08:00 - 10:30

Nanoeletronics

Chairman
Y.-K. Mishra
R. Puglisi

08:00	Molecular Building Blocks for Brain-Inspired Computing	**S. Goswami**
08:30	Study and electric charcterization platform of ferroelectric PZT	**E.-A. Garcia Ramirez**
09:00	Neuromorphic Nanoparticle Networks: Complex Brain-like Dynamics and Current Pathway Visualization	**B. Adejube**
09:15	Illustrating excited state dynamics in Donor – Acceptor conjugated polymer	**T. Sharma**
09:30	Temperature Coefficient of Resistivity of W-doped VO2 Thin Films by Atomic Layer Deposition for High Efficiency Microbolometers	**C. Wheeler**
09:45	Investigation of operational characteristics in the multilayer electrochromic system.	**J. Rybak**
10:00	Metal-chlorides as surface modifiers for high-performance OLEDs: A comprehensive analysis of charge transfer and interface engineering strategies	**S. Ahadzadeh**
10:15	Electrically conductive composite fibers of Polyamide and Poly(pyrrole) for smart textiles	**K. Rana**

08:30 - 10:30

Catalytic activity of 2D materials

Chairman
T. Gatti

08:45	Composite 2D nanostructures for hydrogen production	**A. Vomiero**
09:15	High-density single-atom catalysts: preparation, characterization, and applications	**Y. Zhou**
09:45	Triangular and hexagonal features with atomically sharp edges in multilayer MoS2: fabrication and nanoelectrochemical assessment of hydrogen evolution activity	**A. Polyakov**
10:00	Large area van der Waals MoS2-WS2 heterostructures for visible-light photocatalysis and energy conversion	**M. Gardella**
10:15	Bismuth(III) oxyiodide nanoplatelets thin films as sustainable photoelectrodes for water oxidation	**R. Altieri**

08:45 - 09:00

Opening

Chairman
M. Kot

08:45 - 10:30

Hybrid materials for biomedical applications

Chairman
E. Macoas
R.-S. Yadav

08:45	Materials for Biomedical Microrobots	**S. Pané**
09:15	Structurally and Motionally Reconfigurable Light Powered TiO2 Microrobots for Microplastics Trapping and Fragmentation	**S.-G. Ullattil**
09:30	Nanocomposite magnetic hydrogels: the role of magnetic particles' surface functionalization	**M. Barczak**
09:45	Multifunctional stimuli-responsive bioengineered systems for cancer therapy: towards precision medicine	**G. Grasso**
10:00	Scintillating heterostructure based on fast emitting nanocomposites for ToF-PET imaging	**A. Monìguzzi**
10:15	Mechanisms of dielectric and electromechanical enhancements in polymer nanocomposites	**J. Bernholc**

08:55 - 09:00

Opening

09:00 - 10:30

Integration of III-Vs on silicon

	Atomic-level insights into the stabilization of FAPbI3 and CsPbX3 (X=I, Br) perovskite phases	**D. Kubicki**
	Enhancing Stability and Band Alignment in Cs2AgBiBr6-based HTM Free Solar Cells by Applying a 2D Surface Modification	**F. Schmitz**
	Crystal structure and magnetic properties of Sr3Fe2+xMo1-xO9-3x/2 (x = 0.45, 0.60, and 1)	**A. El Hachmi**
09:00	Epitaxial integration of mid-infrared III-V devices on group-IV substrates	**E. Tournié**
09:30	Electric-field-assisted phase switching in GaAs nanowires	**Q. Yu**
09:45	Monolithic integration of waveguide-coupled III-V photodetectors on silicon	**C. Martinez-Oliver**
10:00	Continuous Wave Lasing from Individual InAs Nanowires	**B. Haubmann**
10:15	Low-cost transistor-based biosensor for real-time specific and label-free sensing of Alpha-Fetoprotein from ultra-small samples of diluted serum	**S. Samanta**

