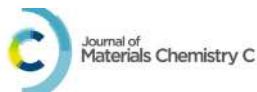
14:00	The correlated local disorder in relaxor ferroelectrics revealed by diffuse scattering and 3D-delta PDF analysis Nan ZHANG	861
14:30	Revealing Excitonic and Polaronic States in BiVO ₄ by Resonant Raman Spectroscopy Christina HILL	910
14:45	Resonant Raman signatures in polar Zn ₂ Mo ₃ O ₈ single crystals Angelina GUDIMA	380
15:00	THz field-induced magnetic-like response in the quantum paraelectric diamagnet KTaO ₃ Christelle KADLEC	2074
15:15	Surface reconstructions at the 001 KTaO ₃ surface Sunil TAPER	1081

15:30 Coffee break

		SESSION 14	G14
16:00	Exploring the complex energy landscape of antiferroelectric PbZrO3 Huazhang ZHANG		1254
16:30	Engineering Polar Nanoregions and Phase Structure in BNZT–SBT Ceramics for Efficient Energy Storage Amiya MANDAL		1928
16:45	Specific heat studies of the phase transitions in multiferroic (Sr,Ba)(Mn,Ti)O3 system Jaroslav WIECKOWSKI		2660
17:15	Origin of the Ni-Concentration Dependence of Ferroelastic Domain Structures in Ti–Ni Shape Memory Alloys Gen HIKOSAKA		1685
17:30	Ultrasound-Activated Ferroelectric Bioconjugates Inhibit Cell-Associated Viral Spread Cecily MARTIN		2459



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Symposium H

Sessions: Room 107 | MINI Building

Poster Sessions: Room 237 (Small Hall) | Main Building

FUNCTIONAL MATERIALS

SUSTAINABLE PEROVSKITES: FROM ADVANCED PROCESSING TO EMERGING APPLICATIONS

Symposium organizers:

Davide Raffaele **CERATTI**

– CNRS – École Nationale Supérieure de Chimie de Paris

Katarzyna **GAWLIŃSKA-NĘCEK**

– Institute of Metallurgy and Materials Science,
Polish Academy of Sciences

Malgorzata **KOT**
(Main Organizer)

– Wroclaw University of Science and Technology,

Salvatore **VALASTRO**

– Institute for Microelectronics and Microsystems –
National Research Council (CNR-IMM)

Monday, 14 September 2026

ADVANCED CHARACTERIZATION, CHARGE DYNAMICS & DEVICE PHYSICS

H01

9:00	Structural and dynamical investigation of perovskites solar cells with mixed cations using transient absorption spectroscopy Marcin ZIÓŁEK	1049
9:30	From Life Cycle Assessment to In Operando Stability: Unraveling the Bottlenecks of Perovskite Nanocrystal LEDs Rafael SÁNCHEZ	742
10:00	Advanced Surface Photovoltage Characterisation of Halide Perovskites Igal LEVINE	591
10:30	Coffee break	

ALD, PASSIVATION, ENCAPSULATION & SELF-HEALING STABILITY

H02

11:00	Invisible Shielding and Visible Impact of ALD-AlOx in Perovskite Solar Cells' Physical and Chemical Resilience Chittaranjan DAS	2562
11:30	Advancing Encapsulation for Tin Perovskite Solar Cells with a Room-Temperature Processable and Stable Resin Lucia MERCURIO	788
11:45	De rerum natura: how do halide perovskites self-heal from damage? Davide Raffaele CERATTI	1512
12:00	Decoupling Interfacial Stability in n-i-p Perovskite Solar Cells: Linking Spiro-OMeTAD Degradation Chemistry with ALD-Al ₂ O ₃ Barrier Engineering Mayank KEDIA	3237
12:15	Exploring the Radiation Damage of Vacancy-Ordered Double Perovskites, ((NH ₄)(1-x)FA _x) ₂ SnBr ₆ Prajna BHATT	425
12:30	Lunch	

INTERFACES, BURIED JUNCTIONS & CHARGE TRANSFER

H03

14:00	Interface Formation in Perovskite Solar Cells: Insights from Photoemission Spectroscopies Across Buried Interfaces Philip SCHULZ	1909
14:30	Mapping of Photopotential Generation and Interface Losses in Triple-Cation Mixed-Halide Perovskite Solar Cells under Operando Conditions Margaux LE COQ	1180
14:45	Evaluating Charge Transfer Kinetics at Charge Transfer Layer/Metal-halide Perovskite Interfaces Gergely Ferenc SAMU	1708
15:00	Surface and Interface Physics of Novel Organic-Inorganic Hybrid Semiconductor Optoelectronic Devices Jia ZHANG	39
15:15	Charge carrier transport in lead-free Ag ₃ BiI ₆ and Cu ₂ AgBiI ₆ perovskite-inspired PV cells Jacek Jerzy BARANOWSKI	1
15:30	Coffee break	

SCALABLE PROCESSING, VACUUM DEPOSITION & PROCESS MODELLING

H04

16:00	A Universal Polybromide Melt Strategy for Direct Conversion of Elemental Metals into Halide Perovskites Yevgeny RAKITA	1358
16:30	AI-Driven computational assessment of phase nucleation and kinetics in MAPbI ₃ Perovskites Antonino LA MAGNA	1735
16:45	Multimodal In-Situ Optical Metrology of Wet Film Drying in Slot-Die Coated Perovskites Florian MATHIES	2640
17:00	Non-Toxic Wide-Gap Chalcogenide Perovskite Absorbers: PVD Thin-Film Synthesis approaches and Challenges Sebastian ZIMMERMANN	1421
17:15	Interface Engineering of Charge Transport Layers Using Magnetron Sputtering Toward High-Efficiency All-Sputtered Perovskite Solar Cells Fang LUO	966

Tuesday, 15 September 2026

LOW-DIMENSIONAL AND PROTECTIVE MATERIALS FOR STABLE PEROVSKITE DEVICES

H05

9:00	Engineering Low-Dimensional Perovskites for Photonic and Optoelectronic Applications Rosanna MASTRIA	1464
9:30	Low-dimensional perovskites as protective and passivating layers for stable inorganic slot-die coated perovskite solar cells Emmanuelle DELEPORTE	1365
10:00	ALD grown permeation barriers for perovskite and organic solar cells Kai Oliver BRINKMANN	1236
10:30	Coffee break	

INDOOR, FLEXIBLE & MULTIFUNCTIONAL PEROVSKITES

H06

11:00	Promises and challenges of indoor photovoltaics Francesca DE ROSSI	1015
11:30	Multifunctional Hybrid Perovskites: From Polarized Light and Pressure Sensing to Semitransparent Color-Tunable Solar Cells Lioz ETGAR	641
12:00	Defect and Bandgap Engineered LaNiO ₃ Perovskite improved Photocatalytic Hydrogen Generation Sri Himaja PAMU	2669
12:15	Spectroscopic Ellipsometry-Probed Halide Exchange for CsPbCl ₃ -Graphene Hybrid UV Photodetectors Sana KHAN	2177
12:30	Lunch	

LOW-DIMENSIONAL AND PROTECTIVE MATERIALS FOR STABLE PEROVSKITE DEVICES

H07

14:00	How Green Is Semitransparent? LCA of Roll-Coated Flexible Perovskite Solar Cells Across Electrode Architectures Luigi Angelo CASTRIOTTA	638
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14:30	Plasma-Damage-Free Deposition of NIR-Transparent IGTO and ITMO Electrodes via Isolated Plasma Soft Deposition for High-Performance Perovskite/Silicon Tandem Solar Cells Han-Ki KIM	987
14:45	Multi-Objective Bayesian Optimization for Stable and Efficient Perovskite-Silicon Tandem Solar Cells Daniel BAUMANN	614
15:00	Ascorbic Acid-Driven Self-Recovery in Sodium-Doped Copper-Antimony Double Halide Perovskites: Mechanistic insight by X-ray diffraction Fabiano PRAXEDES	2788
15:15	Self-powered perovskite based photovoltaic energy harvester for broadband photodetection Anas A. AHMED	2361
15:30	Coffee break	

IONIC DEVICES, MEMRISTORS, NEUROMORPHIC SYSTEMS & SENSORS

H08

16:30	A Self-powered Optoelectronic In-sensor PUF Based on Halide Perovskites Nivedan AMARNANI	2002
16:45	Ternary Copper Halides as Emerging Materials for Ionizing Radiation Detection Cintia HAJDU	1096
17:15	Crown-Ether-Mediated Supramolecular Crystallization of CsPbBr ₃ Single Crystals for High-Performance X-ray Detection Zhuangjie XU	747

Wednesday, 16 September 2026

9:00 **PLENARY SESSION**

12:30 Lunch

TRANSPARENT ELECTRODES, TANDEM INTEGRATION & ADVANCED DEVICES

H09

14:00	Interface Engineering of Narrow-Bandgap Tin-Lead Perovskite Solar Cells Toward Tandem Applications Shurong WANG	134
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14:30	Optical and optoelectronic properties of fluorinated 2D tin halide perovskite nanoplatelets Juan P. MARTINEZ-PASTOR	2763
14:45	Unveiling Time-Dependent Hot-Carrier/Phonon Coupling in Double-Perovskite Nanocrystals by Third- and Fifth-order Raman Spectroscopy Amit KUMAR	1534
15:00	Low-Temperature Processing-Induced Defect Suppression and Enhanced Charge Transport in Lead-Free CsSnBr ₃ Perovskite Swarnima SINGH	1509
15:15	Spin-Orbital-Charge Order Engineering in Rare-Earth Vanadate Thin Films: Unlocking Efficient Magnetoelectric Coupling for Next-Generation Multiferroics Emma DELACOTTE	122
15:30	Low-Vacuum Proximity-Space Effusion for High-Rate Controlled MAPbI ₃ Growth Valentina ARENA	430
15:30	Coffee break	

POSTER SESSION III HP03

16:00	High Rate deposition of MAPbI ₃ by Low Vacuum – Proximity Space Effusion for single-junction semitransparent and tandem photovoltaics Emanuele SMECCA	01_1013
16:00	Tailoring Charge - Phonon Interactions in Cold-Sintered TMO/MXene Composites for Enhanced Thermoelectric Performance Satyendra Kumar SATYARTHI	02_1151
16:00	Unveiling Time-Dependent Hot-Carrier/Phonon Coupling in Double-Perovskite Nanocrystals by Third- and Fifth-order Raman Spectroscopy Amit KUMAR	03_1398
16:00	Continuous Conductance Modulation in Perovskite Analog Memristors for Neuromorphic Applications Hongxin YUAN	04_1476
16:00	Low-Threshold Amplified Spontaneous Emission in Full-Stack Perovskite LED Architectures via Synergistic Optical and Electrical Loss Management Liwei YE	05_15
16:00	Tuning Interfacial Energetics with Separated IC60BA Isomers for Efficient Perovskite Solar Cells Mengmeng ZHANG	06_1501

16:00	Corrosion of Sputtered Metal Contacts in Halide Perovskites Davide Raffaele CERATTI	07_1514
16:00	Enhanced Heat Dissipation in hBN-Capped CsPbBr ₃ Thin Films Liudmila STARODUBTCEVA	08_1554
16:00	Carrier Dynamics-Regulated Resistive Switching in Fluorinated Ruddlesden-Popper Perovskite Memristors for Bioinspired Nociceptive Electronics Mukesh THAKAN	09_1581
16:00	Thermal Reliability and Composition Optimization of FASn(I _{1-x} Br _x) ₃ Double Perovskite Solar Cells Through SCAPS Simulations and Explainable Machine Learning Faycal DJEFFAL	10_1610
16:00	Tuning the Optical Bandgap through Halide Substitution in A ₂ TeX ₆ (X = Cl, Br) Vacancy-Ordered Double Perovskite Nanocrystals for Blue and Green Emission Christina ZAFEIRIDOU	11_1616
16:00	Phase-Dependent Optical Properties of (Gua) ₃ Cu ₂ I ₅ Pseudo-Perovskite Thin Films Kitti CSEH	12_1628
16:00	Antisolvent Engineering with [BMIM]PF ₆ Ionic Liquid for Highly Efficient and Thermally Stable 1.83 eV Wide-Bandgap Perovskite Solar Cells Toward Tandem Applications Mengdi CUI	13_1714
16:00	High pressure and low temperature induced structural evolution in novel ferrimagnetic semiconducting double perovskite La ₂ NiHfO ₆ Deepankar DAS	14_1882
16:00	Unraveling Interstitial Oxygen-Mediated Ionic Conduction in Mo-Substituted K ₂ ZnV ₂ O ₇ Deepanshu KANERIA	15_1934
16:00	Synthesis of high power stable CsPbI ₃ Quantum dots Asha BHARDWAJ	16_2089
16:00	First-Principle Investigation of Structural Stability and Hydrogen Storage Potential of Double Perovskite Hydrides X ₂ LiBH ₆ (X = K, Rb) Hanof ALKHALDI	17_21
16:00	Stoichiometry Controlled Growth of CsPbI ₂ Br Thin Films via Multi-Source Thermal Evaporation for Scalable Perovskite Solar Cells Manas MISRA	18_2199
16:00	Determination of Excited State Dynamics in 2D Perovskite Systems Interfaced with C ₆₀ Charge Extraction Layers Bálint TÓTH	19_2204

16:00	Decoding optoelectronic behaviour in X3BI3 antiperovskite derivatives through many-body perturbation theory Ayan CHAKRAVORTY	20_2227
16:00	Elucidating the Role of Film Thickness on Anisotropic Emission and Dipole Orientation in Perovskite Nanocrystal Thin Films Anmol KAMBOJ	21_2277
16:00	Stability and degradation mechanisms of CH3NH3PbBr3 thin films Serhii SHULYMA	22_250
16:00	Spray-Coated CsPbBr3 for Energy-Generating Greenhouses with Active Photosynthetic Performance Katarzyna GAWLIŃSKA - NĘCEK	23_2624
16:00	Mn doping Induced band gap narrowing and enhanced photocatalytic degradation in GdCoO3 Keshav KUMAR	24_2626
16:00	Two Dimensional BNNS Stabilized CsPbBr3 Perovskite Nanocrystals with Enhanced Structural and Optical Properties Atif SUHAIL	25_2628
16:00	TMA-Based ALD Routes Determine Phase Evolution and Mechanical Integrity in OAI/FAPI PSCs Malgorzata KOT	26_2631
16:00	Resilience to Demixing and Phase Segregation in Perovskite Solar Cells under Light–Dark Cycles and Temperature Salvatore VALASTRO	27_2646
16:00	Ionic-Radius-Dependent Lattice Regularization for Structurally and Kinetically Durable Perovskite Optoelectronics Mengdi CUI	28_2838
16:00	High-Pressure Structural and Electrical Response of Ni-Doped LaCoO3 Perovskites Dora BALEN	29_2859
16:00	Structural, magnetic and magnetotransport behaviour in bulk and nanocrystalline La0.7Sr0.3MnO3 Akshay V R	30_2861
16:00	Surface morphology engineering of FAPbI3 in inverted structure perovskite solar cells Katarzyna GAWLIŃSKA-NĘCEK	31_2988
16:00	Facile Synthesis of Efficient Se doped CuCO-MOF Electrocatalysts for Sustainable Hydrogen Production Abdul Ghafoor ABID	32_3011

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|-------|---|---------|
| 16:00 | One-Step Spray Coating versus Conventional Spin Coating for CsPbBr ₃ Perovskite Solar Cells: A Fast, Cost-Effective and Scalable Deposition Strategy
Katarzyna GAWLIŃSKA - NĘCEK | 33_3014 |
| 16:00 | Coupled Frequency Domain Optical & Electrical Characterization of Accelerated Degradation in Perovskite Solar Cells
Daniel MCDERMOTT | 34_3089 |
| 16:00 | Numerical Analysis of Carbon Nanostructure-Based Photon Conversion Layers in Perovskite–Silicon Tandem Solar Cells
Ziyanda TSHOBENI | 35_3115 |
| 16:00 | Harnessing Linear and Nonlinear Optical Responses in Ferroelectric LaMoN ₃ for Enhanced Photovoltaic Efficiency
Surajit ADHIKARI | 36_3174 |
| 16:00 | Beyond Lead: Optoelectronic Properties and Application Potential of Low-Dimensional Bi- and Sb-Based Halide Perovskites
Stevan GAVRANOVIC | 37_3201 |
| 16:00 | All-inorganic elements-based perovskite solar cell for low-cost and eco-friendly photovoltaic conversion
Bharti KAUSHAL | 38_3211 |
| 16:00 | Synthesis of Lead-free, Non-toxic Chalcogenide Perovskites for Solar Cells
Mo EL MAOUED | 39_3229 |
| 16:00 | Inkjet-Printed Tin–Lead Perovskite Thin Films for Scalable Near-Infrared Photovoltaics
Ayush TARA | 40_3269 |
| 16:00 | Ultralow Energy Optoelectronic Synapse using Halide Perovskite/Organic Semiconductor Heterostructure for Neuromorphic Computing, Optical Logic and Wireless Communication
Debabrata SAHU | 41_517 |
| 16:00 | Nanocomposites of NaNbO ₃ Nanorods and Mo ₂ AlB ₂ on Porous PVDF Foam as a Tribo–Piezo Catalyst for Rapid Degradation of Organic Dyes
Richa KUMARI | 42_603 |
| 16:00 | Micro-scale evaluation of photo-aged Carbon-based Perovskite Solar Cells
Vasileios FORIS | 43_611 |
| 16:00 | Exsolution of Pt Nanoparticles from Lanthanum Aluminates: Towards Superior Selective Catalytic Oxidation of Ammonia and Electrocatalytic Water Splitting
Mina ARDANI | 44_648 |

- | | | |
|-------|--|--------|
| 16:00 | Magnetron-Sputtered Halide Perovskite Thin Films: Opportunities and Challenges of a Scalable Dry Deposition Route
Iryna GALSTIAN | 45_902 |
| 16:00 | A Versatile Multifunctional Buried Interlayer for Wide-Bandgap and Lead-Free Perovskite Solar Cells
Juan Anthony PRAYOGO | 46_913 |
| 16:00 | Incorporation of Extrinsic Alkali Cations Modulates Ion Migration and Hysteresis in Lateral MAPbBr ₃ Devices
Hongxin YUAN | 47_914 |
| 18:00 | YOUNG RESEARCHER AWARDS CEREMONY | |
| 18:30 | SOCIAL EVENT | |



2026 Fall Meeting

Symposium Sponsor

Symposium I

Sessions: Room 103 | MINI Building

Poster Sessions: Room 237 (Small Hall) | Main Building

FUNCTIONAL MATERIALS

MATERIALS TECHNOLOGIES FOR CONTROLLING WETTING, ICING AND LIQUID-SURFACE INTERACTION

Symposium organizers:

Bartłomiej **PRZYBYSZEWSKI**
(Main Organizer)

Filomena **PISCITELLI**

Julio **MORA NOGUES**

Mariachiara **GALLIA**

– Warsaw University of Technology,

– Italian Aerospace Research Centre-CIRA

– National Institute of Aeronautic Technology - INTA

– Technische Universität Braunschweig

Tuesday, 15 September 2026

ENGINEERING FUNCTIONAL SURFACES FOR WETTING AND ICE CONTROL

I05

9:00	Thermally Sprayed Multifunctional Anti-Icing Coatings for Aircraft Wings: Integrating Electrothermal Heating and Icephobic Surface Protection Ali DOLATABADI	1167
9:30	Towards Hybrid Passive-Active Ice Protection: Quasicrystalline Coating Combined with a Reference Electro_Thermal System. Paloma GARCÍA	2721
9:45	Toward a Multifaceted Understanding of Icephobicity: Linking Wetting Dynamics, Surface Topography, and 3D Ice-Surface Interfacial Characterization Navid MOSTOFI SARKARI	2534
10:00	Ice sliding due to the quasi-liquid layer on nanoscale-smooth surfaces Federica MARELLI	567
10:15	Tuning the Wettability of Metal-Organic Frameworks by Linker-Doping Davide CAPORALE	67
10:30	Coffee break	

MATERIALS AND TECHNOLOGIES FOR AIRCRAFT ICE PROTECTION

I06

11:00	Passive ice protection integration aspects for aircraft application Franciso-Jose REDONDO-CARRACEDO	372
11:30	Rime Ice on UAVs: An ultimate challenge for Passive Ice Protection Systems (PIPS) Riccardo PARIN	2622
11:45	Multifunctional Graphene-Based Composites for Anti-Icing, De-Icing and Ice Sensing in Aeronautics Alessandra SCID_	2173
12:00	Influence of Chemical Modification on the Long-Term Performance of Hydrophobic and Anti-Icing Polymer Coatings Zaneta WALENDZIAK	2751
12:15	Passive Ice Shedding on Woven Mesh Surfaces: Role of Geometry, Material, and Icing Conditions Anne-Marie KIETZIG	953

12:30 Lunch

EMERGING TECHNOLOGIES FOR WETTING AND ICE CONTROL I07

- | | | |
|-------|---|------|
| 14:00 | Plasma and Vacuum Engineered Hierarchical Surfaces for Robust Control of Wetting, Icing and Energy Applications
Carmen LOPEZ-SANTOS | 2372 |
| 14:30 | The key role of wettability control in triboelectric nanogenerators performance
Fernando NÚÑEZ GÁLVEZ | 2287 |
| 14:45 | Surface Acoustic Wave Enabled Anti-Icing and De-Icing of Aluminium Aerofoil Surfaces Under Icing Wind Tunnel Conditions
Glen BOWEN | 3105 |
| 15:00 | Thickness-Independent Icephobicity Enabled by Dynamic Stress-Dissipating Borosiloxane Networks
Sung-Hoon PARK | 2146 |
| 15:30 | Coffee break | |

Wednesday, 16 September 2026

9:00 **PLENARY SESSION**

12:30 Lunch

MICRO- AND NANOSTRUCTURED FUNCTIONAL SURFACES I09

- | | | |
|-------|---|------|
| 14:00 | Slippery vs durable performances of SLIPS Coatings for Aeronautical Ice Protection. Results, Limits and Next Steps
Alessandro COROZZI | 774 |
| 14:45 | Impact of laser texturing conditions and chemical composition on the hydrophobicity and icephobicity of polyurethane coatings containing functionalized octaspherosilicates
Anna LABEDA | 1631 |
| 15:00 | Nanoarchitectonics of Adaptive Colloidal Langmuir Films at the Air-Water Interface Composed of PNIPAM-Decorated Nanoparticles
Rafał ZBONIKOWSKI | 3038 |

15:30 Coffee break

	POSTER SESSION III	IP03
16:00	Nano-Structured Self-Cleaning Glass for Sustainable and Energy-Efficient Building Facades Abdullah ALSUBAIHI	01_135
16:00	Modulating Coalescence Timing of Liquid Marbles via Wettability Adaptation Chittaranjan MISHRA	02_1370
16:00	Droplet Evaporation and Wetting Regime Transitions on Nature-Inspired Superhydrophobic Soft Surfaces Soumya MATTUPALLI	03_1787
16:00	Hybrid Modification of Polymer Coatings for Durable Anti-Icing Applications Bartłomiej PRZYBYSZEWSKI	04_2731
16:00	Proof-of-Concept Thermal Characterization of Heated Icing Surfaces Using Temperature-Sensitive Paint Mariachiara GALLIA	05_2759
16:00	Synthesis of particle-based and particle-free durable anti-soiling coating and its impact on performance and durability Ajay KUMAR	06_2829
16:00	Low-environmental impact nanostructured anti-icing coatings for aeronautical applications Filomena PISCITELLI	07_2934
16:00	Criteria for casting of materials for improve the performance in electrothermal Ice Protection Systems (ET-IPS) Julio MORA	08_383



Symposium Sponsor



Symposium J

Sessions: Room 101 | MINI Building

Poster Sessions: Room 237 (Small Hall) | Main Building

FUNCTIONAL MATERIALS

EMERGING NITRIDE MATERIALS WITH NOVEL COMBINATIONS OF FUNCTIONAL PROPERTIES – FUNDAMENTAL PROPERTIES, CRYSTALLIZATION, AND PROSPECTIVE APPLICATIONS

Symposium organizers:

Bernard GIL

– National Center of Scientific Research (CNRS) -
University Montpellier

Hiroshi AMANO

– Nagoya University

Izabella GRZEGORY

– Institute of High Pressure Physics,
Polish Academy of Sciences

Saskia SCHIMMEL
(Main Organizer)

– Friedrich-Alexander-Universität Erlangen-Nürnberg

Monday, 14 September 2026

BORON NITRIDE - BULK GROWTH AND HOMOEPITAXY

J05

8:15	The Building Blocks of Tomorrow: Growing Bulk, High-Performance Nitride Semiconductors Siddha PIMPUTKAR	145
8:45	Growth of rhombohedral boron nitride from the iron flux at atmospheric pressure Wilfried DESRAT	1786
9:15	Crystallization of Hexagonal Boron Nitride in the hBN-Mg-NH ₄ Cl System under High Pressure (5 GPa) near the hBN/cBN Phase Boundary Bohdan SADOVYI	2875
9:30	Homoepitaxy of natBN on 10BN: Strategies for Controlling Nucleation via Pre-Growth Treatments Aleksandra K. DABROWSKA	2914
9:45	Capsule-based combinatorial study of solubility, transport and crystallization for ammonothermal synthesis of piezoelectric and ferroelectric ternary nitrides Chongwei GENG	2958
10:30	Coffee break	

BORON NITRIDE - PROPERTIES, DEFECTS AND APPLICATIONS

J06

10:30	Epitaxial Boron Nitride: Growth by MOVPE, Polytype Engineering and Applications Johannes BINDER	2148
11:00	Hexagonal Boron Nitride-Based Memristors with Reliable Analog Switching Behavior Jong Kyu KIM	3284
11:30	Temperature-dependent exciton-exciton annihilation and intralayer exciton diffusion in hexagonal boron nitride Patrik SCAJEV	1404
11:45	374 nm Color Centers in hBN: A Spectroscopic Investigation Nils BERNHARDT	2347
12:30	Lunch	

NOVEL FUNCTIONALITIES AND STRUCTURES IN III-NITRIDES

J07

13:45	Distributed polarization doping for ultrawide band gap III-nitride devices: a simulation study Bernd WITZIGMANN	899
14:15	Mechanism Ruling Theoretical Performance of DUV Emitters Alexandra IBANEZ	1331
14:45	Towards the Stabilization of Half-Van der Waals Group-III Nitrides via Molecular Beam Epitaxy Abhilash ULHE	2507
15:00	Surface Photovoltage Investigation of Defect Transitions in Aluminum Carbonitride and Its Derived AlN Nanosheets Thomas DITTRICH	797
15:15	Non-invasive spectroscopic determination of the Al-to-Ga composition ratio in AlGaN Artur DOBROWOLSKI	428
15:30	Coffee break	

III-NITRIDES FOR QUANTUM TECHNOLOGIES

J08

16:00	Potential of spin defects in nitrides for quantum sensing Xiuling LI	2391
16:30	Site-Controlled InGaN Quantum Dots as Stable and Narrow Single-Photon Emitters Nils BERNHARDT	2342
16:45	Polarization-induced Topological Insulator in InN/InGaN Quantum Wells Slawomir LEPKOWSKI	2310
17:00	Epitaxy kinetics of InGaN alloys in the entire ternary composition range Efethieros ILIOPOULOS	2584
17:15	Quasi resonant excitation scheme for GaN visible single photon emitters Nilesh DALLA	144

17:30	Effect of Carrier Gas and Superlattice on Optical Performance of InGaN/GaN Multiple Quantum Wells Byeongyun JEONG	552
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Tuesday, 15 September 2026

GROWTH OF NITRIDE FERROELECTRICS AND III-NITRIDES		J01
8:00	Ferroelectricity for a New Perspective on III-N Semiconductors Simon FICHTNER	2238
8:30	Expanding the Boundaries of Nitride Semiconductors: Transition Metal Nitrides and Carbon-Free CVD Approaches Stefano LEONE	1266
9:00	Atomic-Scale Pathway from Coherent Sc-Rich Defects to Cubic ScN Precipitates in MOCVD-Grown AlScN Niklas WOLFF	2553
9:15	Epitaxial growth of wurtzite AlHfN thin films by reactive magnetron sputtering Valentin WALBRUNN	500
9:30	Integrated CFD-Experimental Approach for Modeling HVPE GaN Growth Processes Karol POZYCZKA	2939
9:45	Thermodynamics-Informed Evaluation of Supersaturation in Industrial Ammonothermal GaN Autoclaves Marek ZAK	2650
10:30	Coffee break	

FUNDAMENTAL PROPERTIES OF NITRIDE FERROELECTRICS		J02
10:30	Piezoelectric and Ferroelectric Properties of High Scandium-Containing ScGaN Alloys Masato UEHARA	586
11:00	Structure and Spectra prediction for ScAlN and ScGaN by machine-learned force fields and DFT Wichard Johann Daniel BEENKEN	1741

11:15	The anisotropic dielectric response of wurtzite (Sc,Al)N alloys Jona GRÜMBEL	2604
11:30	Optical Properties of (Al,Ga)(Sc,Hf,Cr)N thin films in a wide composition range Van Giang HUYNH	2250
12:30	Lunch	

NITRIDE FERROELECTRICS DEVICES AND TECHNOLOGY

J03

14:00	III-Nitride Ferroelectric Memories: Solving the Scaling and Endurance Challenges Deep JARIWALA	1542
14:30	Electronic Structure Signatures of Oxidation and Fatigue in Ferroelectric AlScN Thin Films: A HAXPES Study Martina MÜLLER	1898
15:00	Interface Properties and Polarization Effects in ScAlN/GaN Heterostructures Probed by Ultraviolet Photoluminescence Alwin WÜTHRICH	2613
15:15	Degradation of Sc _x Ga _{1-x} N Thin Films by Oxygen and Water Molecules Investigated by Photoelectron Spectroscopy Stefan KRISCHOK	2295
15:30	Coffee break	

TRANSITION METAL NITRIDES AND NOVEL FUNCTIONALITIES

J04

16:00	Vertical NbN/InAlN/NbN Josephson Junctions by Plasma-Assisted Molecular Beam Epitaxy Czesław SKIERBISZEWSKI	1795
16:30	A Crystalline Nitride Route toward Energy-Efficient Phase-Change Memory Yi SHUANG	2285
16:45	Electrical and optical bandgaps of epitaxial CrN layers Duc V. DINH	279

17:00	AlScN Pseudosubstrates for High-Indium InGaN: A Path toward Efficient Red Nitride Micro-LEDs Jörg SCHÖRMANN	2223
17:15	Strain-Balanced Dilute Nitride Short-Period Superlattices for Silicon-Integrated Photovoltaics Ainhua ORTE	356

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

		DEFECTS	J09
13:45	Theoretical approach to point defect formation at growth front in III-Nitride MOCVD Yoshihiro KANGAWA		1024
14:15	New mode in defect-selective photoetching of Ammonothermally grown GaN Jan Leszek WEYHER		878
14:30	First-principles calculations of the effects of point defects in the vicinity of vertical ferroelectric inversion domain wall in AlN Loris NAUDIN		1220
14:45	Trying to identify point defects in layered BN by positron annihilation spectroscopy Igor PROZHEEV		2605
15:00	Coupled vacancy-anion tuning activates fast Li-ion transport in mixed-anion lithium nitrides toward Li ₈ ChN ₂ (Ch = Se, Te) and beyond Chao MA		2455
15:15	Optical Spectroscopy of Carbon-Related Defects in Semi-Insulating GaN Auditee Majumder MOMO		3002
15:30	Coffee break		

POSTER SESSION III

JP03

- | | | |
|-------|---|---------|
| 16:00 | Structural and electrical properties of superconducting titanium nitride enabled by hydrogen-manipulated atomic layer epitaxy
Yi-Hsun CHEN | 01_105 |
| 16:00 | Enhancing Crystallinity of Piezoelectric Aluminium Nitride Thin Film on Molybdenum Electrode through AlN interlayer
Kodihalli NAGARAJA | 02_2073 |
| 16:00 | Anomalous absorption edge shift and high electron mobility in nondegenerate ScN at cryogenic temperatures
Jona GRÜMBEL | 03_2615 |
| 16:00 | Optimization of Al Concentration in ALD TaAlN Thin Films for Reliable Cu Diffusion Barriers
Sungbu MIN | 04_262 |
| 16:00 | Epitaxial growth of AlN & Al _{0.7} Sc _{0.3} N on TiN (111) buffered Si (111) by Pulsed Laser Deposition
Phani Shankar BORRA | 05_2770 |
| 16:00 | New metal matrix composites based on NiTi intermetallic with addition of medium-entropy nitrides, carbides or borides
Olena POLIARUS | 06_2873 |
| 18:00 | YOUNG RESEARCHER AWARDS CEREMONY | |
| 18:30 | SOCIAL EVENT | |



Symposium Sponsor



Symposium K

Sessions: Room 105 | MINI Building

Poster Sessions: Room 237 (Small Hall) | Main Building

FUNCTIONAL MATERIALS

FERROELECTRIC MATERIALS AND DEVICES FOR NEXT-GENERATION COMPUTING

Symposium organizers:

Nicholas **BARRETT**

Ruben **ALCALA**

Sara **GONZALEZ**
(Main Organizer)

- CEA Saclay
- NaMLab GmbH
- CNRS, Institut des Nanotechnologies de Lyon

Wednesday, 16 September 2026

9:00 **PLENARY SESSION**

12:30 Lunch

NOVEL MATERIALS I **K09**

- | | | |
|-------|---|------|
| 14:00 | III-Nitride Ferroelectrics for Low-Power Computing
Deep JARIWALA | 1537 |
| 14:30 | Engineering Spin, Orbital and Charge Orders in Rare-Earth Vanadates Thin Films: Towards Optimized Magnetoelectric Coupling in Multiferroic Materials
Emma DELACOTTE | 123 |
| 15:00 | Signatures of Thermal-driven Fermi surface Topology Evolution in Resistance Fluctuations Spectroscopy of Td-WTe2
Prajna Paromita CHANDA | 154 |
| 15:15 | Synergistic Effect of BaTiO ₃ and Cerium ion on Electrospun PVDF Nanofibers for High-Performance Energy Harvesting
Sunny SUNNY | 3113 |
| 15:30 | Coffee break | |

POSTER SESSION III **KP03**

- | | | |
|-------|---|---------|
| 16:00 | Tuning the Metal insulator transition in epitaxially grown VO ₂ using ferroelectric polarisation
Cian MACCARTHY | 01_1297 |
| 16:00 | Sm-Doped Bismuth Oxide Ferroelectric Tunnel Junctions for Neuromorphic Synaptic Applications
Moon Seop CHOI | 02_1724 |
| 16:00 | Addressing Compressibility in Lead-Free Hybrid Organic-Inorganic Ferroelectrics: The Role of Halogen Atoms and High-Pressure Radiation Techniques
Elza ŠTEFANOVIĆ | 03_2863 |
| 18:00 | YOUNG RESEARCHER AWARDS CEREMONY | |
| 18:30 | SOCIAL EVENT | |

Thursday, 17 September 2026

MATERIAL PROPERTIES

K11

9:00	Ferroelectric binary oxides for low-power memory and neuromorphic computing devices Luís MARQUES	392
9:30	Trivalent Doping of HfO ₂ with Al, La, and Y: Electronic Structure and Defect States Probed by HAXPES Lutz BAUMGARTEN	1906
9:45	Fine compositional control in ALD deposited ferroelectric HZO Sajmohan MOHANDAS MOOLAYIL	1914
10:00	Stack Engineering of HZO FE/AFE Bilayers near Morphotropic Phase Boundary for Reduced Coercive Field and Improved Ferroelectricity Dongwoo HONG	1690
10:15	Correlating Surface Topography with Ferroelectric and Leakage Phenomena in Hafnia Thin Films Anudeep TULLIBILLI	2827
10:30	Coffee break	

OXIDE FERROELECTRICS I

K12

11:00	Charge Injection-Based Framework for Understanding Imprint, Wake-up, and Fatigue in HZO Ferroelectric Capacitors Kasidit TOPRASERTPONG	2603
11:30	Coupled Ferroelectric Fatigue and Interface-Trap Effects in 10 nm HZO-Based MFIS Gate Stacks Yifan WANG	2149
11:45	Low-Energy Analog Ferroelectric Switching in Coplanar Nanogap Devices for Neuromorphic Computing Mohit Kumar GAUTAM	2419
12:00	Photocurrent-based reservoir computing for time-series recognition with ferroelectric semiconductor ErMnO ₂ Dennis MEIER	1879
12:15	Thermal Stability of Bottom-Gate W/HZO/ZTO Ferroelectric Transistors with a TaN Diffusion Barrier Jinah JUNG	400

12:30 Lunch

OXIDE FERROELECTRICS II

K13

14:30	Intrinsic Ferroelectric Polarization in Doped HfO2 and ZrO2 Florencio SANCHEZ	173
14:45	Solution processed ferroelectric thin films for memory and neuromorphic device application Bhola Nath PAL	1301
15:00	Epitaxial Y:CeO_ / Y:HfO_ Heterostructures: Integrating Electrostriction and Ferroelectricity Soumyajyoti MONDAL	2725
15:30	Coffee break	



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Symposium L

Sessions: Room 102 | MINI Building

Poster Sessions: Room 237 (Small Hall) | Main Building

BIOINSPIRED AND BIOMATERIALS

BIOINSPIRED AND PHOTONIC MATERIALS FOR ADVANCED SENSING AND DIAGNOSTICS

Symposium organizers:

Ana **ALMEIDA**
(Main Organizer)

Malgorzata **SZCZERSKA**

Vladimir **KATANAEV**

– NOVA School of Science and Technology

– Gdańsk University of Technology

– University of Geneva

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

SESSION A - BIOINSPIRED PHOTONIC MATERIALS & OPTICAL FUNCTIONALITY

L09

14:00	Programmable biomimetic photonic materials inspired by photosynthetic light-harvesting complexes Owen GARDNER	1428
14:30	Cellulose Nanocrystal–AIE Dye Composite Films with Tunable Photonic and Emissive Properties Yao-Jin KE	261
14:45	Bioinspired cellulose and lignin photonic materials for chromic sensing Francisco SOUSA	2370
15:00	Ultrasmall Multi-Responsive Supramolecular Nanostructures Exhibiting Aggregation-Induced Emission (AIE) Michaila Akathi PANTELAIU	1459
15:30	Coffee break	

SESSION B - OPTICAL DIAGNOSTICS & IMAGING

L10

16:00	Tissue-mimicking fluorescent nanodiamond phantoms as bio-photonic standards for multiphoton imaging Filip JANI	687
16:30	Photo-patternable hydrogel phantoms for mimicking pathological optical signatures in human tissue Jakub CZUBEK	908
16:45	Magnesium Pyrophosphate-Mediated Co-Aggregation of Gold Nanoclusters Enables Fluorescence-Enhanced Real-Time Genetic Analysis Stylian	1212
17:00	A Optical Fibre–Based Optical Sensing Platform for Point-of-Care Blood Coagulation Monitoring Adil MUSTAFA	2292

17:15	In Vivo Optical Sensing of Photosynthetic Stress using Chlorophyll Fluorescence Kumud Bandhu MISHRA	2348
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

SESSION C - BIOSENSORS & ANALYTICAL PLATFORMS

L11

9:30	Photonic Sensors in Biomedical Applications: Toward Real-Time, Mechanism-Guided Translational Diagnostics Pawel WITYK	476
10:00	Polymer brushes for bovine viral diarrhea antibody detection by asymmetric Mach-Zehnder interferometry Jicheng LI	140
10:15	Meta-Nano-Channel Bio-FETs for Label-Free Electrical Sensing of Preeclampsia Biomarkers sFlt-1 and PlGF Subhash Chandra KHAN	1461
10:30	Coffee break	

SESSION C - BIOSENSORS & ANALYTICAL PLATFORMS

L12

11:00	Meta-Nanochannel Field-Effect Transistor for Real-Time, High-Sensitivity and Selective Single-Nucleotide Mismatch Detection Vijay Kumar GARIKA	3135
11:15	Effect of Lipophilic Membrane Additives on Photoelectrochemical Potassium Ion Sensing: From Amperometric- to Potentiometric-Like Responses Bo ZHOU	3196
11:30	Magnetoelastic Sensors for Tracking Sol-Gel Transitions and Swelling Kinetics of Hydrogel Ana Catarina LOPES	1129
11:45	Challenges in the Imprinting of Salicylic Acid in Polypyrrole for Electrochemical Sensor Development Vilma RATAUTAITE	1107

12:00	Expanding Conjugated Polyelectrolyte Sensor Arrays for Metal Discrimination Using Photophysical Reprogramming for LDA Celina SALAM	3164
12:30	Lunch	

SESSION D - FUNCTIONAL NANOMATERIALS & EMERGING DIAGNOSIS

L13

14:00	Photonic microalgae exoskeletons for SERS Javier PRADA-RODRIGO	152
14:30	Bioinspired Synaptic Dynamics in Cathodes Material Probed by Ion-Gated Transistors Ramin KARIMI AZARI	56
14:45	Zero percent atomic carbon; a nanostructured porous silicon reference surface for the characterization of conjugated sensitizing nanoparticles Miguel MANSO SILVAN	1061
15:00	Quantifying Biosourced Vanillin- and Furfural-Derived Small Fluorescent Molecules at the Nanoscale Outside and Inside Living Cells Grzegorz BUBAK	2121
15:30	Coffee break	

POSTER SESSION IV

LP04

16:00	Biocompatibility and Targeting Efficacy of Transferrin-Functionalized Carbon Nano-Onions in Glioblastoma Wanting ZHANG	01_1245
16:00	A Laser-Processed Bonding-Less Platform for Wearable Physiological Monitoring Jiseon MOON	02_1560
16:00	Molecularly Imprinted Polypyrrole for Electrochemical Detection of Low-Molecular-Weight Molecules Ernestas BRAZYS	03_2156
16:00	Bioinspired hygroscopic cellulose-based films with tuneable anisotropic response for humidity sensing applications Ana ALMEIDA	04_2508
16:00	Plasma-Generated Nitric Oxide Water as an Antiviral Strategy Against Vaccinia Virus Subhadip MUKHERJEE	05_2805

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|-------|--|---------|
| 16:00 | Redox Mediated Inactivation of SARS-CoV-2 Viral Surface Proteins by Non-Thermal Plasma Generated Reactive Nitrogen Species
Neha RANA | 06_2807 |
| 16:00 | Space Pathogens: Survival and Virulence in Crewed Space Missions and Plasma-Based Control Strategies
Dhruv SHARMA | 07_2809 |
| 16:00 | Drosophila-Inspired Artificial Olfaction Using LUSH-Modified Nanoporous MoS ₂ Bio-FETs
Siyun LEE | 08_960 |



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BEILSTEIN JOURNAL
OF NANOTECHNOLOGY

Symposium M

Sessions: Room 437a | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

BIOINSPIRED AND BIOMATERIALS

FUNCTIONAL MATERIALS AT THE BIOINTERFACE MULTISCALE INTERACTIONS AND APPROACHES

Symposium organizers:

Francesco **CALZAFERRI**

Rossella **CASTAGNA**

Silvia **GIORDANI**
(Main Organizer)

- Institut des Biomolécules Max Mousseron (CNRS)
- Politecnico di Milano
- Dublin City University

Tuesday, 15 September 2026

NANOSTRUCTURES AT THE BIOINTERFACE: INTERACTION AND FATE

M05

9:00	Biological Information Transfer Through Condensate-Corona Nanoparticle Programmes Kenneth DAWSON	2733
9:30	Nanomaterials and Innate Immune Cells Interaction: Biodegradability and Immune Modulation Kurapati RAJENDRA	633
10:00	Biomimetic graphitic carbon nitride nanoparticles for multiscale photomodulation and therapeutic intervention Menglin CHEN	155
10:15	Effects of biodegradable and non-biodegradable metal oxide nanoparticles on chicken embryo development Agnieszka WAL	2498
10:30	Coffee break	

DESIGN OF MATERIAL ASSEMBLIES FOR BIOACTIVITY CONTROL

M06

11:00	Controlled-release systems for oral administration of neuroprotective drugs Eva Maria GARCIA FRUTOS	3259
11:30	Tunable multiscale assembly of bioactive lipopeptides for functional biomaterial applications Sara PELLEGRINO	762
12:00	Electroactive 4D PEDOT:PSS Scaffolds as Dynamic Platforms for Cell Culture Daniel AGUILERA-BULLA	422
12:15	Folic Acid-Functionalised Carbon Nano-Onions for Targeted Doxorubicin Delivery Yingru ZHOU	860
12:30	Fixing the drains and getting the gains: how diamond open access and responsible research assessment can improve the current publishing landscape Barbara HISSA	2426
12:30	Lunch	

FUNCTIONAL MATERIALS FOR SENSING AND THERAPEUTICS APPLICATIONS

M07

14:00	Optical Modelling of Carbon Nano-Onions: From Classical Extinction to Quantum Confinement Zengbo WANG	1419
14:30	In situ-forming optical fiber sensors for intratumoral monitoring of chemotherapeutics Elena BELLOTTI	190
14:45	DNA Origami as a Programmable Biointerface Platform for Plasmonic-Enhanced Nanoscale Sensing Vladimira PETRAKOVA	2554
15:00	Near infrared BODIPY dyes for the labelling of carbon nano onions Riccardo OSSANNA	2854
15:15	Light-activated Carbon Nano-Onions for Cancer Therapy Aravind KANNOTH ANILKUMAR	2524
15:30	Coffee break	

MINIMALLY INVASIVE BIOINTEGRATED MEDICAL TECHNOLOGIES

M08

16:00	Nanostructured Biodegradable Label-Free Biosensors with Natural and Synthetic Receptors for Implantable Applications Giuseppe BARILLARO	89
16:30	Flexible Na-ion Batteries for Bioresorbable Medical Devices Thierry DJENIZIAN	829
17:00	Computational design of FRET-based ssDNA aptamers for multianalyte detection of Alzheimer's disease biomarker Francesco BELLINA	2879
17:15	Development of a magnetic _Coil fiber for minimally-invasive neuromodulation Etienne LE BOURDONNEC	1675
17:30	In vivo biocompatibility and biodegradability assessment of bioresorbable Na-ion batteries with Mo current collectors Eleonora VANDINI	625

17:45	Digital Fluorescent Microneedles for Multiplexed Transdermal Sensing via QR-Code Readout Farbod ABAZAR	362
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Wednesday, 16 September 2026

9:00 **PLENARY SESSION**

12:30 Lunch

STIMULI-RESPONSIVE MATERIALS FOR DYNAMIC BIOINTERFACES **M09**

14:00	Membrane-Targeted Photoswitches as Light–Matter Transducers for Control of Cellular and Organelle Functions Chiara BERTARELLI	290
14:30	Functionally Connecting High- and Low-Density Neuronal Networks Using 3D-Nanoprinted Structures Emma WOLLESEN	2124
14:45	Light-Responsive Control of Bacterial Adhesion at the Biointerface for Potential Functionalization of Materials Alessio COLLEONI	253
15:00	Physicochemical Engineering of Material–Virus–Bacteria Interfaces for Selective Biocontrol Jan PACZESNY	1574
15:15	Unveiling Bacterial–Nanopatterned Interfaces: A Non-Destructive Cell Retrieval Method for High-Resolution AFM Imaging Arash PIROUZ	2694
15:30	Coffee break	

POSTER SESSION III **MP03**

16:00	Functional Enzyme–Material Interfaces Based on Immobilized Fructosyl Peptide Oxidase Variants for Direct HbA1c01_1034 Sensing Lorenzo BASILE	
16:00	Coordination-Driven Nonlinear Feedback in Enzyme-Mimetic Copper-Tyrosine Supramolecular Assemblies Prabhjot SINGH	02_13

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|-------|--|---------|
| 16:00 | Bioinspired Micro/Nano-Wrinkled Hyaluronic Acid Hydrogel Patches: A Multifunctional Dermal System with Anti-Acne Therapeutics
Sayak ROY CHOWDHURY | 03_1351 |
| 16:00 | Biodegradability of gold nanosheets by human neutrophils
Pavithra KURUNGOTTU | 04_1359 |
| 16:00 | Plasma Assisted Surface Functionalization of EVD Systems with Dual Action Antibacterial and Anticoagulant Thin Film Coating
Sena HAMARAT | 05_1366 |
| 16:00 | Nanozyme engineering for Stable Functionalization at the Biointerface
Saeid ALIAKBARPOUR | 06_1424 |
| 16:00 | Mechanisms of Ziapin2-Mediated Cardiac Action Potential Generation: A Computational Study
Francesca URBANO | 07_143 |
| 16:00 | Enhanced Mechanical Properties and Biocompatibility of PS-PMMA Bone Cement Through Metal Oxide Graphene-Based Nanocomposite Reinforcement
Edreese ALSHARAEH | 08_1486 |
| 16:00 | Functionally Modified Polyethersulfone Hollow Fiber Membranes as Bioactive Scaffolds for Extracorporeal Kidney and Liver Support: From Uremic Toxin Clearance to Cell Culture
Nidhi PANDEY | 09_1573 |
| 16:00 | Femtosecond Laser-Engineered 3D Bioprinted Polymer/Ceramic Scaffolds for Advanced Tissue Engineering and Drug Delivery
Liliya ANGELOVA | 10_165 |
| 16:00 | Surface functionalisation of nanocrystals for detection of biological nanoobjects in water
Maria BANDURIST | 11_1652 |
| 16:00 | Green-Synthesized Chitosan-MXene-Silver Nanocomposite: A Synergistic Antimicrobial Platform from Agro-Industrial Waste
Asima PRADHAN | 13_1697 |
| 16:00 | Multifunctional Hydrogel Patches Containing Graphene Quantum Dots for Infection Control
Tannaz SOLTANOLZAKERIN SORKHABI | 14_2027 |
| 16:00 | PECVD Deposited Chitosan Thin Films for Antibacterial External Ventricular Drainage Surfaces
Mustafa TÜFEK_I | 15_2163 |