09:00 - 10:30

All about perovskites

Chairman
D. Prochowicz

09:00	Charaterization and modelling of perovskite solar cells	**W. Tress**
09:30	VIPERLAB: Unlocking the Potential of Perovskite Single and Tandem Devices through Advanced Research Infrastructures	**N. Maticiuc**
09:45	X-ray microscopy characterization of perovskite solar cells at CARNAÚBA/SIRIUS	**R. Szostak**
10:00	Synthesis of BaS3 Thin Films for the Facile BaZrS3 Thin Film Synthesis: Towards Earth-Abundant Chalcogenide Perovskites Solar Cells.	**S. Jamshaid**
10:15	Ferroelectric perovskites: a promising route for self-powered photodetectors	**K. Gwozdz**

09:00 - 10:30

Devices 1

Chairman
D. Rogers

09:00	UV-B laser diode fabricated on lattice-relaxed high-quality AlGaN	**M. Iwaya**
09:30	Semiconductors, dielectrics and devices based on mixed main group metal oxides. Chemistry routes to . . .	**J. Schneider**
09:45	Exploring gate leakage mechanisms in AlGaN channel high electron mobility transistors as a function of Al composition, gate stack configuration, and temperature	**J. Bassaler**
10:00	Fabrication and characterization of high-mobility fin channels for GaN power devices	**T. Claus**
10:15	Spectral Resonances Of Ga2O3:Cr Nanowire-Based Optical Microcavities And Its Temperature-Dependent Anisotropic Refractive Index	**D. Carrasco**

09:00 - 10:30

Plenary session

Chairman
P. Colavita
N. Yang

09:00	One-Dimensional vdW Heterostructures Based on Single-Walled Carbon Nanotubes	**S. Maruyama**
09:30	Functionalized diamond nanomaterials for applications in energy storage, biomedicine and catalysis	**A. Krueger**
10:00	Preparation of Macromaterials from Nanocarbons by Interface Charge Injection	**Y. Zhu**

09:00 - 10:30

Energy for Devices

Chairman
L. Zhang
C. Zhi

09:00	Battery2030+ initiative can be the driver of the European research on batteries? The European landscape for the future of electrochemical storage systems.	**S. Bodoardo**
09:30	A Platform of 3D Printed Devices to Power Wearable Sensors	**C. Mattevi**
10:00	Coupling Photovoltaics, Batteries and Sensors by intrinsic Photocharging: New concepts and solutions for compact solar energy storage devices and memristive sensing with organic based 2D materials	**F. Podjaski**

10:15	3D carbon microsupercapacitors based on a multi-photons polymerization approach	**N. Batisse**

09:00 - 10:30

Sensors/actuators I

Chairman
B. Ameduri
G. Hernandez-Sosa

09:00	Multifunctional materials for sensors, actuator and environmental applications: improving performance and sustainability	**S. Lanceros Mendez**
09:30	Self-powered Electronic Paper for IoT based Security Applications	**S. Nandy**
09:45	Recyclable Thermoplastic Polyurethane-Carbon Material Based Strain and Pressure Sensor for Monitoring Human Motions	**A. Haridas C P**
10:00	Fabrication of Multifunctional Adhesive Sensors for Human Healthcare Monitoring	**M. T**
10:15	Augmenting automation in stretchable and printed electronics technology for smart patch and wearable sensors	**M. Rai**

09:00 - 10:30

3D micro-/nano- structurures for ex-vivo manipulaiton on cells - 1

Chairman
J. Guasch
M. Schvartzman

09:00	Nanostructures For Probing And Transfecting Living Cells	**C.-N. Prinz**
09:30	Nanoneedles Enable Minimally Invasive Spatial Lipidomics for Glioma Diagnostics	**C. Chiappini**
10:00	Tumor eradication by boron neutron capture therapy using 10-boron enriched nanoparticles	**N. Komatsu**
10:15	Design of biocompatible soft-biomaterials for medical devices	**E. Buzaneva**