16:00	Surface-Engineered Silver Functionalized Electrospun Nanofibers for Antibacterial Biointerfaces Simone BONATI	16_225
16:00	Effects of molecular weight of Hyaluronic Acid on carbon nano-onion based targeted drug delivery system Soumakanya RAM	17_2482
16:00	Polyethylenimine-modified Arabinogalactan for Hepatocellular Carcinoma-targeted Gene Delivery Systems Tae-II KIM	18_25
16:00	Multifunctional Electrochemically Deposited ZIF-67 on Chitosan Sponge for Microplastic Removal and Adsorption Jooran KIM	19_2785
16:00	Exploring Plasma Activated NO Water for Stress Mitigation, Muscle Health and Aging Anahita Vispi BHARDA	20_2804
16:00	Plasma-Generated Nitric Oxide Water for Bioscience Applications Nagendra Kumar KAUSHIK	21_2813
16:00	Nonthermal Plasma-Driven Skin Rejuvenation with Nitric Oxide Water Apurva JAISWAL	22_2821
16:00	Laser Synthesis of Graphene Quantum Dots for Cellular Compatibility and Biointerface Applications Philipi Cavalcante RICARDO	23_2877
16:00	Biocompatibility and Targeting Efficacy of Transferrin-Functionalized Carbon Nano-Onions in Glioblastoma Wanting ZHANG	24_2884
16:00	Optimising Sonication Parameters for Dispersions of Carbon Nano-Onions (CNOs) Manikrishna LAKAVATHU	25_2891
16:00	A Gold-Oxoborate Nanocomposite Coating Platform for Reducing Bacterial Adhesion and Transfer on Orthodontic Materials Bartłomiej BOŃCZAK	26_3005
16:00	Bioinspired Antifouling Patterned Membranes For Improved Water Filtration Harsh PANDEY	27_3053

16:00	The impact of biodegradable and non-biodegradable metal oxide nanoparticles on transcriptomic changes in developing chicken embryos Bartłomiej DOMINIĄK	28_3179
16:00	Rational design of anti-biofilm surfaces by Plasma assisted Sol-Gel TiO ₂ coating on different substrates Maryam AMJAD	29_3214
16:00	FFF-printed PLA/TPU/PETG graded multi-material insert for impact-attenuating cushioning for a helmet liner application Fahad ALAM	30_394
16:00	Development and Optimization of Edible Composite Scaffolds for Cultured Meat with Textural Comparison to Conventional Meat Sungkwon PARK	31_4
16:00	Light-based 3D Printed Microfluidic Device for Generation of Janus Microgels for Mimicking Liver Microenvironment Amlan ASHISH	32_438
16:00	Polyphenol-Mediated LDL Attenuation Enables Improved EV Purity and Molecular Analysis in Complex Biofluids Nayoung SON	33_583
16:00	Mild Single-Cell Nanoencapsulation of Mammalian cells with Metal-Organic Complex Nanoshells Lavanya BASKER	34_63
16:00	Cytotoxicity and Cellular Localization of PEGylated and Peptide-Modified Carbon Quantum Dots (CQDs) Beste DIPCIN	35_655
16:00	From Coffee to Carbon Dots: Synthesis and Surface Engineering for Enhanced Fluorescence Diego A. ACEVEDO-GUZMAN	36_780
16:00	Implantable Upconverting Polymer Composites for Targeted Light Delivery Alessio PERAZZOLI	37_841
16:00	Strategic self-assembly of HA-octasaccharide conjugates into bioactive nanocarriers for cancer therapy Ilaria ANDREANA	38_926
16:00	Development of 3D Printed Bone Scaffolds through Architectural Tailoring of Emulsion Inks Sagnik GHOSH	39_97



Symposium Sponsor



Symposium N

Sessions: Room 308a | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

BIOINSPIRED AND BIOMATERIALS

BIO-BASED HIGH-PERFORMANCE TEXTILE COATINGS

Symposium organizers:

Claudia **VINEIS**

Karen **DE CLERCK**

Maria Rosaria **PLUTINO**
(Main Organizer)

– STIIMA-CNR

– Ghent University

– Institute for the Study of Nanostructured Materials,
ISMN-CNR

Monday, 14 September 2026

SESSION I

N01

- 9:15 Welcome Remarks and Introduction to the SymposiumValentina TROVATO
- 9:45 Copper-Containing Organic–Inorganic Coatings for High-Performance Antibacterial Cellulose-Based Textiles
Valentina TROVATO 1484
- 10:00 Chitosan-Mediated In Situ Silver Nanoparticles for Durable Antibacterial Cotton Finishing
Agnese D'AGOSTINO 799
- 10:30 Coffee break

SESSION II

N02

- 11:30 Antibacterial properties of cysteine-S-sulfonated wool keratin
Serena FACCHIANO 985
- 11:45 Evaluating natural organic acids for antibacterial bio-based textile finishing
Alessio VARESANO 162
- 12:30 Lunch

SESSION III

N03

- 14:30 Long-Term Stability of WS₂-Coated Textile-based Triboelectric Sensors for Self-Powered Sweat Detection
Mashael ALBUQAMI 2340
- 14:45 Development of pH-Responsive PVA/HPC/SA Double-Network Hydrogels Incorporating Bromothymol Blue and Halloysite Nanotubes for Environmental Monitoring
Alessia MASTROLEMBO VENTURA 3068
- 15:00 Tailoring Clay-Based Colorimetric Coatings for Smart Textiles and Environmental Applications
Elisabetta SCALONE 3008

- 15:15

Zero-Waste Engineering of Geopolymer and Carbonate Fillers from Industrial By-products for CO₂-Capturing Bio-based Textile Coatings
Annarita BORGOSANO

3069
- 15:30

Coffee break

Tuesday, 15 September 2026

		SESSION V	N05
9:15	Nanocellulose and chitin recovery from waste materials using Deep Eutectic Solvents (DES) Mauro CARRARO		3328
9:45	Electrospun wool keratin-based scaffolds undergoing gold deposition as promising biomaterials for bone tissue applications Marta PICCIONI		461
10:00	Green Antimicrobial Nanofibers (ANF) Filters for the Capture and Inactivation of Bacterial and Viral Pathogens Ogechukwu Vincentia EZEH		47
10:30	Coffee break		

		SESSION VI	N06
11:30	Next-Generation Smart Textiles Enabled by Sol-Gel Engineered IPN Coatings: Synergistic Integration of Carbon-based Nanomaterials and Renewable Derivatives Giulia RANDO		2985
11:45	Design and Optimization of Lightweight Shock-Absorbing Structures for Textile Applications Alaeddine ZEREG		414
12:00	Soil biodegradation of finished fabrics: from lab-scale studies to a real environment Maria Laura TUMMINO		364
12:30	Lunch		



Symposium Sponsor

Symposium O

Sessions: Room 231 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

BIOINSPIRED AND BIOMATERIALS

JOINT SYMPOSIUM E-MRS/FEMS ON BIOMATERIALS

Symposium organizers:

Aldo R. BOCCACCINI
(Main Organizer)

Anke WEIDENKAFF

Joao MANO

Wojciech ŚWIĘSZKOWSKI

– University of Erlangen-Nuremberg

– Technical University of Darmstadt

– University of Aveiro

– Warsaw University of Technology

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

SESSION 9 O09

- | | | |
|-------|--|------|
| 14:00 | From Scaffolds to Solutions: Multifunctional Biomaterials for Bone and Osteochondral Regeneration
Elżbieta PAMUŁA | 2784 |
| 14:30 | Printing-Speed-Dependent Transition Length in Multimaterial Hydrogel Direct Ink Writing
Zhichang LI | 1400 |
| 14:45 | Formulation and Evaluation of a Plant-Derived Bioadhesive Hydrogel for Enhanced Oral Wound Healing in Wistar Albino Rats
Sudip Prasad JENA | 1541 |
| 15:00 | Comparative study of hydrogel matrices loaded with anticancer drugs of different generations for potential use as a local theranostics delivery system in biomedicine
Rafal J. WIGLUSZ | 2335 |
| 15:15 | Physicochemical Framework for Rational Design and Engineering of Advanced Tissue-Clearing Hydrogels
Juhyuk PARK | 1000 |
| 15:30 | Coffee break | |

SESSION 10 O10

- | | | |
|-------|--|------|
| 16:00 | Teaching Proteins What to Recognize: BioMIPs as a New Generation of Molecularly Intelligent Biomaterials
Alessandra Maria BOSSI | 2744 |
| 16:30 | Field Evaluation of Antimicrobial Nanofibers (ANF) Filters for Pathogen Mitigation in Special Care Facility
Ogechukwu Vincentia EZEH | 48 |
| 16:45 | A Fully Implantable Dual-Phoretic Drug Delivery System with Directionally Controlled Release
Sung-Geun CHOI | 600 |

17:00	Injectable Thermoresponsive Chitosan- γ -Glycerophosphate Hydrogels for Magnetic Hyperthermia and pH-Responsive Drug Delivery Sreeja NATH CHOWDHURY	1692
17:15	Towards Smart Magnetic Zeolites for Responsive Drug Delivery Jakub MATUSIAK	1939

SESSION 11 O11

9:00	Probing Function with Designing Structure: Instructive Scaffolds for Tissue Regeneration Lorenzo MORONI	3293
9:30	Effect of Bouligand Architecture on the Isotropic Behaviour of 3D-Printed PLA Md Abdullah Al BARI	955
9:45	Preparation and characterization of polymeric modular scaffold for developmental engineering Muhammad Ahsan Zaheer MIR	2332
10:00	Bio-Inspired Load-Adaptive Stochastic Lattices with Porosity-Constrained Reinforcement Ammar ALSHEGHRI	228
10:15	Bioactive Glasses for Ionic Medicine Aldo R. BOCCACCINI	2761
10:30	Coffee break	

SESSION 12 O12

11:00	Development of tuneable nanocrystalline hydroxyapatite with beyond present limits and its veterinary applications Witold LOJKOWSKI	3311
11:30	Designer Sticker-Spacer Peptides for Coacervate Formation: Biomedical Applications Manzar ABBAS	111
11:45	A Biocompatible Low-Power NIR-Activated Ag ₂ S Dispersed g-C ₃ N ₄ Sheet as a Photothermal Therapy Platform for Antimicrobial Resistance Tapan Kumar PANDA	1562

12:00	Structure-Property-Function Relationships in Electrospun Cellulose Acetate/Multilayer Ti_C_T_ MXene/Phenytoin Networks for Chronic Diabetic Wound Healing Shimrit ELIMELEH	2780
12:15	Influence of Calcination Temperature and Residence Time on Phase Evolution in Calcium-Rich Biomaterials Derived from Mixed Crab Shell Waste V PAREDES	3303
12:30	Lunch	

POSTER SESSION IV OP04

16:00	Sprayable Silk Fibroin-MXene Hydrogel Platform with Visible-Light Crosslinking for Chronic Wound Healing Cheol-Min HAN	01_107
16:00	Biosynthesized iron oxide nanoparticles using Trichoderma harzianum with applications for phytopathogen control Erika ARMENTA JAIME	02_1110
16:00	Design and Characterization of Gallium-Functionalized Hydroxyapatite/Calcium Carbonate Scaffolds for Osteoclast Modulation Morena NOCCHETTI	03_1175
16:00	When Interfaces Matter: Interfacial Engineering of Zn- and Cu-decorated Hydroxyapatite Composites for Oral and Implant Applications Anna DONNADIO	04_1178
16:00	Graphene oxide functionalization of hydroxyapatite-based bioceramics for biomedical applications Olena SYCH	05_1317
16:00	ROS-Modulating Mineralized ZnO_ Nanoparticles as Oxidative Stress Amplifying Agents for Cancer Therapy Ji Yoon SON	06_1391
16:00	Sustained release of interleukins (IL) and matrix metalloproteinase (MMP) inhibitors for chronic wound healing Ch Sairam CHOUDHURY	07_1452
16:00	Effect of Copper Incorporation and Voltage on the Properties of Ca/P/Si-Based MAO Coatings on Pure Titanium Wiktor DRAGAN	08_1490
16:00	In-vitro evaluation of the role of mesenchymal stem cells (MSCs) in the management of reactive astrogliosis in spinal cord injury Muskan SHARMA	09_1526

16:00	Calcium-exchanged zeolite-based materials as potential rosuvastatin carriers for biomedical applications Adrianna KACZMARSKA-KRÓL	10_1965
16:00	In- vitro model of neuromuscular junction on chip for assessment of peripheral neuropathy Muskan SHARMA	11_2178
16:00	Engineered Heparinized GQDS/HPEI-Polyamide Membrane for Bilirubin Removal via One Step Anti Coagulation Abdur Rehman Mushtaq AHMAD	12_2316
16:00	Biopolymer-Based CMC/Gelatin Aerogels as Sustained-Release Carriers for Oral Urea Delivery Manop CHAROENCHAITRAKOOL	13_249
16:00	Engineering Multifunctional Bilayer Electrospun Meshes for Simultaneous Tendon Healing and Prevention of Peritendinous Adhesions Komal JOSHI	14_2956
16:00	3D bioprinted hierarchical and functional bone tissue model as a tool to study bone metastasis Łukasz LUŚTYK	15_3082
16:00	Natural-based sodium alginate/biogenic hydroxyapatite composite granules for biomedical applications Yurii SAMCHENKO	16_3156
16:00	Machine-Learning-Assisted Prediction and Experimental Validation of Ti-6Al-4V Corrosion in Simulated Inflammatory Media Aydin BORDBAR-KHIABANI	17_3187
16:00	Cissus Quadragilaris extract incorporated biocompatible, injectable hydrogel loaded scaffold for bone defect regeneration Dibyanshu LAHIRI	18_451



Symposium Sponsor



Symposium P

Sessions: Room 231 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

NANO AND SMART MATERIALS

METAL OXIDE NANOMATERIALS FOR ADVANCED OPTOELECTRONICS AND ENVIRONMENTAL APPLICATIONS II

Symposium organizers:

Cyprian MIESZCZYNSKI

David HORWAT

Giuliana IMPELLIZZERI
(Main Organizer)

Slawomir PRUCNAL

– National Centre for Nuclear Research

– Université de Lorraine, CNRS

– Italian National Research Council - CNR

– Institute of Ion Beam Physics and Materials Research

Monday, 14 September 2026

9:45 Welcome

MATERIALS I P01

10:00 Defect Engineering in Ga₂O₃ by Ion Implantation and Irradiation 2355
Marco Antonio BAPTISTA PERES

10:30 Coffee break

MATERIALS I P02

11:00 Ion-beam-induced nanostructuring in metastable Ga₂O₃ polymorphs 917
Alexander AZAROV

11:30 Radiation resistance of α -Ga₂O₃ tested with Yb and Xe ion implantation 2188
Joanna MATULEWICZ

11:45 Facile Electrochemical Anodization for Immobilized ZnO Nanostructures 138
Gauri SANTHOSHKUMAR SREEDEVI

12:00 In Situ STEM Investigation of Single Metal Atom Decorated 1D Lepidocrocite Titania Nanofilaments for Photocatalysis 1833
Risha IYTHICHANDA

12:15 Ambient-Pressure Electrochemical Synthesis of 2D Plate-like ZnO Films via Substrate-Dissolution-Assisted Growth for Advanced Device Applications 604
Takuma YAMADA

12:30 Lunch

METAL OXIDES FOR ENERGY AND ENVIRONMENT I P03

14:00 Composite oxide nano-systems for energy harvesting 3297
Alberto VOMIERO

14:30 Enhanced BiVO₄ photoelectrochemical activity via the synergistic combination of three distinct approaches 1134
Letizia PIFFANELLI

14:45	Designing TiO2/Ni as protective layer and efficient hole transport layer for n-GaAs photo anodes Saai Eisake Ram MURUGESAN	1466
15:15	A Sputtered Gig-Lox TiO2 Sponge Integrated with CsPbI3:Eul2 for Semitransparent Perovskite Solar Cells Emanuele SMECCA	1035
15:30	Coffee break	

MATERIALS II

P04

16:00	Defects and strain engineering in doped wide-bandgap oxides Elzbieta GUZIEWICZ	1977
16:30	Phase Transformation and Determination of Self-dopant in Black-Zn_/ZnO via Surface and Structural Metamorphosis Sanjay Gopal ULLATTIL	1584
16:45	Nanoscale Surface Photovoltage in ferroelectric photocatalysts Astita DUBEY	656
17:00	Correlating interfacial electronic and topographical properties of ZnO/ZnPcFx(0-16) _heterojunctions and their direct impact on the diode performance Sakineh AKBARI NIA	1850

Tuesday, 15 September 2026

METAL OXIDES FOR ENERGY AND ENVIRONMENT II

P05

9:00	Tailoring Multifunctional Metal Oxide Nanostructures for Sustainable Environmental and Energy Technologies: From Materials Design to Scalable Manufacturing Maria Lucia CURRI	575
9:30	3D Printed Metal-Oxide Scaffolds for Photocatalytic Water Treatment and H2 Production Maibelin ROSALES VERA	2235

10:00	Roles of Ligand-Field and Charge-Transfer Excitations in Governing Photocarrier Yields in Open d-shell Metal-Oxide Photoabsorbers Daniel GRAVE	3215
10:30	Coffee break	

PHOTOCATALYSIS FOR WATER TREATMENT I **P06**

11:00	MW plasma surface modification towards a porous black titania photocatalyst; solar driven degradation of acetaminophen Miguel MANSO SILVAN	1022
11:30	Electro-sprayed PMMA/TiO ₂ -carbon black nanocomposite as photocatalytic films for water remediation Vincenzo Manuel MARZULLO	2638
11:45	Light-Driven γ -Fe ₂ O ₃ /Au Janus Micro- and nanorobots as active photocatalytic oxide platforms for self-assembly and Microplastic Capture Domenico CALABRO	1017
12:00	Sunlight-Responsive Zr-Bi-Oxide based Membrane: Green synthesis, Kinetics, Micropollutant Removal Mechanisms Ambika SELVARAJ	32

ALD OF METAL OXIDES **P07**

14:00	Spatial Atomic Layer Deposition (SALD): challenges and opportunities for open-air printing of functional materials David MUNOZ-ROJAS	2662
14:30	Single-Step Open-Air Combinatorial Growth of Multifunctional Metal-Oxide Thin Films by Spatial Atomic Layer Deposition Ahmed SHAHIN	2965
14:45	Low-temperature ALD-based HfO ₂ for spintronic and sensing applications: chemical, physical, and electrical characterization Alessandro CATALDO	1578
15:00	Optimization of Nb ₂ O ₅ Thin Films by Atomic Layer Deposition for MIM Capacitor Parameshwari GANESAN	1198

15:15	Nucleation and early growth of Al ₂ O ₃ on p-type quasi-free-standing graphene on silicon carbide: Influence of ALD process chemistry Karolina PIETAK-JURCZAK	379
15:30	Coffee break	-

PHOTOCATALYSIS FOR WATER TREATMENT II

P08

16:00	TiO ₂ Nanostructures for Wastewater Remediation Massimo ZIMBONE	789
16:30	Photocatalytic efficacy of Ce and Sm doped TiO ₂ nanoparticles toward the degradation of Crystal Violet dye in wastewater Barkha SHARMA	74
16:45	Bio-Inspired Leaf-Derived Lignocellulosic Scaffolds Functionalized with Semiconductor Nanostructures for Efficient Photo-electrocatalytic Degradation of Micropollutants Raziyeh ZANDIPAK	2723
17:00	Structure and Property Modulation in Ce-Doped Fe ₃ (MoO ₄) ₂ for Enhanced Photocatalytic Nitrate-to-Ammonia Conversion Laura LÍBERO	1229

Wednesday, 16 September 2026

9:00	PLENARY SESSION
12:30	Lunch

METAL OXIDES FOR ENERGY AND ENVIRONMENT III

P09

14:00	Perspectives, Advantages, and Limitations of Vanadium Oxides for Batteries, Energy Storage Applications, Gas Sensors and Electrochromic Devices M. Olga GUERRERO-PEREZ	360
14:30	ZnO-based Engineered Nanostructures for Supercapacitor Applications Vincenzina STRANO	786

14:45	Magnesium Hydroxide: Pure Performance, Zero Carbonate - Enabling Longevity in Zinc Oxide Electrodes with Alkaline Earth Additives Timothy LAMBERT	2772
15:00	Synthesis and Characterization of TiO2 Thin Films via Thermal Oxidation of E-Beam Deposited Ti for Resistive Gas Sensing Amrutha MUDUNDI	1119
15:15	Morphology Engineered WO3 Thin Films for Enhanced Efficiencies of Electrochromic Devices Thanka RAJAN	1093
15:30	Coffee break	

METAL OXIDES FOR ENERGY AND ENVIRONMENT IV
 P10

16:00	Transition metal oxide/hydroxide coatings for (photo)-electrocatalytic biomass valorization Philippe VERNOUX	1436
16:30	From Screening of Tropical Plant Species to Nanomaterial-Enhanced Phytoremediation of Cd Yamin WANG	578
16:45	Dual-Spectral Design of Porous Anodic Alumina for Tunable Colored Passive Radiative Cooling Zeinelabdein A. MOHAMED	148
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

METAL OXIDES FOR ENERGY
 P11

9:00	WO3 based nanomaterials as key players in the field of energy Aline ROUGIER	3299
9:30	Trivalent europium ion doped WO3/WS2 semiconductor heterostructure interface for efficient hydrogen evolution reaction under acidic and alkaline dual conditions Namrata PACHAURI	69

9:45	Nanoengineered NiO/ZnO heterostructures integrated WS2 nanostructures as a bifunctional catalyst for Water/ Seawater splitting applications Deepak DEEPAK	1839
10:00	Cr-Doped γ -MnO ₂ Nanourchins as an Efficient Bifunctional Catalyst for Alkaline Water Splitting and AEM electrolysis Tanuja SINGH	776
10:30	Coffee break	

METAL OXIDES: LUMINESCENCE AND APPLICATIONS

P12

11:00	Tunable Wide-Bandgap CdMgO for Rare-Earth Luminescence: From Layers to Nanostructures Ewa PRZEZDZIECKA	366
11:30	Sub-1-ms Optoelectronic Synapse based on Multilayer ZnCdO Alloy for High-Speed Neuromorphic Vision Systems Igor PERLIKOWSKI	471
11:45	Towards Invisibility of Nanopatterned Transparent Flexible Electrodes Aleksandra PAJAK	232
12:00	Enhancement of Electrical Performance in Magnetron-Sputtered (Ti, Al)-co-doped ZnO Films by Flash-Lamp Annealing Guoxiu ZHANG	2063
12:15	Advanced optical modeling of high-mobility amorphous indium zinc oxide thin films grown by different sputtering routes Luis Alonso ENRIQUE	2399
12:30	Lunch	

POSTER SESSION

PP04

16:00	Gamma irradiation-induced controlled defective V ₂ O ₅ film for the application of photoelectrochemical water splitting Deepali DEEPALI	01_1074
16:00	Titanium-supported γ -Fe ₂ O ₃ photoanodes for solar water splitting Anna IANNIELLO	02_1089

- 16:00 Degradation or Adsorption? Revisiting Organic Dye Removal by Two Morphologies of InVO₄ 03_1153
Hassan ESMAILI
- 16:00 Annealing Atmosphere Engineering of ZnO Nanoparticles for Enhanced Light Activated Ozone Sensing at Room Temperature 04_1252
Mayron CASTRO
- 16:00 Hydrodynamic Flux-Driven Morphology Control of IrO₂ Nanostructures for Enhanced Interfacial Charge Storage 05_1279
Eunbin JUNG
- 16:00 Nb-Substituted Perovskite Nanofibers via Electrospinning: Tuning Ir–O Electronic Structure for Enhanced Acidic Oxygen Evolution 06_1280
Dawon YANG
- 16:00 Engineering Grass-Like Cobalt Oxide Nanoarrays on Carbon Cloth for High-Performance Binder-Free Flexible Electrochemical Sensors 07_1389
Ganesh PATTAN SIDDAPPA
- 16:00 Synergistic CuO₂/GO and MnO₂/GO Core–Shell Nanostructures for High-Performance Asymmetric Supercapacitors 08_1453
Muhammad Saleem AKHTAR
- 16:00 Waste-Derived Magnetic MOF/Cellulose Acetate Composite Filter for Microplastic Removal 09_147
Jooran KIM
- 16:00 Enhanced Photocatalytic Hydrogen Production Using Vanadium-Doped Niobate Nanosheets 10_1516
Tugrul AVCU
- 16:00 Interfacial Charge-Transfer Mechanisms in Graphene/PtNPs/STO_{1-x} Photoelectrodes for Photoelectrochemical Water Splitting 11_1672
Yoonseon JOO
- 16:00 XPS study of photocorrosion-resistant ZnO nanowires grown on Cu wool 12_1771
Slawomir PRUCNAL
- 16:00 Advanced characterisation of metal oxide nanomaterials with soft X-rays 13_1809
Tim A. BUTCHER
- 16:00 Process-Dependent Optoelectronic Properties of In₂O₃ and ZnO Co-Sputtered Transparent Conductive Oxide Films for Advanced Display Electrodes 14_1829
Min-Seo KIM
- 16:00 Influence of the Wurtzite-to-Cubic Transition on Eu²⁺ Emission and Thermal Stability in Zn_{1-x}Mg_xO MBE layers 15_1966
Ewa PRZEZDZIECKA