09:00 - 10:30

2-D Materials I

Chairman
J. Adam
B. Sanyal

09:00	Transdimensional Materials: Reconfigurable Combinations with Dynamic Properties	**M. Losurdo**
09:30	Optoelectronic and Transport Properties of Atomically Thin Ge2Se2 Layers for Photovoltaic Applications: Combined DFT and Device Modeling Approach	**A. Shrivastava**
09:45	What We Can Learn About Excitons, Electronic, and Optical Properties From Many-Body Methods: The Case of Semiconducting MXenes	**F. Karlicky**
10:00	Inkjet printing graphene: from transport nature to photodetectors and multifunctional sensors	**F. Wang**
10:15	Review on thermoelectric properties of MXene-based structures and other 2D materials	**S. Bandaru**

09:00 - 10:30

OS 1

Chairman
J. Smalc-Koziorowska

09:00	Identifying the ground state structures of point defects in solids	**D.-O. Scanlon**
09:30	Experimental and theoretical studies of native deep-level defects in transition metal dichalcogenides and their effect on carrier dynamics	**R. Kudrawiec**
10:00	An Intuitive Understanding of the Spin Excitations of a 1D Antiferromagnet	**T. Kulka**
10:15	DFT study of effects of both strain and surface on the electronic structure and acceptor grouping in ZnO:NHx and ZnOHx	**O. Volnianska**

09:00 - 10:30

Entangled ferroic topologies

Chairman
J.-Y. Chauleau
C. Lichtensteiger

09:00	Topology in ferroelectrics vs topology in magnetism, critical overview	**I. Lukyanchuk**
09:30	Skyrmionic textures in ferroelectric materials	**J. Hlinka**

09:45	Emergent chiral textures in single-layer ferroelectric and ferromagnetic oxides	**W. Peng**
10:15	Transfer of topological defects across phase transitions in ferroic materials	**M.-C. Weber**

09:00 - 10:35

Electrocatalysis I

Chairman
C. Faber
J. John

09:00	Advanced Materials and Processes for Climate Technology Solutions: an Industry Perspective	**A. Cruz**
09:30	Ab initio design of nanomaterials with applications in electrocatalysis	**G. Cicero**
09:50	Corrosion-resistant and Electrically Conductive Oxide Coatings for Metal Bipolar Plates for PEM Electrolyzers	**D. Kolenatý**
10:05	Novel Carbon Heterostructures for Electrocatalytic Transformations	**C. Schröder**
10:20	Soft-templated, Mesoporous Co3O4 Thin Films for Electrocatalysis of the Oxygen Evolution Reaction	**Q. Wu**

10:30 - 10:50

Main building - Ground floor

Coffee Break

10:30 - 11:00

Main building - Ground floor

Coffee Break

10:50 - 12:00

Devices 2

Chairman
M. Iwaya

10:50	Pulsed Laser Deposition for the Fabrication of Wide Bandgap Oxide Semiconductors	**D. Rogers**
11:20	Defect-related photoluminescence in MOVPE sp2 - BN - influence of growth parameters	**A. Dąbrowska**
11:35	Temperature induced changes in morphology, thermal and electrical properties of polycrystalline ITO layers towards thermoelectric applications	**A. Kazmierczak-Balata**

11:00 - 12:30

2D materials and remote epitaxy I

11:00	MOVPE van der Waals growth of h-BN and Heterointegration of III-nitrides.	**S. Sundaram**
11:30	Integration of HfO2 thin films on Si via quasi van der Waals growth on graphene	**U. Trstenjak**
11:45	The use of h-BN based inkjet-printed ReRAM for security applications	**A. Cirera**
12:00	Wafer-scale Hexagonal Boron Nitride Materials on Transition Metals and SiO2	**H. Cun**

11:00 - 12:30

Charge extraction and doping

Chairman
M. Kot

11:00	Inorganic hole transporting materials for stable perovskite solar cells	**K. Gawlinska-Necek**
11:30	Azahomofullerenes as Novel n-Type Acceptor Materials for Efficient and Stable Perovskite Solar Cells	**R. Chavan**
11:45	Role of interaction between tin oxide and lead iodide for improved charge extraction in halide perovskite solar cell.	**V. Sharma**