16:00	Multilayer Sol-Gel Fabrication of Rare-Earth-Doped Al ₂ O ₃ Thin Films with Tunable Optical Properties Arshal JOSEPH	16_1985
16:00	ALD deposition of CuO _x thin films Aleksandra FIGURA-JAGODA	17_2041
16:00	Transparent Selective contact on silicon base on transition metal oxides, for photovoltaics applications Armand LOMBARDOT	18_2095
16:00	Dual-functional applications of highly efficient (CuO:TiO ₂ :ZnO)/g-C ₃ N ₄ nanocomposites in photocatalytic and gas sensing using hydrothermal technique Kamna SHARMA	19_2240
16:00	Rare-Earth-Engineered γ -Ga ₂ O ₃ for Enhanced γ - γ Discrimination in Scintillation Detectors Abdellah BACHIRI	20_2288
16:00	Tuning the Crystallization of Sputtered Ga ₂ O ₃ Thin Films through Advanced Annealing Sebastian OKRASA	21_2343
16:00	Engineering Multifunctional WO ₃ Thin Films through Electrodeposition for Electrochromic and Photoelectrochemical Applications Gamze ATAŞ	22_2560
16:00	Architecture-Dependent Gas Sensing Performance of CuO-ZnO Heterostructures: From Bilayer to Core-Shell Nanowire Configuration Joanna RYMARCZYK	24_2673
16:00	Co-Substituted CaFe _{1-x} Co _x O ₃ Nanoarchitectures: Mesophase-Derived Thin Films for Stable OER Sara SAMUELI	25_2676
16:00	Next Generation Nanomaterials Embedded Hybrid Membranes for Advancements in Water Treatment and Critical Minerals Recovery Ambika SELVARAJ	26_27
16:00	Controlled Growth of Morphologically Diverse ZnO Micro/Nanostructures: Optical and Photocatalytic Insights Liliia MYRONIUK	27_2753
16:00	Agricultural and Plastic Waste-based NanoBiochar-Metal Oxide Composites for Removal of Hexavalent Chromium and 2,4-D from Contaminated Water Ambika SELVARAJ	29_29
16:00	Spillover effect in Pd anchored NiO-ZnO nanostructures improves hydrogen gas sensor's performance Suraj BARALA	30_2940

- 16:00 Fluffy Pine Needle Nanostructured Copper Oxides with Solid-Liquid-gas Interfaces for Self-Oxygen-Enriching Photoelectrocatalysis 31_2970
Kayoung KIM
- 16:00 Sunlight Based Photocatalytic Membrane For The Treatment Of Micropollutants - A Horizon To Fouling-Free Membranes 32_30
Ambika SELVARAJ
- 16:00 Ligand-Engineered Stretchable Metal Oxide Transistors Using Styrene-Functionalized π -Diketone Ligands 33_305
Hyo Min AHN
- 16:00 Defect Regulated Carrier Mobility Correlation with Rhodamine B Photodegradation in Transition Metal co-doped Vanadium Pentoxide (V₂O₅) 34_3080
Akanksha MALIK
- 16:00 Understanding the Origin of Enhanced Charge Separation in Co₃O₄/g-C₃N₄/rGO Photoelectrodes: A Comparative Study with NiO/g-C₃N₄/rGO for Photoelectrochemical Water Splitting 35_3093
Saheli KARMAKAR
- 16:00 Eco-friendly development of ZnO-based biopolymer (chitosan)-carbon nanocomposites for enhanced photocatalytic and antibacterial activity as a tri-nanocomposite 37_338
Rajat SINGH
- 16:00 Magnetically recyclable phyto-genic MBC-ZnO nanocomposite for sustainable environmental cleanup 38_340
Yogendra PAL SINGH
- 16:00 Microwave-assisted hydrothermal synthesis of CeO₂/ZnO heterostructures for environmental remediation 39_36
Francisco Pereira CARVALHO JUNIOR
- 16:00 Fabrication of Structurally Reinforced ZnO/Ag Composite Dendrites via Electrodeposition for Photocatalytic Applications 40_467
Kohei ONO
- 16:00 Impact of Chiral Functionalization on the Photo-Fenton Activity of Fe₃O₄ Nanoparticles 41_502
Zuzanna LUKASIEWICZ
- 16:00 Toward Superior Water Splitting: Parameter-Driven Optimization of Magnetron Co-Sputtered CuFeO₂ thin films 42_565
Elias Assayehegn GEBREHIWOT
- 16:00 Microwave-assisted synthesis of metal phyllosilicates and the subsequent conversion to metal silicide-based nanomaterials. 43_579
Jonathan VEINOT

16:00	Rapid Synthesis of Sn-ZnS/ZnO Electrochemically-Induced Hierarchical Structures via Zinc Powder Riria KOBAYASHI	44_606
16:00	In situ reconstruction strategy for directional synthesis of catalysts for CO2 resource utilization Tingting CHEN	45_662
16:00	Rational Design of TiO ₂ /g-C ₃ N ₄ composites for Enhanced Photocatalytic Degradation of Methylene Blue in Wastewater Asif Yousuf DIGOO	46_72
16:00	Hydrogen-Doped In ₂ O ₃ (In ₂ O ₃ :H) for Interface-Free Monolithic Thin-Film Transistors Ye-Jin SHIM	47_76
16:00	Effect of fluorination on Li percolation channels in Mn based cation-disordered rock salt cathodes Junyoung LEE	48_808
16:00	Compositional Engineering of Mn-Based Cation-Disordered Rocksalt Cathodes Hyeonji JEONG	49_811
16:00	Heterostructures for advancing properties of p-type TCOs: Nanolaminates of Sulfur-treated Cu ₂ O thin films Theo BOLGER	51_948



Symposium Sponsor

Symposium Q

Sessions: Room 219 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

NANO AND SMART MATERIALS

SYNTHESIS AND CHARACTERIZATION OF FUNCTIONAL NANOCOMPOSITE MATERIALS

Symposium organizers:

Lukasz **MARCINIAK**

– Polish Academy of Sciences

Raghvendra Singh **YADAV**
(Main Organizer)

– Tomas Bata University in Zlin

Salvatore **PETRALIA**

– University of Catania

Monday, 14 September 2026

OPTOELECTRONICS NANOCOMPOSITES

Q01

9:00	Functional Interfacial Layers and Encapsulation Strategies for Stable Mixed-Halide Perovskite Solar Cells Neda NEYKOVA	2043
9:30	MOF-polymer composites for solar-assisted atmospheric water harvesting Alessandro SINOPOLI	1315
9:45	Photoluminescence Enhancement in CdSe/CdS Quantum Dot Colloidal Films Induced by Gold Nanoparticles (AuNPs) Maoz MAOZ	1844
10:00	Solution-processed In ₂ S ₃ Nanoparticles for Thin-film Photovoltaic Application Selina KERN	2910
10:15	Expanding Synthetic Control in Silicon Nanocrystals: Achieving Faceted Growth and Broad Size Tunability within an Oxide Matrix Jonathan VEINOT	1655
10:30	Coffee break	

NANOCOMPOSITES FOR ELECTRONICS

Q02

11:00	Electrofluids: liquid composites as stretchable electronic components Lola GONZALEZ-GARCIA	130
11:30	Development of CuO-ZnO-Based Rectifying Junctions for Advanced Electronic Applications Maruthi MALA	167
11:45	Enhancing Average Thermoelectric Performance of p-Type Bi-Sb-Te Alloys Through Sequential Defect and Compositional Engineering Kim WOOJAE	1187
12:00	Zeolitic Imidazolate Framework (ZIF-8)/MXene Reinforced Flexible Nanocomposites for Efficient Mechanical Energy Harvesting and Self-Powered Flexible Electronics Shewli PRATI HAR	1862

12:15	Borophene-Puckered Graphene Quantum Sheets-based Electronic Devices Dr. Shailendra KUMAR	352
12:30	Lunch	

NANOCOMPOSITES FOR CATALYST Q03

14:00	Flow Synthesis of High-Entropy Nanomaterials and their Catalytic Properties Kohei KUSADA	1894
14:45	Room-Temperature Synthesis and Phase Transformations of Zn/Co-Based Microstructures on 3D Tetrapodal ZnO Networks Jan-Ole STERN	2666
15:00	Photocatalytic activity of silicon nanowires decorated with tin sulfide (SnS) nanoparticles Pravesh NEGI	1406
15:15	Interfacial Built-In Electric Field at p-n Junction in Bi ₂ Sn ₂ O ₇ /InVO ₄ for Efficient Photocatalytic Degradation and Electrocatalytic HER. Shashikant SHASHIKANT	1624
15:30	Coffee break	

ELECTROCATALYST NANOCOMPOSITES Q04

16:00	Advanced Electrocatalysts for Green Hydrogen and Ammonia Synthesis Sanjay MATHUR	1445
16:30	Real-time elemental tracking of electrocatalysts during electrolysis using operando ion beam analysis Mathayan VAIRAVEL	459
17:00	Thickness-controlled PE-ALD nickel nanostructured thin films for alkaline hydrogen evolution Petru LUNCA POPA	1733
17:15	Hexagonal ZnIn ₂ S ₄ activated by OD Au nanoparticles for efficient hydrogen production Viktoriia BEREZENKO	2659

Tuesday, 15 September 2026

SENSING NANOCOMPOSITES

Q05

9:30	Tailoring Boron Nitride Nanostructures - Nanosheets, Quantum dot Hybrid and Composites- as a Scalable Family of Metal-Free Electrochemical Sensors for Pollutants and Biomolecules Dhrishya VIJAYANANADAN	2448
9:45	Fully Screen-Printed TPU/PEG400/BaTiO ₃ Nanocomposite Capacitive Pressure Sensor Array Serdar GULER	2450
10:00	Synergistic Ti ₃ C ₂ Tx@VS ₂ Composite Electrode for Sensitive and Selective Electrochemical Detection of Lead Ions Jai MISHRA	2510
10:15	Giant voltage generation in robust, self-healing elastomeric nanocomposites for effluents energy harvesting, sensing, and electromagnetic radiation shielding Shovan BISWAS	1415
10:30	Coffee break	

NANOCOMPOSITES FOR BIOSENSOR

Q06

11:00	Ultrasensitive and Sustainable Biosensing with Gold Nanoclusters: From Solution to Solid State Platforms Regina Maria CHIECHIO	94
11:30	Protein-driven in situ photochemical preparation of red-emissive silver and gold ultrasmall nanoclusters for direct ultrasensitive IL-6 recognition Ester BUTERA	1050
11:45	Ultrasmall and Emissive Silver and Gold Nanoclusters a Potential Nanosystem for Antigen and miRNA Recognition Ester BUTERA	1444
12:00	Zinc Oxide Tetrapods: From Lab To Market Hira ABDULLAH	1856
12:15	Preparation and Testing of Portable Cerium Oxide Based Devices for ROS Sensing Rachel BREEN	2532
12:30	Lunch	

NANOCOMPOSITES FOR HEALTHCARE

Q07

14:00	Polymer-Copper Oxide Nanocomposites: Design, Synthesis, and Controlled Release Iris Sonia WEITZ	2161
14:30	GABA and Taurine derived nanocoating for enhanced cells anti-adhesion effect Giorgia FANGANO	2050
14:45	Photochemical preparation of Ultra-small and Emissive Pd- nanoclusters for specific miRNA recognition. Ludovica MAUGERI	2151
15:00	A water-soluble carboxylated prismarene derivative as photoluminescent sensor for the specific detection of phenylalanine in real blood samples Giorgia FANGANO	2175
15:15	Carbon Nanodot-GelMa nanocomposite as Cell-Supportive Scaffold for Spinal Cord Injury Repair Manini BHATT	124
15:30	Coffee break	

POSTER SESSION II

QP02

16:00	Ge-core Si3N4/Al shell quantum dots in alumina: optimization of opto-electronic and thermosensitive properties Kripesh KAMBIKKATHU VETIL	01_110
16:00	Reactive Nanocasting as a Route to Rare-Earth Silicate Nanoscentillators for X-ray Photodynamic Therapy Rowan SCHOKKAERT	02_1116
16:00	3D cryogel filters as colorimetric indicators of mercury and simultaneous wastewater remediation Despina FRAGOULI	03_1146
16:00	Carbon Nanodot-GelMa nanocomposite as Cell-Supportive Scaffold for Spinal Cord Injury Repair Manini BHATT	04_125
16:00	Thermal oxidation of monolayer-thin two-dimensional WS2 crystals for area-selective deposition of Al2O3 Nader HOZAIEN	05_1338

16:00	A green light triggered Boron Nitride Quantum Dots nanosystem for photodynamic, photothermal and Nitric-peroxide photorelease for multimodal anti-cancer treatment Corinna LOMBARDO	06_1345
16:00	Optimization of Carbonization Temperature for Hard Carbon Production from a Petro-chemical Residue Md Abdullah Al BARI	07_139
16:00	Cobalt Zinc Ferrite Sensor for Anagrelide Detection in Biological Samples Hryhoryj RYMSKI	08_141
16:00	Acid-Induced Increase in the Electroactive Surface Area of Zn _{1-x} Mn ₂ O ₄ Spinel: A Determining Factor for the Capacity of Zinc-Ion Batteries Mikhail BUNEVICH	09_142
16:00	Electroactive Porous Transport Layers as a New Design Lever for Green Hydrogen Production: From Water Oxidation to Glucose Oxidation Dimitrios ZAGORAIO	10_1437
16:00	Gold Nanoparticles In Ionic Liquids Marcin LIBERA	11_1557
16:00	MOF gardens: from spatiotemporal reaction-diffusion to self-assembled MOF tubules Jan PACZESNY	12_1576
16:00	Enhanced Mechanical Performance, Antimicrobial Potential, and Preclinical Evaluation of Multifunctional PS-PMMA/Ag-RGO Bone Cement Edreese ALSHARAEH	13_1590
16:00	Filler-Engineered Superabsorbent Hydrogels for Enhanced Water Retention in Sandy Soil Edreese ALSHARAEH	14_1595
16:00	Investigation of the Hierarchical Structure of Silk Fibroin and its Effects on Dynamic Mechanical Behavior Aysima PARLAK	15_1597
16:00	Engineering PAN-PEG photocatalytic membranes with nickel rich ZnIn ₂ S ₄ for visible-light water splitting Andres GALDAMEZ MARTINEZ	16_160
16:00	Sustainable Carbon Black from Plasma Pyrolysis of Plastic Waste as Alternative Nanofillers for Elastomer Composites Siham EZ-ZAHRAOUI	17_1600
16:00	Structural Evolution of Mesoporous Magnesium Aluminates with Platinum Single Atoms and Nanoclusters for Thermal Hydrogenation Catalysis Qihang CHEN	18_1682

- 16:00 Atomic/Molecular Layer Deposition of VS₂ ultra-thin films for electrical contacts on 2D MoS₂-based devices 19_180
Gabriel PRADO DA SILVA
- 16:00 Mesocrystal-Inspired Ordered and Cytocompatible TiO₂-Fe₂O₃ Heterostructures for Microplastic and Antibiotic Photodegradation 20_1843
Anjali VALADI PALLIYALIL
- 16:00 Study of antibacterial functional moisture barrier film based on Zn-Si composite oxide deposited by Plasma-Enhanced Atomic Layer Deposition system 21_206
Tae Yeon CHO
- 16:00 Functional Nanocomposite Aeromaterials for Electrically Powered Vacuum Generation: From Template Synthesis to Device Performance 22_2135
Roman KURBERG
- 16:00 Optimization of silane-functionalized CeO₂ and LDH nanofillers for enhanced weather resistance and gas barrier performance of TPU nanocomposite films 23_2221
Shuchita TOMAR
- 16:00 "Revealing Room-Temperature Ferromagnetism in Low Dimensional Tellurium Films: Role of Vacancies and Strain from Experiment and First-Principles Calculations" 24_2268
Upasana BORDOLOI
- 16:00 Analysis of the Microstructural Changes of Crankshaft Steel After Being Exposed to the Boriding Surface Hardening Process 25_230
Diego HERNÁNDEZ-DOMÍNGUEZ
- 16:00 Characterization, Fabrication and Application of Aluminium doped Fresh Water Snail Shell Biochars for Efficient Fluoride Removal. 26_24
Otieno WINSTONE
- 16:00 Tetrapod ZnO and Co-Ni as Structurally Distinct Pt-Based Electrocatalysts: A Comparison Study of HER Performance 27_2433
Shivalingayya GADDIMATH
- 16:00 Multifunctional Silica-Based Nanocomposite Aerogels with Thermal Insulation, Flame Retardancy, and Smoke Suppression via Phosphorus-Aluminum Synergistic Interactions 28_2565
Chao MA
- 16:00 Interfacial Engineering of 0D/2D Nitrogen-Doped Ti₃C₂ MXene Quantum Dots/MoSe₂ Heterostructure for Enhanced Charge Storage in Aqueous Supercapacitors 29_257
Ruchi AGARWALLA
- 16:00 Coating of Adhesion Enhancing Thin Primer Layers by Atmospheric Pressure Plasma-Induced Polymerization 30_2579
Anuja DAS
- 16:00 Critical Nucleation during Photo-Induced Crystal Formation of Tungsten Oxide Hydrate 31_268
Hsueh-I LIN

16:00	Design and Development of Hydrophobic Deep Eutectic-based Functional Nanocomposite Systems for Efficient Selective Lithium Extraction Ambika SELVARAJ	32_28
16:00	Gadolinia Films via the Anodizing of Gd and Gd-Al Metal Layers Andrei PLIGOVKA	33_284
16:00	Microstructural Material Modification of Electrochemical Sensors for Sustainable Water-Quality Monitoring Sohini KAR-NARAYAN	34_3050
16:00	Reaction–Diffusion-Driven Growth of Metal–Organic Framework Structures Natalia SZCZEPAŃSKA	35_3051
16:00	Monolayer, bi-layer MoS2 and one dimensional ZnO fabricated for different applications Jai SINGH	36_3062
16:00	High Strength Nanocomposite Soft Gels for Cartilage Regeneration Shikha AWASTHI	37_3073
16:00	Structural characterization of Iron-enriched Nanocalcite for Cultural Heritage Preservation Guilherme CONCAS	38_335
16:00	Mechanochemically Engineered 2D-Derived Electrocatalysts for Vanadium and Hybrid Organic–Inorganic Redox Flow Batteries Olga KOZARENKO	39_369
16:00	Humidity-Driven Expansion and Kinematic Response of Gold Nanoparticle Micro-Pillars Fabricated by One-Step Meniscus-Guided 3D Printing Seong-Jae EOM	40_40
16:00	Heteroatom-Doped Graphene Foams as Catalyst Support Materials for Cross Coupling Reactions Jerry NAYAR	41_431
16:00	Bioactive polyvinyl alcohol/chitosan films with novel streblus asper leaves- derived cellulose nanocrystals and Hygrophila auriculata oil for prolonging the shelf life of grapes: Machine learning modeling, and experimental approach Vivek Kumar YADAV	42_44
16:00	MOF–Graphene Reinforced Conductive Biopolymer Networks for Multifunctional Triboelectric Nanogenerators and Wearable Sensing Soumajyoti GHOSH	43_45

16:00	Dual Drug-loaded micellar calixarene embedded in polymer film for infection treatment Loredana FERRERI	44_627
16:00	Flake-Size-Dependent Anticorrosion Performance of Nanometric Graphene Oxide/PDDA Layer-by-Layer Coatings on Patinated Copper Surfaces Amir Moustafa Rezk ABDELMOHSEN	45_691
16:00	Turning Crystalline Sulfur into Copolymeric Sulfur Through Inverse Vulcanization: A New Functional Material for Rubber Composites Arnab SARKER	46_70
16:00	Tribological Performance and RSM Optimization of Oleylamine-Functionalized GO–BN Hybrid Nanocomposite in PAO-Based Nanolubricants Vikash Kumar GUPTA	47_750
16:00	Optimizing Ni Loading in NiO Supported on Al ₂ O ₃ Catalysts Synthesized by Solid-State Method for Methane Reforming Ghulam ASGHAR	48_78
16:00	Architecting Binary-Phase BN Aerogels via Sacrificial MXene Templating for Wide-Temperature Thermal Protection Haodong GU	49_993
16:00	A Ternary System of Active Substance-MOF-Polymer for Reusable Antimicrobial Textiles Xueyan BIAN	50_995

Wednesday, 16 September 2026

9:00	PLENARY SESSION
12:30	Lunch

NANOCOMPOSITE FOR ENVIRONMENT		Q09
14:00	Tetrapods based Functional Materials for Smart Technologies Yogendra Kumar MISHRA	1381
14:30	Functional nanoparticles for magnetic removal of critical phthalates from water Johannes VOSS	2144
14:45	Bioinspired surface functionalization of hybrid fillers for durable and antibacterial PAN membrane for water treatment Simran SHAW	2570

15:00	Grafted silica nanoparticles for the adsorption of chromium from water Prama ADHYA	3013
15:15	Pebax based Mixed Matrix Membranes for CO ₂ Separation Fahad ALAM	508
15:30	Coffee break	

NANOCOMPOSITES FOR BATTERIES

Q10

16:00	Functional nanomaterial additives in solid-state electrolytes for high-performance solid-state batteries Ying Ian CHEN	120
16:45	Evaluation of Hybrid 2D/2D based nanocomposites-Cathode Material for High-Performance Li-S Batteries Edreese ALSHARAEH	1494
17:00	In-Liquid Plasma Synthesis of Nanostructured Vanadium-Based Cathode Materials for Solid-State Sodium-Ion Batteries Monique LEVIEN	726
17:15	Investigating the Role of Ion Incorporation in Na ₄ MnCr(PO ₄) ₃ Cathode Materials Gaurav PANDEY	1903

Thursday, 17 September 2026

NANOCOMPOSITES FOR ENERGY STORAGE

Q11

9:00	Titanate-Based Composite Electrode Materials for Sodium Ion Storage Devices Xiaoming QIU	2713
9:30	Synthesis and characterisation of the nitrogen-doped graphene quantum dots with different edge shape Grainne GILLEECE	435
9:45	Multifunctional Phase Change Composites for Thermal Energy Storage and Energy Utilization Enabled by Interfacial Engineering Ali USMAN	2810
10:00	Multifunctional MOF-Hydrogel Hybrid Electrolytes for Flexible and Wearable Supercapacitor Applications Aparajita PAL	1482

10:15	Nano Biochar based on cotton waste in microbial fuel cells with low carbon foot print enhancing bioelectricity generation from wastewater” Elsayed ZAKI	643
10:30	Coffee break	

ELECTROMAGNETIC NANOCOMPOSITES

Q12

11:00	Synergistic Electromagnetic Wave Attenuation in Hybrid Nanocomposites: From Flexible Polymer Shields to Sustainable Construction Materials Raghvendra Singh YADAV	294
11:30	Liquid-in-Liquid Printed Graphene Oxide/MOF Cryogels for Absorption-Dominant Electromagnetic Interference Shielding Sara ROSTAMI	2330
11:45	High-Performance Electromagnetic Interference Shielding, Thermal Management, and Hydrophobic Performance of ZnFe ₂ O ₄ /SWCNT-Reinforced Flexible TPU Nanocomposites Yadav Avadhesh ANANTRAM	2572
12:00	Carbon-Based LLDPE Nanocomposites for EMI Shielding and Thermal Management Vaibhav JAIN	2574
12:15	Development of Phase-pure Magnetic Curie Nanoparticles for Spinheat Applications Anshul BARAL	862
12:30	Lunch	

2D NANOMATERIALS

Q13

14:00	Synthesis of MAX Phases by the IH-SHS Method and Characterization of Derived MXenes Mitsuru INADA	1990
14:45	Can Surface Chemistry Save 2D MXenes from Water Degradation? Hari Hara Sudhan THANGAVELU	1860
15:00	Beyond HF: Counter-Cation Effects in Fluoride-Mediated Etching of Ti-Based MAX Phases Lenka LORENCOVÁ	1126
15:15	Influence of the surface treatment of graphene and graphite on the physical and mechanical properties of silver-based composite materials fabricated by powder metallurgy process Charlotte MÉTRAL	219
15:30	Coffee break	

POSTER SESSION IV QP04

16:00	Keggin-type polyoxometalate immobilized on ionic-liquid-modified graphene oxide as an electrode material for Lithium-ion battery Samaneh SHAHSAVARIFAR	01_1087
16:00	Inorganic - Organic Heterocatalyst Against Existing and Emerging Industrial Wastewater Threat: Organic Pollutants, Heavy Metals, and Antibiotic Resistance Bacterial Crisis Sudarshan SARKAR	02_1281
16:00	Light Triggered Coordination Competition in Supramolecular Polymer Nanocomposites for Tunable Damping Sieun JE	03_1497
16:00	Visible-Light-Driven Smart Adhesives Enabled by Coupled Bulk and Interfacial Modulation in Donor-Acceptor Stenhouse Adduct Functionalized Polymer Network Jaejun LEE	04_1528
16:00	Reduced graphene oxide – porous silicon hybrid structure for gas sensing IoT-based system Igor OLENYCH	05_1601
16:00	Sustainable Silk–ZIF_67 Nanocomposites: From Solution Synthesis to Functional Energy Harvesting Sayan CHAKRABORTY	06_1618
16:00	Nacre-Mimetic Nanocomposite Assembled via Dynamic Covalent Networks for Advanced Flame Retardancy Jaejun LEE	07_1664
16:00	Interface Engineered Block Copolymer Particle-Templated Cavitated Carbons Achieves Local Alkalinity for Enhancing Acidic Electrochemical CO ₂ Reduction Jaeyoung CHOI	08_1681
16:00	Acid–Base Regulated Proton Conduction in Sulfonic-Ligand/Graphene Oxide Membranes Integrated with Amino-Based Proton Acceptors for High-Performance PEM Fuel Cells Md Shahjahan Kabir CHOWDURY	09_1722
16:00	Glass Fiber-Reinforced Chemically Crosslinked PVDF–GPTS Organic–Inorganic Hybrid Solid Electrolytes with an Amorphous Siloxane Network for High Li-Ion Conductivity in Next-Generation All-Solid-State Batteries Md Shahjahan Kabir CHOWDURY	10_1755
16:00	Epoxy–Siloxane Molecular Hybrid Based Non-Conductive Films for Laser-Assisted Fine-Pitch Semiconductor Packaging Applications Gwang-Mun CHOI	11_1826

16:00	Multiscale Investigation of Weather-Resistant TPU Nanocomposite Laminates for Lighter-Than-Air Aerospace Structures Ramyadevi KALIYAMOORTHY	12_1831
16:00	PHENYL-TRACK: Development of a Platform AI-Supported for home monitoring of Phenylalanine Levels in PKU Patients through enzymatic sensing strategy in real sample. Georgia FANGANO	13_1927
16:00	Sens.AI: Biosensor for the recognition of amino acids in IoT platform Georgia FANGANO	14_1942
16:00	Enhanced β -Phase Formation and Piezoelectric Response in Electrospun PVDF-TrFE/BaTiO ₃ Nanocomposite Nanofibres Qinrong HE	15_1982
16:00	Radio spectroscopic and thermal studies of apatite-like compounds Pb _{1-x} Cu _x (XO ₃) ₂ (Z) ₂ Svitlana SMOLYAK	16_1994
16:00	Enzymatic and Molecularly Imprinted polymers strategies for the specific amino-acid sensing by Quartz Crystal Microbalance Platform. Salvatore PETRALIA	17_2076
16:00	Agarose-Choline Carbon nanodots as potential nanosystem for gene modulation by miRNA delivery Corinna LOMBARDO	18_2084
16:00	Orange-peel biocarbon decorated with FeS ₂ : Synthesis and structural characterization Raúl Tomás PAREJA RODRÍGUEZ	19_2127
16:00	Synthesis and Characterization of Triazine–Trithiol Metal Frameworks as Functional Electrocatalytic Materials for Alkaline Hydrogen Evolution Ankith SHETTY	20_2253
16:00	Electrochemical characterization of SPCE electrodes modified with calixarenes: comparison of three different molecular structures and application to biomolecule sensing Salvatore PETRALIA	21_2304
16:00	Using Green Synthesized Carbon Quantum Dots as Functional Additives in Chitosan/Gelatin-Based Coatings for Enhanced Antibacterial Activity _isem KIRBIYIK KURUKAVAK	22_2396
16:00	Luminescent and Magnetic Nanomaterials for Advanced Applications Yadvendra SINGH	23_2468

16:00	Optimising Sonication Parameters for Dispersions of Carbon Nano-Onions (CNOs) Silvia GIORDANI	24_2491
16:00	Enhanced Electrochemical Performance of BNFO/GNPs/LC Nanocomposites for Supercapacitor Applications Gulzar HUSSAIN	25_2518
16:00	Direct Observation of Moiré Potential Effects on the Band Structure of Graphene/TMD Heterostructures Pei-Yu CHUANG	27_2568
16:00	Fabrication of Dual-Functional Fe Particles via Al ₂ O ₃ Atomic Layer Deposition for EMI Shielding and Thermal Management Yeon-Ju PARK	28_2591
16:00	A new water-soluble Zn(salmal) complex as chemosensor for the enzymatic recognition of Phenylalanine Georgia FANGANO	29_2617
16:00	Synthesis of Gold Nanoparticles Capped with a α -Cyclodextrin Derivative for Biosensing Applications Sonia PEDOTTI	30_2679
16:00	Ion-conducting Dielectric-Organometallic Hybrid Architecture for High-Performance n-Type Transistors Pushpendra Prakash MAURYA	31_2680
16:00	Synthesis and Engineering of Multifunctional PAA-SPION-impregnated Redox-Active NanoMOFs for Imaging-Guided Synergistic Cancer Therapy Shiva SOORI	32_2703
16:00	Design and Performance Evaluation of Reactive Yellow Dyes for Energy-Efficient Low-Temperature Textile Processing Miyeon KWON	33_2789
16:00	Engineering Hard Carbon-Graphene Architectures from Coffee Waste via Femtosecond Laser Processing for Lithium-Ion Batteries Si Eun PARK	34_2817
16:00	Structure-Property Relationships in Polycarbonate Nanofilms via Solvent Vapor Annealing-induced Crystallization Woo Jin CHOI	35_2869
16:00	Ti ₃ C ₂ T _x -supported NiFeP composite as an efficient electrode material for supercapacitor application Meenakshi MEENAKSHI	36_2948

16:00	Synergistic Dual-Phase Defect Engineering in Gamma-Irradiated CeO ₂ -TiO ₂ Nanocomposites for Enhanced Dielectric Performance Ankur KUMAR	38_3101
16:00	Superhydrophilic Poly(acrylic acid)-Coated Screen-Printed Textile Electrodes for Flexible Triboelectric Nanogenerators Onur DEMIRCIOGLU	40_3168
16:00	Low-Voltage Plasma Electrolytic Oxidation of Aluminum in a Silicate Electrolyte Modified with Glycine and Titania Nanoparticles Katsiaryna CHARNIAKOVA	41_3212
16:00	Hydration-Transport-Performance Relationships in Commercial Anion Exchange Membranes and Ionomers for Water Electrolysis Parisa DOOSTI	42_3219
16:00	Nature-based electrolytes towards sustainable applications Diana GASPAR	43_3231
16:00	Mechanistic Understanding of Additive-Driven Tribochemical Selectivity Control in Cu/Borosilicate CMP for Through-Glass Via Applications Yoojin SON	44_497
16:00	Interfacial Acid-Metal Synergy Enables Mild Tandem Deoxygenation of Long-Chain Fatty Alcohols to Alkanes Chaofan DENG	45_525
16:00	Photothermal Hydrogenation of Diethyl Oxalate and Product Selectivity Regulation over Pd-Co/CoO _x Catalyst Yimeng ZHOU	46_526
16:00	Fabrication of Co/Ni-Doped MoS ₂ /MoO ₃ via Hydrothermal Methods for Low-Temperature NO ₂ Gas Sensing: Experimental and DFT Insights Retno Dwi ASTUTI	47_557
16:00	Gold-Calixarene Nanohybrids: Photothermal Cancer Treatment and Colorimetric Biosensing Salvatore PETRALIA	48_637
16:00	Hydrothermal treated Kraft lignin nanoparticles for sustainable materials Muhammad IMTIAZ	49_645
16:00	TiMicrostructural Degradation in LiCoO ₂ Cathodes Under High-Voltage Operation Nilloofar KHODAMORADI	50_676

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|-------|---|--------|
| 16:00 | High Surface Area Anode Materials for Lithium and Sodium-ion Batteries
Navya P V | 51_678 |
| 16:00 | SW-DW Hybrid Conductive Material for Battery Applications
Hae Kyung JEONG | 52_720 |
| 16:00 | _Effect of Chemical Surface Treatment on Carbon Fiber-Epoxy Interfacial Adhesion: Improved Characteristic Using Novel Epoxy
Young Chul CHOI | 53_741 |
| 16:00 | Thermal Conductivity and Leakage Resistance of EGaIn/TPE Composites with Ag/Cu Fillers and Polyphenol-Mediated Interfacial Stabilization
Jeongbeen HONG | 54_854 |
| 16:00 | Data-Informed Flow Synthesis for Precise Size- and Alloying-control of Platinum-Group-Metal High-Entropy Alloy Nanoparticles
Daiki TAKAHASHI | 55_877 |
| 16:00 | Enthalpy Descriptor for Disordered Ordered 2D-Catalyst for AEM Electrolyser
Zheng LIU | 56_974 |
| 16:00 | Rheological and Thermal Characterization of EGaIn/PVA-Tannic Acid Supramolecular Hydrogels: Effects of Crosslinking Density and Filler Composition
Seoyun KIM | 57_401 |



Symposium Sponsor



Symposium R

Sessions: Room 437 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

NANO AND SMART MATERIALS

NANOMATERIALS FOR THE FUTURE:

ADVANCEMENTS IN OPTOELECTRONICS AND SENSING

Symposium organizers:

Chun-Yi CHEN

– Institute of Science Tokyo - Institute of Integrated Research Materials and Structures Laboratory

Maria Josè LO FARO
(Main Organizer)

– University of Catania

Pedro M. P. SALOME

– INL - International Iberian Nanotechnology Laboratory

Subhajit BISWAS

– University College Cork

Monday, 14 September 2026

BIOSENSING AND HEALTHCARE MONITORING

R01

9:00	Inkjet-Printed Flexible Humidity Sensors Based on Bio-Derived Melanin from Nigella Sativa Seeds Fatemeh ETEHADI	1184
9:15	An Ultrasensitive Paper-Based SERS Platform for Environmental and Biological Monitoring Dehui WAN	5
9:30	Tapered Optical Fibre Sensor Functionalised with Ion-Imprinted Nanoparticles for Real-Time Pb ²⁺ Detection in Drinking Water Akhilesh Kumar PATHAK	2429
9:45	Label-free sensing of chemical toxins with field-effect transistors Menka SHARMA	2368
10:00	Highly Specific Non-Enzymatic Electrochemical Sensor for Detection of Uric Acid using Carboxylated Multi-Walled Carbon Nanotubes Intertwined GdS-Gd ₂ O ₃ Nanoplates in Human Urine and Serum Srishti VERMA	2273
10:15	Surface-Interaction-Induced Photoluminescence Quenching in Li-Eu-YVO ₄ Nanophosphors for Selective Clinical Zn ²⁺ Biosensing Applications Sanjay Kumar SRIVASTAVA	1955
10:30	Coffee break	

GAS AND CHEMICAL SENSING TECHNOLOGIES

R02

11:00	Material & Structural Design of Multi-layered Ti/Au Micro-components by Precise Electrodeposition Towards Nano-G Resolution MEMS Capacitive Inertial Sensors Masato SONE	269
11:30	Engineered PMMA/ZIF-7 Molecular Sieving Membranes for SnS ₂ Gas Sensor Arrays toward Quantitative NH ₃ Analysis in Semiconductor Fabrication Environments Bum Shik KIM	367
11:45	Engineering N-type Ti ₃ C ₂ TX MXene-based 2D heterostructures for enhanced ammonia sensing performance Elmehdi OULD MAINA	865

12:00	Highly sensitive and self-validating environmental and breath-level detection of ammonia gas by sensors array based on carbon nanotube and molybdenum disulphide composite Federico LA BARBERA	2290
12:15	Electrode-Configuration-Induced Sensitivity Enhancement in ZnO Nanowalls-Based Hydrogen Sensors. Sang-Wan RYU	958
12:30	Lunch	

WEARABLE, PRINTED AND EMERGING SENSOR TECHNOLOGIES

R03

14:00	Garment-Integrated Triboelectric Nanocomposite System for Continuous Physiological Monitoring Sajib ROY	1208
14:15	Computational Investigation of NO ₂ Sensing on Heterophase WSe ₂ using Bayesian Optimization Abhilash PATRA	1546
14:30	Two-Dimensional Materials for Next-Generation Optoelectronic and Wearable Sensing Applications Amritanshu PANDEY	1981
14:45	High-temperature-resistant h-BN/PVA nanocomposite humidity sensors designed for Morse code transmission and IoT-enabled wireless data collection Syed Adil SARDAR	266
15:00	Trityl Radical-Functionalized Gold Nanoparticles for Enhanced EPR-Based Oxygen Sensing Jamila DJAFARI	900
15:15	PFOA Sensor Ambika SELVARAJ	31
15:30	Coffee break	

OPTICAL AND MULTIFUNCTIONAL SENSING PLATFORMS

R04

16:15	Inorganic nanomaterials for non-enzymatic electrochemical sensing with : an investigation on structure-performances relation Mattia BARTOLI	355
16:30	Enhanced Stability and Photodetection Performance of CsPbBr ₃ Nanosheets via Silica Encapsulation and Plasmonic Engineering Charu DUBEY	255

Tuesday, 15 September 2026

MATERIALS FOR SOLAR ENERGY CONVERSION AND STORAGE

R05

9:00	Full-Spectrum-Responsive Au@Cu ₇ S ₄ _Decorated Monoclinic TiO ₂ Nanowires for Solar Hydrogen Production Chun-Yi CHEN	1402
9:15	Bringing Microfabrication to Non-Conventional Solar Cell Substrates José FERNANDES	1336
9:30	Advancing the Industrial Integration of Polyfullerenes for Photovoltaic Applications Igor TENÓRIO SOARES	2169
9:45	Oxygen reduction reaction via redox mediator self-assembled monolayer on conductive oxides Marco ZECHNER	2411
10:30	Coffee break	

ADVANCED OPTICAL MATERIALS AND DEVICES

R06

11:00	Hybrid 2D-plasmonic nanoantennas for photonic applications Giorgio ZAMBITO	934
11:30	Deciphering the Role of Oleic Acid in Intermediate Stoichiometry for the Realization of High-Quality ZnSe-Shelled Quantum Dot Emitters Byong Jae KIM	998
11:45	Tuning of polarisation-dependent nonlinear optical response in PtSe ₂ via geometry and magnetic field Martin GERLEI	1111
12:00	Strain-Tuning the Topological Light-Matter Interaction in Magnetic Weyl Semimetal CeAlSi Abhirup ROY KARMAKAR	3023
12:15	Stacking-dependent nonlinear optical properties of MoS ₂ /WS ₂ van der Waals heterostructures: an ab initio study Vijay Kumar GUDELLI	2833
12:30	Lunch	

NANOMATERIALS FOR ENERGY AND PHOTONICS

R07

14:00	Engineering n-type doping in GeSn alloys via ion implantation and flash lamp annealing for optoelectronics applications Guillermo GODOY PÉREZ	792
14:15	Two-photon lithography as enabling technology for the fabrication of conformal electrodes on 3D microstructures and devices Marco CARLOTTI	274
14:30	From Copper Nanocubes to Cu@Au Core@Shell Resonators: Controlling Shell Growth for Gap Plasmon Resonances Sunisa SITTHIPONG	724
14:45	Scalable Plasmonic/MoS ₂ Nanoarrays in a Flat-Optics Architecture for Broadband Light Harvesting Rajesh CHENNUBOINA	3263
15:00	Cooling-Rate-Controlled Cation Redistribution in Co-Fe Spinel Nanomaterials for Enhanced Photooxidative Catalysis Yu-Hao CHEN	402
15:15	Pulsed Laser-Driven CO ₂ Reduction Reaction for controlling photoluminescence Quantum Yield in gold organometallic nanocomposites Guilherme CONCAS	1065
15:30	Coffee break	

POSTER SESSION: ADVANCEMENTS IN ENERGY, SENSING AND OPTOELECTRONICS

RP02

17:30	Oxygen-Fraction-Engineered Amorphous TeO ₂ Nanointerface for Charge-Selective Mo-Doped BiVO ₄ Photoanodes in Bias-Free Solar Water Splitting Min-Seo KIM	01_1066
17:30	Portable Acoustic Biosensing Platform Utilizing Paper-based Capillary Fluidics and Functionalized AuNPs as Signal Amplifiers for the Detection of Protein Biomarkers Stylianios GRAMMATIKOS	02_1215
17:30	Reconfigurable optoelectronic synapses based on chemical vapour deposition-grown Mo _x W _{1-x} S ₂ alloy film Deepak Kumar SAHU	03_1369
17:30	Plasmonic Silver and Gold Nanoisland Films for Synergistic Bacterial Detection and Photothermal Therapy Tsung-Rong KUO	04_1579

17:30	Structural Evolution and Critical Limit of Cu Incorporation in Bi ₂ Se ₃ Thin Films Suji LEE	05_1710
17:30	Interface-Engineered Ln-MOF/TMD Hybrid for Robust Elevated-Temperature Chemiresistive SO ₂ Sensing Padmaja Vasant MANE	06_1800
17:30	Utilizing solution ligand exchange in quantum dot photodiodes to achieve broadband near-infrared detection Moritz FLEMMING	08_2066
17:30	Pattern Recognition and Machine Learning-based Discrimination of Volatile Organic Compounds using MXene-09_2241 derived MOF-based Gas Sensor Banalata MAJI	
17:30	Structural Control of Sb Thin Films via DC and RF Sputtering and Its Impact on Sb ₂ S ₃ Formation Sheyda UC CANCHE	10_2255
17:30	White Aluminum Thin Films: Structural Origin of Matte Appearance in DC Magnetron Sputtered Structural Meta-12_2693 Material Coatings Jérémy LEMOIGNE	
17:30	In-Situ and Ex-Situ Electron Microscopy for Revealing Growth-Structure Relationships in WS ₂ nanotubes Kristýna BUKVIŠOVÁ	13_2887
17:30	Integrating Machine Learning with Leucine-Functionalized Carbon Quantum Dots for Early Breast Cancer Biomarker14_3129 Detection Pranoti KAMBLE	
17:30	Linking colloidal and optical properties of group I-III-IV semiconductor nanoplatelets and their self-assemblies Piyush UNİYAL	15_390
17:30	Ge/Mn core/shell quantum dot lattices in alumina: boosting the spectral response by tensile strain Ivana PERIŠA	16_417
17:30	Portable SPCE-Based La(OH) ₃ /La ₂ O ₃ Electrochemical Platform for Sensitive Detection of Isomeric Nitrophenols Kalisadhan MUKHERJEE	17_445
17:30	Enhanced Piezocatalytic Activity of Na-Incorporated ZnFe ₂ O ₄ Nanoparticles for Oxidative Degradation of Organic Dyes Shota KITAOKA	18_450

17:30	Twist-Dependent Electrical Behavior of Au/Nylon Composite Fibers Fabricated via Supercritical CO ₂ -Assisted Metallization Rongwei XU	19_483
17:30	Surface chemistry control of dendritic growth of Lithium (Li) metal anode via Tetrapyrrole macrocycles (TPMs) Fakhra MARAWAT	20_492
17:30	Towards ultrasensitive and selective sensors based on graphene-TiO ₂ hybrids decorated with plasmonic nanoparticles – presenting fluctuation-enhanced sensing method for gas detection Katarzyna DROZDOWSKA-CZUBEK	21_622
17:30	Frontiers of Nano-Optics: Contemporary Research and Emerging Applications Anastasia VOROBYOVA	22_793
17:30	From high orbital degradation to power recovery: annealing time-induced resilience in CIGS solar cells Pedro Tomás PATRICIO	23_800
17:30	Proton irradiation damage on Cu(In,Ga)Se ₂ -based solar cells: the interplay of the ion flux and dynamic annealing Tiago Viera FERNANDES	24_801
17:30	Towards the Removal of HMTA Molecules in the Chemical Bath Deposition of ZnO Nanowires Eirini SARIGIANNIDOU	25_853
17:30	PEDOT-Centered TiO ₂ Hybrid Electrodes for Visible-Light-Driven Photoelectrochemical Water Splitting Yu ZHOU	26_858
17:30	ZnO Tetrapod Networks for Advanced Gas and UV Sensing Simas RACKAUSKAS	27_91
17:30	Electrochemical Performance of Ti ₃ C ₂ T _x MXenes via Fluoride-Assisted Synthesis for Hydrogen Peroxide Sensing Andrej VIKARTOVSKÝ	28_930
17:30	Highly Efficient On-Chip Micro-Supercapacitors based on Dielectrophoretic Assembly of Au Deposited Metal Nanowire Electrodes Yeonwoo KIM	29_967
17:30	Magnetically Self-Assembled 3D Micro-Pillar Supercapacitor with High Areal Capacitance Seongyeol KIM	30_971

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

ADVANCED MATERIALS FOR ENERGY HARVESTING AND STORAGE

R09

14:00	Synthesis of Yolk@Shell Nanocrystals for Solar Hydrogen Production Yung-Jung HSU	850
14:30	Engineering Low Work Function Nanomaterials for High-Temperature Electron Emission and Thermionic Energy Harvesting Alessandro BELLUCCI	2928
14:45	Sodium-Incorporated Spinel NiFe ₂ O ₄ Nanoparticles as Supercapacitor Electrodes with Enhanced Bulk Charge Storage Junyan LIN	455
15:00	Development of a materials library for carrier-selective contacts for flexible ultrathin film solar cells Bárbara SIEIRA	976
15:15	Printed electronics enabled by 2d materials: Emerging energy harvesters beyond photovoltaics and multi-functional sensors Konstantinos ROGDAKIS	2079
15:30	Coffee break	

SESSION 10

R10

16:00	Nanoscale Characterization and Nanofabrication with SEM and FIB-SEM in Advanced Materials Research Olena VERTSANOVA	342
16:15	Material Evaluation of Atomic-Level Au/Polyaniline Hybrid Films Fabricated by Cyclic Au Electrodeposition Keisuke OKAMOTO	310
16:30	High-Resolution Probing via SECM-Driven Surface Refinement of Carbon Nanoelectrodes Vaishali SHRIVASTAV	1818

16:45	White Aluminum Thin Films: Structural Origin of Matte Appearance in DC Magnetron Sputtered Structural Metal Coatings Jérémy LEMOIGNE	2620
17:00	Improving Ruthenium Electrodeposition for Interconnect Applications through Substrate and Mass-Transport Control Zhitao HU	783
17:15	Carbon dot incorporated hydrogel for multiple application Lingaraj BEHERA	3147
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

QUANTUM, TOPOLOGICAL AND LOW-DIMENSIONAL MATERIALS		R11
9:00	Strain tuning of vibrational modes in PtSe ₂ János PAPP	1788
9:15	Exploring the Vibrational, Thermal, and Electronic Properties of 2D GeCH ₃ Saeed RASOULI	1181
9:30	Topological Insulator and Quantum Memory Tomasz SZCZEPANSKI	68
9:45	Defects in Hexagonal-Diamond Silicon Marc TÚNICA	630
10:00	Revealing Room-Temperature Ferromagnetism in Low Dimensional Tellurium Films: Role of Vacancies and Strain from Experiment and First-Principles Calculations” Upasana BORDOLOI	2266
10:30	Coffee break	

RADIATION DETECTION AND FUNCTIONAL NANOMATERIALS

R12

11:15	Radiation Tolerant Deep Buried Pixel Silicon Photomultipliers for High-Dose Gamma Environments Ercan YILMAZ	118
11:30	Perspective on two-dimensional materials for magnetic diagnostics in future thermonuclear reactors Tymoteusz CIUK	150
12:00	Enhanced Field Emission from Tungsten Oxide Nanoarchitectures Synthesized via Catalyst and Interface Engineering Indranil LAHIRI	617
12:15	Carbon Quantum Dot Nanofertilizer: A Non-Conventional Source of Nutrition for Plant Growth Enhancement, Antioxidant Defence, and Higher Nutritional Value Anupam GHOSH	3030
12:30	Lunch	

NANOSTRUCTURES, ACOUSTIC WAVES AND MAGNETIC NANOMATERIALS

R13

14:00	Self-assembled polymer-grafted nanoparticles featuring phononic Fano resonances in the gigahertz frequency range George FYTAS	2710
14:15	Controlling Hypersonic Surface Acoustic Waves in Monolithic Silicon with Metallic Nanotransducers Arun BABU	2383
14:30	Nitrogen-induced strain in highly mismatched dilute nitride nanowires: a Raman spectroscopy investigation Riccardo PALLUCCHI	3172
15:00	Superparamagnetic Core-shell Iron Nanoparticles Prepared by Magnetic Field-Assisted Thermal Plasma Savita PANNU	1972
15:30	Coffee break	

MATERIALS FOR BIOSENSING AND HEALTHCARE DIAGNOSTICS

R14

16:00	Meta-Nanochannel Field-Effect Transistor for Real-Time, High-Sensitivity and Selective Single-Nucleotide Mismatch Detection Vijay Kumar GARIKA	3139
16:15	Hierarchical ZnO Nanorod/Zinc Indium Sulfide Nanosheet Heterostructures for Low-Concentration Nitric Oxide Detection toward Asthma Diagnosis Shivam GUPTA	2612
16:30	CVD-Grown WSe ₂ Thin Film for SERS-Based Biomolecular Detection Priyanka JANGRA	2812



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Sessions: Room 315 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

NANO AND SMART MATERIALS

SMART MATERIALS FOR NANOELECTRONICS – NANOPHOTONICS

Symposium organizers:

Amrita **JAIN**

– Institute of Fundamental Technological Research,
Polish Academy of Sciences

Vilko **MANDIC**

– University of Zagreb

Vipul **SHARMA**

– University of Turku

Yogendra Kumar **MISHRA**
(Main Organizer)

– University of Southern Denmark

Monday, 14 September 2026

NEXT-GENERATION OXIDE NANOELECTRONICS

S01

8:30	Simple Chemistry, Smart Functionality: From Hydrothermal Growth of CuO and ZnO Nanomaterials to Electronic Devices Monika OZGA	1794
9:00	From Synthesis to Biological Response: Tailoring ZnO Nanoparticles through Precursor-Controlled Microwave-Assisted Synthesis Julita ROSOWSKA	3246
9:30	Supercritical CO ₂ -Assisted Engineering of Reduced Graphene Oxide/Sulfur Nanocomposite Cathodes for High-Performance Lithium-Sulfur Batteries Lakshmi SHIVA SHANKAR	2012
9:45	Sputtering-Engineered WO ₃ /MnO ₂ Multilayers on Graphene for High-Performance Supercapacitors Nitesh CHOUDHARY	1294
10:00	Magnetoelectric Coupling in Rare-Earth Vanadate Thin Films: Exploiting Spin-Orbital-Charge Orders for Low-Power Smart Nanoelectronics Emma DELACOTTE	126
10:30	Coffee break	

FUNCTIONAL CARBON NANOMATERIALS IN CATALYSIS

S02

11:00	Sound-Light Synergy: Revolutionary Porous Carbon Catalysts Unlock Biomass Upgrading Juan Carlos COLMENARES	3290
11:30	Enhancing TADF OLED Performance through Ambipolar Nitrogen-Doped Polycyclic Aromatic Hydrocarbons Dharmendra KUMAR	3286
11:45	Sustainable Activated Carbon Derived from Kitchen Waste Banana Peels for Symmetric Supercapacitor Applications Prasad LOKHANDE	2904
12:00	Chiral-Index Dependence of Raman Spectra in Individual Single-Walled Carbon Nanotubes Studied by STM-TERS Yuji KUWAHARA	1105
12:15	A Novel Graphene Mesosponge for Rapid Adsorptive Removal of Hazardous Dyes from Aqueous Solutions Chandini KUMAR	1987

12:30	Ti3C2Tx MXene–Graphene Nanocomposite as an Advanced Electrocatalyst for Efficient Oxygen Reduction Reaction in Energy Conversion Systems Mohd UBAIDULLAH	515
12:30	Lunch	

ADVANCED MATERIALS FOR THIN-FILM ENERGY DEVICES S03

14:15	Integration of thin films in wind and solar renewable energy as well as food safety systems Vilko MANDIC	3282
14:45	Growth-Mediated Structural Ordering and Property Control in Polydopamine Thin Films at the Air–Water Interface Divyasree RADHAKRISHNAN	3233
15:00	Synchrotron Photoelectron Spectroscopy of Graphene/Black-Phosphorus Heterostructures for Terahertz Bolometric Detector Design Tang CHAO	1689
15:30	Coffee break	

EMERGING NANO-OXIDE SEMICONDUCTOR DEVICES S04

16:00	Carrier Polarity Engineering in Transparent Sb-Doped SnO Thin Films for Oxide Nanoelectronics Ashutosh TIWARI	3157
16:30	Smart ZnO/MoS2 core-shell tetrapod heterostructures for nanoelectronics Annamarija TRAUSA	1845
17:00	Cathodoluminescence studies of GaN nanowires with oxide coatings Sara PIOTROWSKA	2973
17:15	Tetrapod ZnO and Co-Ni as Structurally Distinct Pt-Based Electrocatalysts: A Comparison Study of HER Performance Shivalingayya GADDIMATH	2431

Tuesday, 15 September 2026

NANOPHOTONICS AND PLASMONIC SENSING

S05

9:00	Plasmonic Swabs to Smart Sensors: SERS Platforms for Molecular Detection of Pesticide Residues Prabhat Kumar DWIVEDI	2516
9:30	Soft matter photonics: Chiral Photonic Liquid crystals Shweta MISHRA	3028
9:45	Impact of integration strategies on optical losses in PVD SiN waveguides for datacom and telecom photonics Samia BELAHCEEN	1037
10:00	Multimodal magneto-active hydrogel-liquid interfacial sensor for electrochemical detection of toxic pollutants Veronica PEREIRA	963
10:15	Advanced Ceramics Steering Health and Energy Transition Suchismita SAHA	3380
10:30	Coffee break	

SMART NANOCERAMICS

S06

11:00	Advanced Ceramics Steering Health and Energy Transition Sanjay MATHUR	1441
11:30	Composition-Driven Engineering of Mo___W_Se_ Alloys: Unraveling Oxidation Stability, Defect Physics, and Tunable Optoelectronic Response Ana BRITO	83
11:45	Tetrapods based SmartMaterials for Advanced Technologies Yogendra Kumar MISHRA	1379
12:30	Lunch	

FRONTIERS IN TRIBOELECTRIC SENSING TECHNOLOGY

S07

14:00	Multifunctional Chalcogenide Nanostructures for Self-Sustainable Energy Harvesting Anuja DATTA	2773
14:30	Molecular Weight-Dependent Tribopositive Investigation of Solvent-Fractionated Lignin for Sustainable High-Performance Triboelectric Nanogenerators Nandan MURALI	3112
14:45	Next-Generation Triboelectric Nanogenerator Systems for Wound Repair: Design Frameworks, Biological Mechanisms, and Challenges to Clinical Adoption Athul RAGHAV	3064
15:00	Nanocomposite Wearables for Triboelectric Self-powered Sensing Sajib ROY	1082
15:30	Coffee break	

POSTER SESSION II

SP02

17:30	Energy-Efficient MLC Operation in Selector-Only Memory via Deep-Trap Engineering Min Kyu YANG	01_121
17:30	Exploring Zirconium-Induced Structural, Dielectric, and Magnetic Modulation in Bi ₂ /3Cu ₃ Ti ₄ O ₁₂ Complex Perovskites: A Pioneering Step toward Advanced Device Applications Biswajit JENA	02_17
17:30	Optoelectronic Performance Optimization of Au-Modified SiC Nanowire UV Photodetectors Kasif TEKER	07_1899
17:30	Pulsed plasma deposition and process optimization of NiTi smart shape memory films for electronic applications- Effect of annealing Strategies Arsha BEENA KUMARY	08_1967
17:30	Chemical bonds in HfO ₂ /Al ₂ O ₃ and Al ₂ O ₃ doped HfO ₂ multilayers Elzbieta GUZIEWICZ	10_2010
17:30	Influence of Electrode Surface Roughness on the Electrical Characteristics of AlO _x -Based RRAM Devices Michał JAROSIK	11_2062

17:30	Cobalt-Iron LDH/rGO Nanohybrid Electrodes For Enhanced Energy Storage In Hybrid Supercapacitors Janhavi SHARMA	12_2363
17:30	Wipe and Detect: Detection and Screening of Pesticide Residue Prabhat Kumar DWIVEDI	13_2642
17:30	Fabrication of High-Aspect-Ratio Metasurfaces with Stepped Nanostructures Using Direct Nanoimprinting Sung-Hoon HONG	14_2643
17:30	An Inverted Sacrificial Template Strategy Using Commercial Polyurethane Scaffolds for Hollow 3D Interconnected ZnO Functional Networks for Decentralized Water Remediation Rashmi SINGH	15_2824
17:30	Durable copper nanowires for flexible electronics Vipul SHARMA	16_2908
17:30	Efficient detection of Thiosalicylic Acid via Graphene-based electrochemical sensor Ajay GUPTA	18_3108
17:30	Plasmonic Enhanced-Selective Laser Sintering of Meniscus-Guided 3D Gold Nanoparticle Architectures for Optically Programmable Conductance Modulation Hyeon-Seok SEO	19_42
17:30	Ti ₃ C ₂ T _x MXene-Graphene Nanocomposite as an Advanced Electrocatalyst for Efficient Oxygen Reduction Reaction in Energy Conversion Systems Mohd UBAIDULLAH	20_495
17:30	Development of a PVDF-MAPbI ₃ Composite for Piezoelectric Force Impact Sensing Applications Murthy D SRINIVAS	21_6
17:30	Unveiling the Optical and Nanophotonic Properties of Two-Dimensional 2H-HfS ₂ Ana BRITO	22_73

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

SMART NANOCOMPOSITES

S09

14:00	Ferrite-Graphite Nanocomposites Across Matrices: From Multi-Layered and Multifunctional Polymer Shields to Microwave-Absorbing Cementitious Structures Raghvendra Singh YADAV	292
14:30	Engineering a CoCuS/g-C3N4 Heterostructure for High-Performance Asymmetric Supercapacitors: Bandgap Modulation, Dual Charge Storage, and Cycling Robustness Saheli KARMAKAR	3117
14:45	Functional Zinc Oxide Tetrapod Materials based Advanced Nanocomposites Hira ABDULLAH	3096
15:00	Integration Challenges and Prospects of Phase-Change Smart Materials in Nanoelectronics-Nanophotonics Platforms: Insights from GST-Based Tunable Metamaterial and Photodetector Prototypes Vibhu SRIVASTAVA	3040
15:15	Single-particle-thick one-dimensional chains as anisotropic building blocks for smart materials Konrad GIZYNSKI	2943
15:30	Temporal Effect Analysis in an In-Sensor Computing System Enabled by Retention-Engineered Synaptic Devices Sung Hyeon PARK	405
15:30	Coffee break	

SUPERCAPACITORS & BATTERIES

S10

16:00	Advanced Nanostructured Materials and Architectural Design for High-Performance Electrochemical Energy Storage Devices Amrita JAIN	1961
16:30	Nanoflower Zn-HHTP Metal-Organic Frameworks for Next-Generation Flexible Energy Storage Febin PAUL	2375
16:45	Interfacial Engineering of Ionic-Liquid-Functionalized Graphene Oxide with Keggin-Type Polyoxometalates for Lithium-Ion Battery Anodes Samaneh SHAHSAVARIFAR	1857
17:15	Engineering Disorder: Achieving 2D Hyperuniformity through Self-Assembled Block Copolymer Micelles Arash PIROUZ	3251

17:30	Sputtering-Engineered WO ₃ /MnO ₂ Multilayers on Graphene for High-Performance Supercapacitors Nitesh CHOUDHARY	1239
17:45	Multi-Functional Properties of Superconducting and Hydrogen Storage in TaNb ₂ HfZrTi High Entropy Alloy Jong-Soo RHYEE	22
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

2D HYBRID MATERIALS

S11

8:45	Deterministic Engineering of Luminescent sp ³ Quantum Defects in Single-Walled Carbon Nanotubes via Tailored Radical Peroxide Chemistry Dawid JANAS	885
9:15	Roles of Interfaces in Devices: From Semiconductors to Batteries Gour P. DAS	1033
9:45	Phase stability of Molybdenum Ditelluride during CVD growth Vijeyan C	2909
10:00	Quantitative and qualitative analysis of growth mode and morphology of metals deposited on 2D materials Michael SWEETMAN	2895
10:15	Sub-0.1 mg cm ⁻³ Freestanding CNT Architectures via Tetrapodal ZnO Templating Jonas LUMMA	1823
10:30	Coffee break	

2D TRANSITION METAL DICHALCOGENIDES

S12

11:00	Two-Dimensional Chalcogenophosphates: Fundamental Properties, Interface Engineering, and Electronic Structure Tuning from First Principles Santosh KC	3127
11:30	All-inorganic elements-based perovskite solar cell for low-cost and eco-friendly photovoltaic conversion Bharti KAUSHAL	3225
11:45	Solution Driven Functional Chalcogenide Materials: Mid Infrared Photonic Devices Prince PRINCE	2664
12:00	Magnetic Ordering and Weak Ferromagnetic Canting in Hybrid Chiral Fe and Mn Halides C Vishal Dev ASHOK	2259
12:15	Molecular Kinetics Governing Linearity, Symmetry, and Multilevel Analog States in Molecular Memristors Bidyabhusan KUNDU	1316
12:45	Machine Learning Powers Next-Gen CsSnI ₃ /Si Tandem Cells Mohamed AIT OUFKIR	433
12:30	Lunch	

DFT STUDIES OF NANOMATERIALS

S13

14:00	Tailoring MXenes for Enhanced CO ₂ Capture and Conversion: DFT Simulations Abhishek MISHRA	3103
14:30	CO ₂ to Formic Acid Conversion on TiVC MXene: DFT Insights Kamal KUMAR	3099
14:45	Computationally Engineered ZnO Nanoclusters CO ₂ conversion to C ₁ products Deepa THAKUR	3066
15:00	DFT Insights into CO ₂ Activation and Conversion using V ₂ C MXenes Annu KAJAL	3060
15:15	Innovative Malononitrile-Based Gel Polymer Electrolyte Incorporating Li-TFSI for Superior Supercapacitor Performances Md YASIR BHAT	3309
15:30	Coffee break	



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Poster Sessions: Room 237 (Small Hall) | Main Building

NANO AND SMART MATERIALS

ELECTRICAL TRANSPORT IN LOW-DIMENSIONAL AND NANOSTRUCTURED MATERIALS: FUNDAMENTALS TO APPLICATIONS

Symposium organizers:

Agnieszka **LEKAWA-RAUS**
(Main Organizer)

John **BULMER**

Karolina Zofia **MILOWSKA**

Mahdi **GHORBANI ASL**

– Warsaw University of Technology

– Air Force Research Laboratory, Dayton Ohio

– CIC nanoGUNE

– Helmholtz-Zentrum Dresden - Rossendorf

Tuesday, 15 September 2026

CHARGE TRANSPORT AND SUPERCONDUCTIVITY

T05

9:00	Proximity-induced superconductivity from first-principles Zeila ZANOLLI	2313
9:30	Tuning Superconductivity and Topology through Electronic Correlations and Lattice Coupling in FeTexSe1-x/SrTiO3 Subhasish MANDAL	1233
9:45	Strain-Induced Anisotropic Transport in Deep InAs Quantum Well Heterostructures Oyut BATCHULUUN	1339
10:00	Single-Metal-Atom Chains Embedded in Transition Metal Dichalcogenides: A Platform for One-Dimensional Spintronics Prosun SANTRA	894
10:15	Strongly Correlated Physics in Organic Open-Shell Quantum Systems Anooja JAYARAJ	1257
10:30	Coffee break	

TRANSPORT PROPERTIES OF 2D MATERIALS AND vdW HETEROSTRUCTURES

T06

11:00	Two-dimensional materials for electronic applications: van der Waals heterostructures and ion beam modifications Artur ERBE	2546
11:30	Charge Transport in Nanostructured Ultrathin Tellurium Films: Effects of Metal Contacts and Interparticle Junctions Revealed by Kelvin Probe Microscopy Virginijus BUKAUSKAS	1623
11:45	Engineering low-damage MoS2/HZO heterostructures via interlayer and ALD process design Ho Won JANG	590
12:00	Halometallenes: A New Family of Two-Dimensional van der Waals Materials with All-Metal Cores Anand ROY	880

12:15	Rolling-Assisted Transfer for Wafer-Scale MoS2 Devices with Clean van der Waals Metal Contacts Yu-Qi HUANG	1228
12:30	Lunch	

TUNING TRANSPORT IN QUASI 1D ASSEMBLIES

T07

14:00	Fibres of carbon nanotube intercalation compounds and the prospect of replacing copper Juan VILATELA	2765
14:30	Superconductivity and Normal Conductivity in CNT Fibers John BULMER	2826
14:45	Taming quantum interference: a route to high electrical conductance in carbon nanotube assemblies Teresa KULKA	2754
15:00	Scaling of Resistivity and Charge Carrier Mean Free Path in Topological Semimetal Nanowires Ofek GOLDREICH	382
15:15	Regioisomeric Fluorination in Donor-Acceptor Conjugated Polymers for Organic Thermoelectrics Guan-Lin CHEN	172
15:30	Coffee break	

POSTER SESSION II

TP02

17:30	Elucidating Charge Transfer Between CsPbBr3 Nanocrystals and Small Molecular Hole Transporters Attila TÓTH	01_1814
17:30	Cation Substitution and Secondary Phase Effects on the Thermoelectric Properties of PbBi _{1-x} Te _x Eunbin KWON	02_1007
17:30	Topologically Driven Band Sharpening for Enhanced Thermoelectric Performance in Pb _{1-x} SnxTe Solid Solution Alloys Gwanhyeong LEE	03_1010

17:30	Composition-Property Mapping of Multinary Chalcopyrite Thermoelectrics for Interpolation-Guided Materials Discovery Jaewoo PARK	04_1014
17:30	Optically driven kagome lattice Prakash PARIDA	05_106
17:30	Highly Selective and Sensitive Graphene-Based Electronic Tongue Functionalized with Nafion, Au Nanoparticles, Calix[4]arene, and Aptamer Ho Won JANG	06_108
17:30	Enhancing the Thermoelectric Performance of SnSb ₂ Te ₃ by Hole Concentration Control via Sb Substitution at Sn Sites Jongmin OH	07_1155
17:30	Band Sharpening and Anomalous Mobility Recovery in Pb _{1-x} Sn _x Se near the Topological Phase Transition for Enhanced Thermoelectric Performance Kangmin LEE	08_1165
17:30	Tuning Carrier and Phonon Transport in SnBi ₂ Te ₄ through Sb Substitution Jisung LEE	09_1170
17:30	Enhancing Thermoelectric Performance of GeBi ₂ Te ₄ Natural Superlattices via Sn Substitution Sangjin JEONG	10_1172
17:30	Altermion: a magnetic-field-free parity protected qubit based on a narrow altermagnet Josephson junction Sakineh VOSOUGHI-NIA	11_1556
17:30	Hidden Rashba Lifting and Giant Spin Splitting at SrGeO ₃ /KTaO ₃ Heterointerfaces via Neutral-Layer Crystal Design Suman MONDAL	13_1626
17:30	Influence of Dielectric Screening on Charge Transport and Ion Migration in Two-Dimensional Dion–Jacobson Layered Halide Perovskites Partha HALDER	15_171
17:30	Enhancing Average Thermoelectric Performance of p-Type Bi-Sb-Te Alloys Through Sequential Defect and Compositional Engineering Woojae KIM	17_1758
17:30	Observation of Pure Inverse Spin Hall Effect in Ni _{1-x} Fe _x /YIG via Longitudinal Spin Seebeck Effect Sang-Kwon LEE	18_1932

17:30	Electronic structure of Sn _{1-x} Mn _x Te observed by Resonant Photoemission Elzbieta GUZIEWICZ	19_1991
17:30	Strain-Driven Emergence of Anomalous Hall Response and Finite Berry Curvature in Epitaxial (110)-Oriented FeRh Antiferromagnetic Thin Films Sang-Kwon LEE	20_2019
17:30	Optical and Electronic Tuning of Carbon Nitride and Carbon Nanotube Nanocomposites for Enhanced H ₂ Generation Narayan N. SOM	21_2654
17:30	Growth Mechanisms of Bamboo-Shaped Carbon Nanotubes: Influence of Catalyst Composition and Dopant Precursors Som NARAYAN	22_3021
17:30	Influence of the structure of cellulose acetate derivatives on percolation and electrical properties of flexible SWCNT-based composite films Anna MARTIN	23_3057
17:30	Light Induced PhaseTransition in Ionic Liquid Gated MoS ₂ Transistors Sudipta MAJUMDER	24_3186
17:30	Observation Offfield Emissionfrom Carbonnanotube Fibres Kamil BAŃKA	25_3221
17:30	Tuning the Electronic and Magnetic Properties of CrSBr for Spintronic Applications Mahdi GHORBANI ASL	26_566
17:30	Wafer-scale Crystalline Alumina Top-gate Dielectrics for Low-power 2D Logics Ziyang ZHANG	27_594
17:30	Intrinsic Inductive Behavior in Epsilon-Negative LaNiO ₃ : A Transport-Driven Route to Coil-Free Components Tarun KATHERIYA	28_79
17:30	Thermally Driven Bimorphic Piezoelectric Energy Harvester Naveed AHMED	29_790
17:30	Enhanced lithium-ion transport and electrochemical stability induced by organoborate zwitterions in self-assembled PAS-co-2PEG solid electrolytes for lithium-sulfur batteries Dukjoon KIM	30_815

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

SPIN TRANSPORT IN LOW-DIMENSIONAL MATERIALS

T09

- 14:00

Clean contacts for spintronic and ferroelectric memory devices with 2D materials
Soumya SARKAR

1657
- 14:30

Ultrafast spintronics in 2D materials
Deepika GILL

2881
- 14:45

Spin Transport across two-dimensional Spinterfaces
Soumya Jyoti RAY

166
- 15:00

Skyrmion and domain wall dynamics in ultrathin Pt/Re/Co/Pt heterostructures
Bhawna SHARMA

240
- 15:15

Strain Engineering of Spin Polarization in Two Dimensional Fe_GeTe_-Family Materials and Fe_GaTe_ for Spintronic Applications
Mohammadreza DAQIQSHIRAZI

2323
- 15:30

Coffee break

THERMOELECTRIC TRANSPORT

T10

- 16:00

Unified theories of thermoelectric transport in solids: from nanoscale disorder to thermoelectric hydrodynamics
Michele SIMONCELLI

3248
- 16:30

Composition-Property Mapping of Multinary Chalcopyrite Thermoelectrics for Interpolation-Guided Materials Discovery
Jaewoo PARK

1750

16:45	Epitaxial control of transport and switching in Magnéli-phase vanadium oxide thin films Armando RUA	2260
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

ELECTRONIC TRANSPORT IN NEUROMORPHIC AND MEMORY DEVICES

T11

9:00	From Binary to Ternary Tin Chalcogenides: Electronic Transport and Neuromorphic Photoresponse Antonio DI BARTOLOMEO	2481
9:30	High-Performance Ferroelectric HZO-Based Electronics using Two-Dimensional MoS ₂ Ho Won JANG	588
9:45	Analysis of Electrical Characteristics and Synaptic Operation of 100 nm Mesh-Type Floating-Gate Neuromorphic Transistors under Cryogenic Conditions Jang MOONGYU	869
10:00	Molecular Kinetics Governing Linearity, Symmetry, and Multilevel Analog States in Molecular Memristors Sreetosh GOSWAMI	1322
10:15	Berry curvature induced non-linear transport phenomena in quantum materials Raihan AHAMMED	1384
10:30	Coffee break	

DEVICES AND APPLICATIONS

T12

11:00	2D Materials for Charge Storage Johan TEN ELSHOF	129
11:30	Rapid Prescreening of Li-Ion Battery Cathode Suspensions for Direct Recycling Dominik SCHMIDT	375
11:45	Conductive network stability in self-healing silver-polymer composites for stretchable and washable electronics Katarzyna WÓJKOWSKA	2717
12:00	MXene-based microfluidic platform: advanced pH sensing for E-tongue Ho Won JANG	318
12:15	Blue micro-light-emitting diodes-activated tunable gas sensing array platform Ho Won JANG	596
12:30	Contactless Detection of Spin-Orbit Coupling (SOC) Effects on Helicity-Dependent Charge Separation in Chiral 2D Perovskites Joanna Dehnel	596
12:30	Lunch	

PHOTOINDUCED CHARGE TRANSPORT

T13

14:00	Understanding the Temperature Dependence of Exciton Binding Energies and Dissociation Rates in Heterogeneous Semiconductors from First Principles Computational Modeling Marina Rucsandra FILIP	2683
14:30	Terahertz Emission from Bi Layers Grown on GaAs (100) Benas STANIONIS	711
14:45	Overcoming the Tunneling Thickness Limit of Al2O3 Interlayers in Silicon MIS Photoanodes via Defect-Dipole Engineering Ho Won JANG	170

15:00	Electrochemical Tuning of Ultrafast Exciton Dynamics in Transition Metal Dichalcogenides Krisztina TRÉNYI-SÁROSI	2184
15:30	Coffee break	

FUNCTIONAL ELECTRONIC 1D/2D ASSEMBLIES

T14

16:00	Macromolecular Control in Conjugated Polymer Extraction: Scalable Processing of Monochiral Semiconducting Carbon Nanotube Electronic Inks Dawid JANAS	891
16:30	Langmuir Techniques for Preparation and Investigation of Carbon Nanostructured Thin Films Kamil KEDZIERSKI	2186
16:45	Solvent-Driven Assembly of Wet-Spun Carbon Nanotube Fibers: Combined Experimental and Computational Study Dorota BIERNACKA	2193
17:00	Improved Thermoelectric Metal-Organic Frameworks via Electronic Modulation in Aluminum Fumarate Nandish HOSADODDI SRIKANTAMURTHY	163
17:15	Exploring the Synergy between Nanoparticle Shape and Relaxation Dynamics in Liquid Crystal Nanocomposites Shweta MISHRA	1585



Symposium Sponsor

Symposium U

Sessions: Room 306 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

MODELLING AND CHARACTERISATION

FROM ATOMS TO APPLICATIONS: MULTISCALE MODELING AND DATA-DRIVEN STRATEGIES FOR ADVANCED MATERIAL

Symposium organizers:

Christina SCHENK

David SIMEONE

Mark FEDOROV
(Main Organizer)

- IMDEA Materials Institute
- Université Paris-Saclay, CEA
- National Centre for Nuclear Research

Monday, 14 September 2026

ENERGY STORAGE: BATTERIES & SOLID-STATE ION TRANSPORT

U01

9:00	Detecting concerted migration from large-scale MD simulations Yoyo HINUMA	3
9:15	First principles computations of the high-voltage 5-volt rechargeable Li-ion battery cathode $\text{Li}_2\text{CoMn}_3\text{O}_8$ and new battery anodes Roberts EGLITIS	872
9:30	Kinetic limits of Na pore filling in hard carbon anodes: DFT and Monte Carlo study Ihor RADCHENKO	1108
9:45	Beyond LGPS: Multiscale Atomistic Design of Ge-Free $\text{Li}_{\text{AIP}_\text{S}}$ for Superionic Transport and Chemomechanical Resilience Vinay MAITHANI	1548
10:00	Modeling Lattice-Driven Li-Ion Migration in Garnet Electrolytes Jose Maria CASTILLO ROBLES	2318
10:30	Coffee break	

THERMAL & VIBRATIONAL TRANSPORT

U02

11:00	Thermal Transport in Bulk and Layered Hexagonal Boron Nitride: A Comparative Study Using Ab Initio and Neuroevolution Potentials Alessandro SERRA	683
11:15	Temperature-Dependent Vibrational Properties of Monolayer WS_2 Nanocrystals: From Harmonic Phonons to Ab-Initio Molecular Dynamics Konrad WILCZYNSKI	1885
11:30	Anharmonicity Driven Unusual Particle-to-Wave-like Phonon Crossover Leads to Ultralow Thermal Conductivity in Ti_2AgI_3 Kanishka BISWAS	2801
11:45	Interplay between Thermal Transport and Li-Ion Diffusion in Lithiated Graphene-Cu Heterostructures Dipali NAYAK	3235

12:00	Coherent phonon excitation-induced evolution of spin dynamics in Magnetic Oxides Sasikumar Sreelatha JAYAKRISHNAN	1256
12:30	Lunch	

CATALYSIS, ELECTROCHEMISTRY & SURFACE REACTIONS

U03

14:00	From Atoms to Applications: Molecular-Level In-Silico Design of C_Li_ Superalkali for Efficient N_O Greenhouse Gas Capture Sarvesh Kumar PANDEY	3070
14:15	First-Principles Insights into Enhanced Catalase Activity of Mg-Modified Prussian Blue for Hydrogen Peroxide Decomposition Pritam DAS	238
14:30	From Quantum Mechanics to Sustainable Technologies: Designing Complex Oxide Electrocatalysts for Renewable energy Applications Md Delowar HOSSAIN	1394
14:45	From Surface Electrochemistry to Bulk Transport: A Grand-Canonical DFT and Machine-Learning Framework for ORR in SOFC Cathodes Parul GOEL	2555
15:00	Efficient calculation of activation barriers for Cu and Ru deposits on TaN using machine learning potentials Karl RÖNNBY	1878
15:15	Thermal Transport in Rare Earth Pyrochlore (RE2Zr2O7) for Thermal Barrier Coatings: A Machine Learning Study of Anharmonic Phonon and Radiative Contributions Harish KUMAR	1531
15:30	Atomistic Modelling of Fe-O System: Insights from Interatomic Potentials Poulumi DEY	848
15:30	Coffee break	

POSTER SESSION I

UP01

17:30	Simulations and experimental investigations for high entropy alloys of industrial interest Alexandru OKOS	01_100
17:30	Atomistic insights into metal-ion storage and pore filling in hard carbon anodes Gabriel KUDEROWICZ	02_1026

17:30	Reliability-Aware Compact SPICE Modeling and Parameter Optimization for 14nm Fin-LDMOS Devices Yoochwan KIM	03_114
17:30	Elucidation of Li-Ion Diffusion Mechanisms in Sulfur-Containing Polymer Electrolytes Yuya HASHIMOTO	04_1467
17:30	Correlation Between Microstructural Stability and Oxidation Resistance in Er- and Zr-Modified Al-Mg Alloys Seong-Ho HA	05_1744
17:30	Tracking Ultrafast Radiation-Induced Water Radiolysis Pathways via Reactive Molecular Dynamics Ensemble Simulations Hyun Bin KIM	06_1871
17:30	Understanding of ion-irradiation effects on Ni43.5Fe33.5Mn6Cr11Al6 and Ni70Mo10Cr13Al7 alloys Peichen WANG	07_2048
17:30	An experimental-based multiscale method for calculating radiation-enhanced mobility in solids: application to radiation-induced microstructure in FeCr David SIMEONE	08_2110
17:30	First-Principles Insights into Strength-Ductility Optimization in BCC Refractory High-Entropy Alloys Dhanshree PANDEY	09_2190
17:30	Deposition Tetris: A Multi-Scale Study of Dendritic Growth On Zn-Ion Battery Anode Surfaces Alma CRASMARU	10_2270
17:30	Schema-Anchored AI Workflow for Cross-Sector Materials Discovery on KoMaP Kang Il CHOI	11_2479
17:30	From Atoms to Electrolytes: A Multiscale DFT and Ab Initio Molecular Dynamics Study of LiBOB-Tuned Li ⁺ Solvation in Multicomponent Carbonate Electrolytes, Validated by ATR-FTFTR Abdül Kahar BARUG	12_2528
17:30	Model class versus physics-informed descriptors: a controlled benchmark for property prediction in Fe-Cr-Ni-Al BCC ferritic superalloys Yo Han CHOI	13_2598
17:30	DFT plus ML Mapping of Mn Dopants on BiVO ₄ (010) Surfaces for Visible Light Photoanodes Abay USSEINOV	14_2735
17:30	From Atomistic Modelling to Data-Driven Discovery: A Multiscale Framework for NASICON Solid Electrolytes Lingyun ZHAO	15_2745

17:30	Bridging Experiments and Atomistic Simulations to Identify a Novel FeS Monolayer on Au(111) Naiara MARANA	16_2822
17:30	Stochastic Simulation of the Electrical Properties in Nanotube Composites with Spherical Inclusions Zahra HARATIZAVEH	17_2993
17:30	Effect of temperature on subsurface damage of twined lamellar high-entropy alloy during the cutting process Te-Hua FANG	18_2997
17:30	Interplay of Electric and Magnetic Interactions in Field-Driven Particle Assembly Aleksander PIASECKI	19_3004
17:30	Exploring the effects of phosphonic acid self-assembled monolayers on the electronic properties of indium tin oxide Leonardo RODRIGUES MOREIRA	20_3077
17:30	Electronic and Structural Properties of Graphene@ZnS ₂ Van der Waals Heterostructures: A First-Principles Study Amil ALIGAYEV	21_349
17:30	Molecular Dynamics Study of the Interfacial Structure between In-Li Alloy Anodes and LPSCI Mitsuki KANNO	22_595
17:30	Study of the tensile and fatigue properties of quaternary strengthening phase in Ni-based superalloys Peng SHI	23_733
17:30	Parametric study of the unified two-temperature model for molecular dynamics simulations of primary radiation damage in germanium Ruoyan JIN	24_969

Tuesday, 15 September 2026

AI METHODS AND GENERATIVE MODELS FOR MATERIALS DESIGN

U05

9:00	Machine learning-aided inverse design of porous metamaterials Fadi ALDAKHEEL	3322
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9:30	The PULSE method to estimate the thermodynamic properties of chemically disordered materials with generative machine learning Baptiste BERNARD	18
9:45	Physics-Aware Generative AI for Bridging Multiscale Steel Microstructures: Beyond Visual Realism to Scientific Utility Daria TOMECKA	65
10:00	A data-driven framework for semiconductor discovery Gabriele SALEH	1426
10:30	Coffee break	

MACHINE LEARNING FOR MATERIALS PROCESSING AND OPTIMIZATION

U06

11:00	Tackling small data challenges in material design: from heat storage to carbon capture Alberto PÉREZ DE ALBA ORTÍZ	344
11:30	Optimization of Microporous Layer Through a Machine Learning Workflow Rashen Lou OMONGOS	53
11:45	Machine Learning Framework for Derivation and Optimization of Cz-YAG Crystal Growth Recipe Kunal MESHRAM	2739
12:00	Disentangling Melt Rheology from Nanoscale Structure and AI Michele CASSETTA	1432
12:15	Development of an Automated Thermodynamic Parameter Optimization Method in CALPHAD Using Bayesian Optimization and Deep Learning Ruona TANG	2898
12:30	Lunch	

AI FOR BATTERIES, TRANSPORT AND ATOMISTIC SIMULATION

U07

14:00	Decoding Structure -Transport Relationships in Li ₇ La ₃ M ₂ O ₁₃ (M = Nb, Ta) Garnets via ML-Driven Simulation and Analysis Mauricio RINCON BONILLA	490
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14:30	Predictive Screening of Sustainable Etchants via DFT Thermodynamics, Machine-Learned Vapour Pressures, and Infrared Spectra Christopher PASHARTIS	623
14:45	Machine-Learning Interatomic Potentials for Atomistic Modeling of Li/Na Storage in Hard Carbon Anodes Andres Felipe USUGA	1216
15:00	Automated Molecular-to-Bulk Modeling of Liquid Electrolytes for Li-Ion Batteries Henry Andres CORTES	660
15:30	Coffee break	

MACHINE-LEARNING POTENTIALS AND COMPUTATIONAL METHODS

U08

16:00	Physics-Informed Feature Engineering for Unsupervised Discovery of Metal-Insulator Transition Materials Gulcehre Duygu YUKSEL	1619
16:15	Development of MTP-Based Machine Learning Interatomic Potential for Thermal Transport in Magnesium Silicide (Mg ₂ Si) Abhishek KUMAR	3295
16:30	Fine-Tuning Universal Machine Learning Interatomic Potentials for CeO ₂ : A Comparative Study of MACE, NequIP, and CHGNet Leons STANKEVICS	3204
16:45	Crystal Structural Frameworks as a Design Principle for Lithium Super-Ionic Conductors: From Topological Analysis to AI-Driven Molecular Dynamics Qiang BAI	2453
17:00	Fingerprinting molecular environments in condensed phases: a graph-based spectral approach Chiara PICARELLI	1889

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

SIMULATION AND AI IN MATERIALS BEHAVIOR

U09

14:00	A phase field approach to model the nucleation and growth process in solids: application to FeCr Laurence LUNEVILLE	2099
14:30	Crystal plasticity finite element method for Berkovich nanoindentation – ion implanted steel Karol FRYDRYCH	554
14:45	The impact of hydrides on crack propagation in dual-phase Ti-6Al-4V alloy Liwu JIANG	618
15:00	Efficient Experimental Design with an AI-Driven Tool Based on Bayesian Optimization Mahshid POURNAJAR	115
15:15	AI-Driven Automated Metallography Analysis Platform (AMP): Accelerating Microstructural Characterisation Through Computer Vision and Explainable AI Ehsun SAEED	1874
15:30	Coffee break	

IRRADIATION, ML, AND ALLOY CHARACTERIZATION

U10

16:00	Machine Learning-Based Inverse Analysis Algorithm for Tensile Property Prediction Using Instrumented Indentation Testing Seung-Kyun KANG	503
16:30	How to handle experimentally segregation and precipitation at grain boundaries: application to irradiated Fe3%Cr alloys Olivier TISSOT	2132
16:45	Cobalt-Free High-Entropy Alloys for Extreme Environments: From Intelligent Design to Strengthening Mechanisms Wenyi HUO	1920
17:00	Investigation of Electron Irradiation (1 MeV) Effects on Cr Precipitation in Fe-19at.%Cr alloy Benjamin MAHE	2365
17:15	Understanding the Degradation of Battery Electrodes through In Situ Liquid-Cell Transmission Electron Microscopy Rui SERRA MAIA	2015

18:00 YOUNG RESEARCHER AWARDS CEREMONY

18:30 SOCIAL EVENT

Thursday, 17 September 2026

MECHANICAL & DEFECT PROPERTIES

U11

9:00	Multiscale Modeling of Crack Evolution in Thin Films and Coatings bridging Molecular Dynamics to Digital Material Representation scale K. PERZYNSKI	3320
9:45	Nanoscale Ballistic Performance of Nature-inspired CNT-PMMA Composites Stuti UPADHYAY	1311
10:00	Study on Diffusion and Permeation Mechanism of Hydrogen in Typical Ceramic Coatings Chuanhui ZHANG	131
10:15	From Electron Collisions to Etch Performance: Multiscale Modeling and Validation of Low-GWP Plasma Chemistries (BF3, PF3) Yoshiki NAKAYAMA	823
10:30	Coffee break	

MAGNETIC, TOPOLOGICAL & CORRELATED-ELECTRON MATERIALS

U12

11:00	Atoms-to-mesoscale modelling of double-exchange ferromagnetism and A-site-disorder-driven magnetic inhomogeneity in monovalent K-doped LaMnO3 Suman MONDAL	1738
11:15	Ab initio Investigation of Weyl Physics in the Heavy-Fermion Compound CeRu4Sn6 Jorunas DOBILAS	1897
11:30	Atomistic modeling of domain boundaries in CoSn by DFTB-NEGF approach Riichiro MIYAWAKI	2233
11:45	Evaluation of impurity effects in magic-angle twisted bilayer graphene by machine learning interatomic potentials Ignazio VACANTE	1549

12:00	Numerical Evaluation of Grain Boundary Induced Resistivity Size Effect in PtCoO ₂ and PdCoO ₂ Takahisa TANAKA	2791
12:30	Lunch	

MICROSTRUCTURE & STRUCTURAL EVOLUTION

U13

14:00	Multiscale physics based modelling of steel quenching using coupled finite element-mean-field and cellular automata, phase-field, and Monte Carlo approaches Aarne POHJONEN	1218
14:15	Helium Effect on Self-Healing at Tungsten Grain Boundaries using a DFT-Based Machine-Learning Interatomic Potential Roberto IGLESIAS	692
14:30	Multi-Phase Field Simulation of grain growth Incorporating thermal stress Hiroki MURATA	1694
14:45	Phase-field Model Incorporating Soret Effect for Microstructural Evolution in Polycrystalline Materials Machiko ODE	1838
15:00	Vitrification and structural analysis of vanadate glasses in MD simulations using machine learning potentials Adam PUCHALSKI	1838
15:30	Coffee break	

COMPUTATIONAL METHODS, ML POTENTIALS & MATERIALS

U14

16:00	Precision Without Penalty: Rational Time-Step and Integrator Selection for Molecular Dynamics Elena AKHMATSKAYA	2435
16:15	Modeling of polarons, holes and the density of states of conducting polymers Melissa K. MEINEL	1630
16:30	Polaron Transport in TiO ₂ from Machine Learning Molecular Dynamics Christian AHART	2582

16:45	Functionalising creases in the monolayer lattice of 2D semiconductors Soumyadip HAZRA	168
17:00	Computational design of FRET-based ssDNA aptamers for multianalyte detection of Alzheimer's disease biomarker Francesco BELLINA	2499



2026 Fall Meeting

Symposium Sponsor

Symposium V

Sessions: Room 327 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

MODELLING AND CHARACTERISATION

ADVANCED X-RAY TECHNIQUES FOR MATERIALS CHARACTERIZATIONS: FROM IN-HOUSE INSTRUMENTATIONS TO LARGE-SCALE SYNCHROTRON FACILITIES

Symposium organizers:

Anatoli I. POPOV

Karina THANELL

Wei CAO
(Main Organizer)

Yana SUCHIKOVA

- University of Latvia
- MAX IV Laboratory, Lund University
- University of Oulu
- Berdyansk State Pedagogical University

Tuesday, 15 September 2026

ADVANCEMENTS IN X-RAY TECHNIQUES

V05

09:15	Multi-Edge EXAFS Spectroscopy of Multicomponent Materials Alexei KUZMIN	3072
09:45	A superconducting transition edge sensor array for synchrotron soft x-ray emission spectroscopies of low-dimensional and impurity-level concentration systems Régis DECKER	2559
10:15	Binding energy referencing in X-ray Photoelectron Spectroscopy Grzegorz GRECZYNSKI	2401
10:30	Coffee break	

COMPUTATIONAL ADVANCES IN X-RAY TECHNIQUES

V06

11:00	Accelerating EXAFS Analysis with Universal Machine Learning Interatomic Potentials Pjotr ŽGUNS	2907
11:30	Simulation-Guided GIXPES: How to Maximize Signal and Depth Sensitivity in Photoelectron Emission Spectroscopy (XPS/HAXPES) Experiments Martina MÜLLER	1924
11:45	Simultaneous HAXPES and XRD under atmospheric conditions Okkyun SEO	1477
12:00	Ab initio calculations of ABO3 Perovskite and BaF2, CaF2, and SrF2 F-center atomic and electronic structure and optical properties Roberts EGLITIS	666
12:15	In-situ Investigation of Surface Segregation and Oxidation States in Co-doped Cu/CeO2 Catalysts During CO2 Hydrogenation via AP-HAXPES Jiayi TANG	715
12:30	Lunch	

MULTIMODAL

V07

14:00	Advancements in X-ray Microscopy for Nanoscale Spectroscopy and Imaging Carla BITTENCOURT	96
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14:30	Coordination Polymers Based on an Aliphatic Organic Ligand and Biocidal Metal Ions: Self-Assembly Synthesis and Structural Characterization Juliana P. SILVA	3181
14:45	Manipulating Spin-Sensitive via Exchange Field in Ferromagnet Weyl metal CoS ₂ Truc Ly NGUYEN	1142
15:00	X-ray diffraction topography in characterization of advanced single-crystalline materials Jacek KRAWCZYK	283
15:15	Advanced X-ray Characterization of Cu/g-C ₃ N ₄ Electrocatalysts: Linking Atomic Site Architecture to HER/CO ₂ RR Selectivity Wan-Ting CHEN	469
15:30	Coffee break	

BENEFITS FROM LARGE-SCALE INFRASTRUCTURE FOR MATERIALS STUDIES

V08

16:00	Magnetic and ferroelectric imaging at large scale facilities Tim A. BUTCHER	1853
16:30	Compact pulsed laser deposition as a beamline compatible sample environment for operando studies of thin film growth Ksenia MAKSIMOVA	3267
16:45	AXOLOTL 2.0: A new instrument to measure the X-ray excited optical luminescence of semiconductors with spectral and temporal resolution Niklas PYRLIK	1503
17:00	X-ray Florescence of metal oxide thin films Brian WALLS	1157
17:15	Correlative _Laue Diffraction and X-ray Excited Optical Luminescence for Multimodal Characterization of III-Nitride Optoelectronic Nanostructures Beatriz DE GOES FOSCHIANI	2420

Wednesday, 16 September 2026

9:00 **PLENARY SESSION**

12:30 Lunch

IN SITU AND OPERANDO X-RAY TECHNIQUES IN FUNCTIONAL MATERIALS

V09

14:00	Functional materials in the in-situ synchrotron X-ray diffraction looking glass Thomas W. CORNELIUS	695
14:30	Characterization of metal–sulfur batteries using sulfur K-edge RIXS and laboratory Valence-to-Core X-ray emission spectroscopy Matjaz KAVCIC	2495
15:00	In-situ photoemission and structural characterization of engineered ZnO/ZnPcFx(0-16) interface for optoelectronic optimization Sakineh AKBARI NIA	2102
15:15	In Situ APXPS Studies of Water-Induced Surface Reactions in Epitaxial 2D Chalcogenide Films Young Jun CHANG	1307
15:30	Coffee break	
18:00	YOUNG RESEARCHER AWARDS CEREMONY	
18:30	SOCIAL EVENT	

Thursday, 17 September 2026

IN HOUSE AND PORTABLE X-RAY TECHINQUES

V11

09:00	Advances in high-energy resolution x-ray spectrometry Joanna HOSZOWSKA	1592
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09:30	Laboratory-Based Operando X-Ray Absorption Spectroscopy for Monitoring Thermocatalytic Processes of Different Time Scales Joon Baek JANG	1190
10:00	OperaRI & H2MIRI: Multi-Scale Finnish Operando Infrastructure for Hydrogen and Energy Materials Characterization Marco PINNA	1637
10:15	QuantumLeap XAS Series: Advancing Laboratory-Based X-ray Absorption Spectroscopy Aniruddha DEB	2357
10:30	Coffee break	

IN SITU AND OPERANDO X-RAY TECHNIQUES IN ENERGY MATERIALS

V12

11:00	Operando characterisation of batteries by quantitative X-ray spectrometry Burkhard BECKHOFF	2545
11:30	Determining local oxidation states in NMC batteries by operando confocal XAFS measurements Lena K. MATHIES	2841
11:45	Sulfur Strand Length Distribution in Lithium Organo-Sulfur Batteries measured by Operando X-Ray Absorption Spectrometry Matthias MÜLLER	1837
12:00	Study of time-resolved photoemission dynamics in semiconductor materials for photovoltaic cells Margaux LE COQ	1174
12:15	Combined X-ray spectroscopy techniques to reveal the charge compensation mechanism in alluaudite-type sulfate cathode materials for batteries Ehrenfried ZSCHECH	357
12:30	Lunch	

X-RAY FOR MICROSTRUCTURAL DETERMINATIONS

V13

14:00	Imaging ferroic domain dynamics with nanoscale X-ray diffraction Jesper WALLENTIN	427
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14:30	Sub-micron strain imaging around copper through-silicon vias by dark-field X-ray microscopy Alaa HAMZI	2648
14:45	Molecular Ordering of HMTP Organic Semiconductor Thin Films on Graphene Related Layers on SiC Devanshu VARSHNEY	1057
15:00	In-situ synchrotron X-ray diffraction investigation of epitaxial BaFe ₁₂ O ₁₉ /Bi ₃ Ti ₅ FeO ₁₅ multiferroic heterostructures on Si(111) for non-volatile memory applications Berkin NERGIS	2417
15:15	Leveraging spatial correlations to investigate complex polycrystalline systems with synchrotron Laue micro-diffraction Sergio BONGIORNO	2652
15:30	Coffee break	

POSTER SESSION IV VP04

16:00	Revealing the Intrinsic Mechanism of Enhanced Stability in Ce-doped NiFe Electrocatalysts via Operando X-ray Absorption Spectroscopy Lumeng WANG	01_1248
16:00	Advanced In-Situ X-ray Probing of Structural Evolution and Atmospheric Stability Mechanisms of Halide Solid-State Electrolytes Synthesized via Supersaturation-Driven Coprecipitation Strategy Josanelle Angela Villanueva BILO	02_128
16:00	A new salt of clofazimine with picolinic acid: structural characterization Patricia OSORIO FERREIRA	03_1387
16:00	Dose Quantification of Functional Materials at the P05 Nanotomography Imaging Beamline Sandra SEFA	04_1567
16:00	Unveiling chemical state and microstructure of the Eu-doped Co(OH) ₂ through in house x-ray absorption and photoelectron spectroscopic studies Wei CAO	05_1705
16:00	Molecular bimetallic macrocycles for electrochemical CO ₂ reduction Edgars ELSTS	06_2489
16:00	A transfer system for inert sample transfer of sensitive materials Lena K. MATHIES	07_2867

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|-------|---|---------|
| 16:00 | Phase Formation and Structural Evolution of ABO ₄ -Type Oxides Investigated by X-ray Diffraction
Anatoli POPOV | 08_2900 |
| 16:00 | Correlation Between Luminescence and Local Structure in β -Ga ₂ O ₃ Single Crystals: Insights from XRD, Raman, and PDF Analysis
Anatoli POPOV | 09_2926 |
| 16:00 | Tailoring experiments for multiscale analysis of nanomaterials: RIANA support at CoSAXS
Simona BIANCO | 10_3018 |
| 16:00 | Advanced X-ray and Raman Investigation of Stress Relaxation in 3C-SiC/Porous-Si/Si Heterostructures
Yana SYCHIKOVA | 11_3190 |
| 16:00 | Synchrotron Excitation Spectroscopy of Eu ²⁺ Centers in BaGa ₂ O ₄ Ceramic Phosphors
H. KLYM | 12_3241 |
| 16:00 | X-Ray Absorption Spectroscopy studies of the oxidation states and local cation coordination in Mn-containing ferrites
Konstantin BIKOV | 13_775 |
| 16:00 | Synthesis, Characterization, and Electrochemical Properties of Mesoporous MgM ₂ O ₄ (M = Mn, Fe and Co) Thin Film Electrodes
Muratcan ÖS | 14_804 |



Symposium Sponsor



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Chair

Aid4GEA - Technologies and Materials for
Green and Energy Applications

Symposium W

Sessions: Room 309 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

ENERGY AND ENVIRONMENTAL APPLICATIONS

ADVANCED CERAMICS FOR ENERGY AND ENVIRONMENT

Symposium organizers:

Alberto **VOMIERO**

Elisa **MORETTI**
(Main Organizer)

Sanjay **MATHUR**

- Luleå University of Technology
- Ca' Foscari University of Venice
- Department of Chemistry, University of Köln

Monday, 14 September 2026

SESSION 1 W01

- 9:30 Design of High-Performance TiO₂/BiVO₄ Photocatalysts for Efficient Water Treatment and Photoelectrochemical Hydrogen Generation 681
Mohamed CHAKER
- 10:15 Novel vanadium-doped viburnum flower-shaped titanium dioxide nanoarchitectures for efficient photocatalytic gaseous toluene degradation 64
Syeda Mahnoor ZEHRA
- 10:30 Coffee break

SESSION 2 W02

- 11:00 Lanthanide-based Metal-Organic Frameworks: Interesting phosphors for modern photonics applications 991
Adolfo SPEGHINI
- 11:30 A Twofer in DNA-AgNCs: composition, structure, and photophysics of two clusters stabilized by the same DNA sequence 1815
Letizia LICCARDO
- 12:00 Interface engineering of Au@ZnIn₂S₄/Ni-MOF 2D/2D heterojunction for enhanced visible-light-driven hydrogen evolution 3161
Juliana CARDOSO NEVES
- 12:15 Silica micro/nano-structures from diatoms microalgae: living materials for energy and environment 1662
Gianluca Maria FARINOLA
- 12:30 Lunch

SESSION 3 W03

- 14:00 Engineering Catalytic Interfaces and Confinement Effects in Layered MPX₃ Materials for Water Splitting 1289
Tofik Ahmed SHIFA

14:30	Advanced two-dimensional auxetic M2-Xenes for energy and environment Giovanni FANCHINI	1633
15:00	Plasma Activated Co-W-S Sulphide Electrode on Nickel Foam for Efficient Hydrogen Evolution Reaction Shaista JABEEN	1996
15:15	Thermo-chemical and -mechanical Stability of Materials in Membrane Reactors for Renewable Syngas Production Kevin STRECKEL	1009
15:30	Rational Design of Hybrid Nanomaterials Interfaces for Sacrificial-Agent-Free Photocatalytic Water Splitting Hiang Kwee LEE	43
15:30	Coffee break	

POSTER SESSION I WP01

17:30	Evaluation of Contact Resistance of SnO ₂ -Coated Stainless Steel Separators for Fuel Cells Daichi OGAWA	01_1004
17:30	Microstructural Design of Cathode Porosity for Improved Molten Carbonate Fuel Cell Performance Gabriela KOMOROWSKA	02_113
17:30	Low temperature laser annealing of TiO ₂ films for solar cells Maria BASSO	03_1434
17:30	Deposition of SnO ₂ Thin Films on Carbon Substrates by Mist CVD Seiichiro SHIMA	04_1770
17:30	Investigation of Transition-Metal-Modified Na ₅ V ₁₂ O ₃₂ Cathodes for Sodium-Ion Batteries Gaurav PANDEY	05_1937
17:30	Defect Rich Chalcogenide (Co-W-S) based Electrocatalysts on Nickel Foam for Efficient Hydrogen Evolution Reaction Shaista JABEEN	06_2006
17:30	Low-Temperature Cold Sintering of Bismuth Oxide-Doped Porous Zinc Anodes for Reversible Zinc-Air Energy Storage Ufuk AKTAS	07_2064

- 17:30 Low-Temperature Cold Sintering of Bismuth Oxide-Doped Porous Zinc Anodes for Reversible Zinc-Air Energy Storage08_2068
Ufuk AKTAS
- 17:30 Comparative Study of Earth-Abundant and Transition-Metal High-Entropy Spinel Ferrites for Oxygen Electrocatalysis09_2106
Safiye Ozge OGUT
- 17:30 Sustainable water cleaning of broad-range PFAS using "smart rust" 10_2165
Julia FRÖHLICH
- 17:30 ZIF-67 Derived Metal-Cobaltites: Synthesis of NiCo₂O₄ and CuCo₂O₄ Spinel 11_2192
Laura LÍBERO
- 17:30 What positrons tell us about CO₂ capture and utilization: free-volume fingerprinting of carbonates and carbon membranes within ReMade@ARI 12_260
Ahmed Gamal ATTALLAH
- 17:30 Eu³⁺ Doped Y₂ZnTiO₆: A new thermally stable Defect Pyrochlore Orange-red Phosphor for white light emitting diode Applications 13_2630
Sadhana YADAV
- 17:30 Thiol-Ene Click-Engineered Rubbery Block Copolymers for Robust Interfacial Adhesion in Sulfide-Based All-Solid-State Batteries 14_264
Ju Hyeong NOH
- 17:30 Rational Construction of Nickel-Molybdenum Yolk-Shell Nitride for Alkaline Hydrogen Evolution Reaction 15_2782
Do Gyeong KIM
- 17:30 Anchoring Noble Metal in High-Surface-Area IRMOF-3 for High-Performance Hydrogen Evolution Reaction 16_2795
Young Gwon KIM
- 17:30 Electrophoresis-Deposited TiO₂ Layers on Sb₂S₃ Photocathodes for Enhanced Photoelectrochemical Hydrogen Gas generation 17_301
Moisés A. DE ARAÚJO
- 17:30 In situ Li₃PS₄ Solid Electrolyte Film Synthesized on Li Metal via Sulfur-Rich Anodization for All-Solid-State Lithium-Sulfur Batteries 18_444
Daoguang BI
- 17:30 Ceramifiable Silicone Rubber Composites with Refractory Fillers for Fire-Resistant Power Cable Insulation 19_62
Ruiling KANG

17:30

Novel ceramic and catalyst composite electrode design for Mitigating Degradation in polymer electrolyte membrane Fuel Cells

20_809

Hee-Young PARK

Tuesday, 15 September 2026

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W05

8:30	Crystal Structural Frameworks and AI-Driven Simulations for Designing Fast-Ion-Conducting Ceramic Electrolytes	2457
	Qiang BAI	
9:00	Luminescent Eu- and Ag-doped 13X zeolites as porous ceramic platforms with potential for environmental sensing applications	1640
	Anna SAFONOVA	
9:30	Aluminum Cocatalyst Modified Porous Oxygen-Functionalized g-C3N4 for Noble-Metal-Free Photocatalytic Hydrogen Evolution	1472
	Edreese ALSHARAEH	
9:45	Electronic Structure Engineering of Alkali-Metal-Doped g-C3N4 for Enhanced Visible-Light Photocatalysis	3155
	Saheli KARMAKAR	
10:00	Alumina-Doped Zinc Oxide Protective Coatings for Nitriding-Resistant Metallic Bipolar Plates in Ammonia-Fueled Solid Oxide Fuel Cells	1275
	Sun Beom KIM	
10:15	In situ microstructural characterization of ytterbium silicate coatings in accident conditions	276
	Hector GUERRA YANEZ	
10:30	Coffee break	

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W06

11:00	Boosting effects of carbon nanohorns in metal oxide-catalyzed in the electrochemical CO2 reduction	212
	Michele MELCHIONNA	
11:30	Engineered High-Entropy Layered Double Hydroxides as a Prolific System of Multifunctional Electrocatalysis	271
	Kassa Belay IBRAHIM	

12:00	Nanostructured copper oxides: How to tailor the pathways for an efficient electrochemical CO ₂ reduction Falak SHAFIQ	185
12:15	Entropy-Engineered Pyrite High-Entropy Sulfides for Reversible Oxygen Electrocatalysis in Rechargeable Zinc–Air Batteries Tuncay ERDIL	2093
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W07

14:00	Optimizing Al-doped ZnO transparent electrodes through physical vapor deposition David HORWAT	1313
14:30	Low temperature photonic annealing of metal oxide thin films for energy applications Maria BASSO	1362
15:00	Dynamic Interface Engineering for Intermediate-Temperature SOC Electrodes: From Catalytic Interfaces to Multifunctional Heterointerfaces Kun ZHENG	2920
15:15	HiPIMS-Engineered Mn on Laser-Induced Graphene for Scalable Pseudocapacitive Supercapacitor Electrodes Sourav SAIN	2850
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SESSION 8

W08

16:00	Surface Chemistry Matters: From Hydrophobic Waste Cork to Hydrophilic Activated Carbon as Metal-Free Photothermal Evaporator for Desalination Muzammil HUSSAIN	2130
16:30	Nanofluidic Hydrovoltaic Energy Generation in Hermetic Cell: The Effect of Porous Carbon Nanoparticle Hydrophilicity Sanjay JATAV	1480
16:45	Low-Temperature Orientation Control of LiCoO ₂ Thin Films on Silicon for On-Chip Batteries Fardin GHAFARI-TABRIZI	3146

17:00	MLD Titanicone hybrid layer membranes for Nanofiltration and Solvent Tolerant Nanofiltration M.W.J. LUITEN-OLIEMAN	924
17:15	High-Entropy Lanthanide Oxides as supports for Single-Atom Catalysts Julien MAHIN	1676
17:30	Metal organyl chalcogenide molecular precursors: From laboratory curiosities to applications in materials science and catalysis Shashank MISHRA	2055
18:00	A First-Principles Study of Spin-Orbit Coupling Effects on the Electronic Structure of Thermoelectric Materials Lu LINYAN	14
18:15	Fabrication and Photocatalytic Performance of Semiconductor Nanotube and Nanoparticle–Polymer Composite Architectures for Water Treatment Applications Monica ENCULESCU	2611

Wednesday, 16 September 2026

9:00 PLENARY SESSION

12:30 Lunch

SESSION 9 W09

14:00	Multifunctional Nanocomposites for Electromagnetic Wave Management: From Shielding to Absorption and Beyond Raghvendra Singh YADAV	1753
14:30	Impact of Diluent on Interfacial Stability in Lithium Thiophosphate Based Solid–Liquid Electrolyte Systems Sakshi KANSAL	2647
14:45	Hydrothermally Synthesized MoS2 Nanosheets as Efficient Air Cathode for Zinc–Air Batteries Rohit GUPTA	2963
15:00	Coupled Arsenic Remediation and Bioelectricity Production in Microbial Fuel Cells by Burkholderia cepacia SKVM: Mechanistic Insights from DFT-Guided Phenazine Redox Modelling Shiwangi KESARWANI	2946

- 15:15 Transition Metal Dichalcogenides Based Cathode for Metal Air Batteries 2596
Ashish Kumar MISHRA
- 15:30 Coffee break

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W10

- 16:00 Photoelectrochemical Hydrogen Production from Surfactant-Rich Wastewaters: Proof-of-Concept and Mechanisms Investigation 1277
Alessandro CHESINI
- 16:15 Photoelectrochemical Oxidation Studies using α -Fe₂O₃ Thin Films 1647
Saim EMIN
- 16:30 Stabilizing BSCF through Co-reduction: Improved exsolution dynamics and superior OER performance with reduced catalyst toxicity 2086
Abhijai VELLUVA
- 16:45 Synergistic Integration of ZIF-67 and High-Entropy Perovskite Oxide Composites via Rapid Joule Heating for Bifunctional Zinc-Air Batteries 2060
Huseyin Inan CIHAN
- 17:00 Durable Zinc-Air Batteries Enabled by A-Site Tailored High-Entropy Perovskite Electrocatalysts 2029
Cigdem TOPARLI
- 17:15 Modulating Electronic Structure and Metal-Oxygen Intermediates in High-Entropy Oxides through Co-Fe Synergy for Efficient Zinc-Air Batteries 2003
Uygar GEYIKCI
- 18:00 **YOUNG RESEARCHER AWARDS CEREMONY**
- 18:30 **SOCIAL EVENT**

Thursday, 17 September 2026

SESSION 11

W11

9:00	Ultrahigh-performance Semiconducting Ceramic Sensors for Environmental Monitoring Oomman VARGHESE	2501
9:30	Tetrapods based Functional Ceramics Materials for Advanced Technologies Yogendra Kumar MISHRA	1377
10:00	Solid-state hydrogen gas storage using mechanichemistry Ying Ian CHEN	119
10:15	Electronic Structure Engineering of Alkali-Metal-Doped g-C3N4 for Enhanced Visible-Light Photocatalysis Saheli KARMAKAR	119
10:30	Coffee break	

SESSION 12

W12

11:00	Functionalized Supported Metal Oxide Photocatalysts for Environmental Photoreduction Processes M. Luisa MARIN	936
11:30	Are We Designing the Right Materials for Water Remediation? Isabella CONCINA	1029
12:00	Triphasic N/TiO2 Catalysts with Enhanced Charge Separation via Aging-Triggered Phase Evolution for Sunlight-Based Treatment Elias Assayehegn GEBREHIWOT	802
12:15	Tuning Defects and Morphology in TiO2 for Enhanced Photocatalysis Beatrice POLIDO	285
12:30	Lunch	

SESSION 13

W13

14:30	High-PLQY InP/Carbon Dot Hybrid Luminophores for Efficient Solar Light Harvesting Mahnoor HASSAN	1302
14:30	Tailored 2D Metal Thiophosphates: Synthesis, Structure Engineering, and Energy Applications Marshet SENDEKU	2307
15:00	A Green Low-Temperature Strategy for Dense SiC Ceramics with Superior High-Temperature Strength Enabled by a Pr ₃ Si ₂ C ₂ O ₇ Sintering Aid Xu SHEN	183
15:30	Coffee break	

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W14

16:00	Carbon Dot-Based Liquid Luminescent Solar Concentrators with a Modular and Reusable Architecture Jodi GOBBO	3331
16:15	Design of Nickel Sulfide Precatalysts for Alkaline Hydrogen Evolution through Gas-Phase Sulfurization and Electrochemical Activation Sina HAGHVERDI KHAMENE	650
16:30	Lithium Argyrodites as Sulfide-Based Solid Electrolytes for Solid-State Batteries Nicola Pio DE CICCIO	521
16:45	High-Throughput Synthesis of Air-Sensitive Halide Solid Electrolytes for Next-Generation Batteries Parisa VAHDATKHAH	397
17:00	Composition-Dependent Electrochemical Nitrate Reduction Performance of Tungsten Nitride Hsin-Kai LEE	396
17:15	Inkjet-Printed Protonic Ceramic Electrochemical Cells for Reversible Fuel Cell and Steam Electrolysis Sung Min KANG	705



Symposium Sponsor

Symposium X

Sessions: Room 213 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

ENERGY AND ENVIRONMENTAL APPLICATIONS

E-MRS/C-MRS JOINT SYMPOSIUM ON CRITICAL APPLICATIONS OF SUSTAINABLE MATERIALS IN REDUCING ENVIRONMENTAL IMPACT AND PROMOTING THE CIRCULAR ECONOMY

Symposium organizers:

Gabriella **DI CARLO**

–

CNR - Institute for the Study of Nanostructured Materials (ISMN)

Hyacinthe **RANDRIAMAHAZAKA** –
(Main Organizer)

–

Université Paris Cité - CNRS

Meifang **ZHU**

–

Donghua University

Sanjay **MATHUR**

–

University of Köln

Yuzhong **WANG**

–

Sichuan University

Monday, 14 September 2026

SESSION 1

X01

9:30	Adaptive Radiative Interfaces for Sustainable Thermal Management: From Smart Windows to Smart Thermal-Control Skins Xun CAO	3368
10:00	Advanced composites for solar energy harvesting Alberto VOMIERO	3344
10:30	Coffee break	

SESSION 2

X02

11:00	From Extreme Environments to Clean Energy: High-Entropy Materials Driving the Circular Economy Wenyi HUO	3372
11:30	Compositional Complexity as a Key Enabler of Sustainable Functional Materials and the Circular Economy Emanuel IONESCU	3342
12:00	Development of high entropy alloy thin films for harsh-environment applications Jyh-Wei LEE	3340
12:30	Lunch	

SESSION 3

X03

14:00	Chemical Recycling and Upcycling of Polymeric Materials Yu-Zhong WANG	3354
14:30	Enhancing the sustainability of the permanent magnet production cycle by valorizing waste materials as alternative raw sources: from fe to ndfeb magnets S AMMAR-MERAH	3376
15:00	Key Applications of Sustainable Materials in Reducing Environmental Impact and Promoting Circular Economy Meifang ZHU	3352
15:30	Coffee break	

SESSION 4

X04

16:00	Lead-free piezoelectric ceramics based on (K,Na)NbO ₃ : from bulk materials to thin films Jing-Feng LI	3366
16:30	External Fields as a Tool for Materials Design: From Molecular Precursors to Functional Thin Films and Ressource Recovery T. FISCHER	3346
17:00	Advanced Design Strategies for Stimuli-Responsive Smart Window Materials Sen YANG	3364

POSTER SESSION

XP01

17:30	pH-responsive flexible cryogels with stability in different environmental conditions Fatemeh NOROUZI	01_1125
17:30	Reimagining Packaging: Circular, Biodegradable PBAT Composites Reinforced with Renewable Biomass Sneha SAHA	03_1868
17:30	Using nanocellulose to adjust interference colors Kai ZHANG	04_187
17:30	Replacing chemical interaction by mechanical interlocking: Formation of novel micro- & nanostructures for advanced coating and bonding applications on copper by environmentally friendly electrochemical etching in seawater like electrolyte Jannik RANK	05_1958
17:30	Gas lithography for sustainable mineral additive manufacturing through localized carbonation Chenxing XIN	06_1998
17:30	Advanced multifunctional Membranes for Integrated CO ₂ Capture and Co-Electrolysis toward Sustainable e-Methanol Production Giulia GORDANO	07_221
17:30	Analysis of Flow Rate Effect on Fluid Mixing using a Multi-Electrode Sensor System Astha GAUTAM	08_2512

17:30	Parametric Investigation and Qualification of Friction-Welded OFE-Cu/SS304L Dissimilar Joints for Fusion Applications Tapankumar PATEL	09_2577
17:30	Selective Lead(II) Recovery from Multi-Metal Water Using a Tannic-Acid-Functionalized Fish-Scale Ossein Biosorbent Palash BHARTI	10_2727
17:30	Structural and Microstructural Evolution, and Hydrogen Storage Properties of Ti-Zr-Nb-Cr-based Refractory High Entropy Alloys: A Combined Experimental and CALPHAD Approach Priyatosh PRADHAN	11_3142
17:30	Enhancing Battery Performance via Electrolyte Species Optimization Ahiud MORAG	12_316
17:30	Testing of gas insulation in systems with variable working pressure Krzysztof KOGUT	15_3315
17:30	Sustainable, general-purpose soft suction grippers that adapt, heal, and degrade Wusha MIAO	16_337
17:30	Upcycling Pharmaceutical Gelatin Waste into CMC-Composite Hydrogels for Sustainable Slow-Release Urea Delivery Kandis SUDSAKORN	17_347
17:30	Tailoring Natural-Synthetic Graphite Blend Anodes: from Material Design to Electrode Morphology and Electrochemical Performance Luisa POLICASTRO	18_519
17:30	Yb-Modified HKUST-1 Metal-Organic Frameworks for Sustainable Heavy Metal Remediation Priya MAHATO	19_523
17:30	Combustion-based recycling of carbon nanotubes (CNTs) from CNT/cellulose nanofiber (CNF) ultra-lightweight materials Toshihiro USHIDA	20_529
17:30	Targeted functionalization of zeolites for methane enrichment from low-concentration coal-bed methane Xiaoqing WANG	21_612
17:30	Sustainable Cellulose Nanofiber Gel-Polymer Electrolytes Enabled by Single-Step APTES Functionalisation for Lithium- and Sodium-Ion Batteries Susithra SURESHKUMAR	22_624
17:30	Conversion of coffee waste into a sustainable electrode material for the energy storage application Denys KLYMOVYCH	23_834

17:30	Enrichment and recovery of N2O in industrial mixed exhaust gas by porous Li WANG	24_88
17:30	LFP direct recycling for its reuse in the Li-ion batteries field Duresa Kemal USULA	25_941
17:30	Highly Durable Superaerophobic Hydrogel Coating for Efficient Anion Exchange Membrane Water Electrolysis Siheon LEE	26_980
17:30	Recyclable High Strength Poroacoustic Biocomposite Foams Enabled by Hierarchical Plant Fiber Networks James CHOO	27_986

Tuesday, 15 September 2026

		SESSION 5	X05
9:00	Scalable Organic Solar Modules: Mitigating Efficiency Loss during Upscaling and Roll-to-Roll Manufacturing Weifei FU	-	3370
9:30	Tetrapods based Advanced Materials for Advanced Technologies Yogendra KUMAR MISHRA	-	3388
10:00	GenAi in Scientific Publishing: Recent Developments & Future Directions Biswanath DUTTA	-	3348
10:30	Coffee break		

		SESSION 6	X06
11:00	CytroCell Nanocellulose Enhanced Membranes for Green Hydrogen via Water Electrolysis Rosaria CIRIMINNA	-	3384
11:30	Flexible Electronics for Future Disruptive Technologies Wei HUANG	-	3356

12:00	Upcycled Bio-Derived Carbons and Bio-Based Frameworks for Sustainable Electrochemical Energy Storage Amrita JAIN	3334
12:30	Lunch	

SESSION 7

X07

14:00	Beyond the Spectrum: Nanocrystals for Light Manipulation Xiaogang LIU	3360
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2026 Fall Meeting

Symposium Sponsor

Symposium Y

Sessions: Room 412 | Main Building

Poster Sessions: Room 237 (Small Hall) | Main Building

MODELLING AND CHARACTERISATION

EUROPEAN DOCTORATE NETWORK: PHYSICS AND CHEMISTRY OF ADVANCED MATERIALS (PCAM) SUMMER SCHOOL 2026

Symposium organizers:

- | | |
|--|-----------------------------------|
| Emma MARTÍN RODRÍGUEZ | – Universidad Autónoma de Madrid |
| Franciszek KROK
(Main Organizer) | – Jagiellonian University |
| Horst-Günter RUBAHN
(PCAM Chair) | – University of Southern Denmark |
| Sigitas TAMULEVICIUS | – Kaunas University of Technology |

Monday, 14 September 2026

SESSION 3

Y03

14:00 From spectra to temperature: machine learning for advanced luminescence thermometry 38
Liyan MING

POSTER SESSION I

YP01

17:30 Plasmonic Engineering in Molecularly Functionalized Silicon Nanowires for Sustainable Energy Conversion 01_1031
Ennio MELI

17:30 Rolling and sliding migration of manipulated colloidal glass microspheres on glass surface 02_1470
Paweł KOCZANOWSKI

17:30 Development of Tissue-Equivalent Composite Filaments for a Modular 3D-Printed Head and Neck Radiotherapy QA Phantom 03_1539
Reda VENSKAUSKAITE

17:30 Understanding the interaction between Lithium and Tetrapyrrole macrocycles at atomic-scale for dendrite free Lithium metal batteries 04_1565
Fakhra MARAWAT

17:30 Hybrid ZnO Tetrapods based plasmonic heterostructure for enhanced Hydrogen Evolution 05_1782
Muhammad HARIS

17:30 Machine Learning Assisted Modelling of Defective Magic-Angle Twisted Bilayer Graphene 06_2229
Ignazio VACANTE

17:30 Localized Plasmon Resonances in Silicon Nanowires: Geometry-Driven Electromagnetic Modes Probed by STEM-EELS 07_226
Rizwan RAFIQUE

17:30 Nuclide Identification in GEM-Based Spectroscopy Using Deep Convolutional Analysis of Normalized Spectral Signatures 08_2280
Muhammad Usman Uraf ISHAFAQ

17:30 Development of dosimetric gels for the evaluation of mixed neutron-gamma radiation fields: photon dose registration 09_2297
Gabrielius STANKUS

17:30	Surface Functionalization and Molecular Doping of Silicon Nanostructures for Advanced Nanoelectronic and Photovoltaic Applications Rosaria Anna PUGLISI	10_233
17:30	Interface-Controlled Charge Transport and Light–Matter Interaction in Silicon Nanostructures Rizwan RAFIQUE	11_235
17:30	Nanostructured copper oxides: Optimizing routes for effective electrochemical CO2 reduction Falak SHAFIQ	12_2400
17:30	Friction contrast on the ferroelectric perovskite surfaces Franciszek KROK	13_2443
17:30	Theoretical Design and DFT Simulation of MXene/g-C3N4 Quantum Dot Heterostructures for Enhanced Photocatalytic Hydrogen Production Malika IDBELLA	14_2522
17:30	Influence of Deposition Parameters on the Growth and Properties of a-MoO3 Thin Films by pulsed laser deposition Nunzio TIMPANARO PIRRINA	15_654
17:30	Graphene Direct synthesis VIA Plasma enhanced CVD for FET Bio Sensors Muhammad Adnan SAEED	16_80
17:30	Comparative Study of Structural, Optical and Electrical Properties of Nb- and Ta-Doped BiFeO3 Thin Films Prepared by Reactive Magnetron Co-Sputtering Andrejus LITVAKAS	17_881

Tuesday, 15 September 2026

		SESSION 5	Y05
9:00	Synergies between Quantum and Power Technologies based on Wide Band Gap Materials Antonino LA MAGNA	-	1144
		SESSION 8	Y08
16:00	ZnO nano-tetrapods: from 1D growth mechanisms to functional applications Simas RACKAUSKAS	-	9

Wednesday, 16 September 2026

9:00 **PLENARY SESSION**

12:30 Lunch

SESSION 9 Y09

14:00 Advances in Gas Sensing Technologies: Towards Miniaturized and Intelligent Electronic Nose Systems 11
Roana DE OLIVEIRA HANSEN

15:30 Coffee break

SESSION 10 Y10

16:00 Understanding the Stability Performance Relationship in 3D FAPbI₃ and 2D Ruddlesden-Popper Perovskites 3271
Heterostructure through First-Principles Calculations
Ililian Amen DAVID-EGBUNU

16:20: Probing the photophysical properties of perylene derivatives for the assembly of hybrid van der Waals heterostructures 2460
Davide PIVA

16:40 Synthesis, Characterization and Photocatalytic Activity of Bismuth Vanadium Oxides with Various Morphologies 370
Suryaprakash KANDI

17:00 Optimization of AlScN Thin Films Grown by Plasma-Assisted Molecular Beam Epitaxy for Next-Generation 1492
Ferroelectric Devices
Giovanni MARCHETTA

17:20 Avalanche Dynamics and Anisotropic Effects in Nanoscale Cutting of Molybdenum Disulfide 3414
Paweł KOCZANOWSKI

18:00 **YOUNG RESEARCHER AWARDS CEREMONY**

18:30 **SOCIAL EVENT**

Thursday, 17 September 2026

SESSION 12Y12

11:00 From Sunlight to Hydrogen: Advancing Solar Water Splitting with Transition Metal (Oxy)Nitrides
Mirabbos HOJAMBERDIEV12