12:00	Modification of electron transport layer toward efficient and stable perovskite solar cells	**J. Kruszyńska**
12:15	Methylammonium lead iodide: n-type doping with metastable samarium ions	**Z. Molenda**

11:00 - 12:30

Nanocomposites materials for soft actuators and sensing

Chairman
E. Macoas
S. Pané Vidal

11:00	Functional nanocomposites for soft actuators	**P.-S. Lee**
11:30	Solvent-free, Printable Polyisoprene-graphene based on-mask breath sensing device for point-of-care diagnostics	**S. Sharma**
11:45	Design and Application of pH-Sensing Hybrid Systems for Non-Invasive Metabolism Monitoring in 3D Tumour Models	**H. Iuele**
12:00	Long-range energy transfer between nanoparticles and its application for biosensing	**D.-S. Biswas**
12:15	Tuned Assembly of MXene and rGO as an aerogel in ternary composites (MGA-Cu2O) for non-enzymatic glucose sensor	**A. Alodhayb**

11:00 - 12:30

Nanographenes: synthesis and optoelectronic properties

Chairman
S. Osella

11:00	Optical properties of single nanographenes	**J.-S. Lauret**
11:30	Excited state dynamics of nanographenes: from cove-edge to triply fused porphyrin-nanographene systems	**C.-G. Juan**
12:00	New Hybrid Charge Transfer Complexes for Opto-Electronics Applications	**A. Kukhta**
12:15	Bottom-up synthesis of oxygen-doped dibenzo[hi,st]ovalene	**N.-M. Bojanowski**

11:00 - 12:30

II

Chairman
H. Randria
Q.-H. Yang

11:00	Phase Engineering of Nanomaterials (PEN)	**H. Zhang**
11:30	Measurement of the morphology of graphene-related 2D materials as flakes	**G. Chemello**
11:45	Nanoporous Carbon-Based Thin Films Synthesized by Magnetron Plasma Enhanced Chemical Vapor Deposition Technique	**A.-N. Nazarov**
12:00	Nano-structured Diamond Sensors for Extreme Environments: Taking SERS from the laboratory to the Ocean	**R.-B. Jackman**

11:00 - 12:30

Non-Lithium Batteries

Chairman
F. Kalyk
M. Zhu

11:00	Design better electrolytes and interphases for Zn batteries	**K. Xu**
11:30	Swiss-roll micro-batteries in fluids	**H. Tang**
11:45	Unique electrochemical mechanism of hybrid sodium-ion batteries	**Y. Xu**
12:00	Understanding Ion Charging Dynamics in Nanoporous Carbons for Electrochemical Double Layer Capacitor Applications	**K. Ge**
12:15	Harnessing the Potential of Papermaking Techniques to Develop Flexible Paper Electrodes for energy storage devices	**H. Wu**

11:00 - 12:30

Sensors/actuators II

Chairman
F. Domingues Dos Santos
S. Lanceros Mendez

11:00	High sensitivity pressure sensor with ultra-wide linear range by laser-induced gradient micro-pyramids	**N. Tiwari**

11:30	Ionic Liquid Based Fully Printed Functional Devices: Advances in Sensing and Actuator Applications	**L.-C. Fernandes**
11:45	A green-compatible printed circuit board sourced from renewable materials	**A. Honarbari**
12:00	Multilayer Strategy for Metallized Polypropylene Thin-Film Capacitors	**O. Gkionis-Konstantatos**
12:15	Stretchable Conductive Inks with Carbon-Based Fillers for Conformable Printed Electronics	**L. Campos-Arias**

11:00 - 12:30

Materials Based Approaches for Mechanobiology Research - 1

Chairman
K. Sengupta
H. Wolfenson

11:30	Dynamics of red blood cells in biomimetics splenic slits	**A. Charrier**
11:55	Micropatterning human induced pluripotent stem cell cardiomyocytes for cryo-electron tomography studies	**L. Engel**
12:15	Oxygenating biomaterials in regenerative medicine and stem cell biology	**S. Hassan**

11:00 - 12:30

OS 2

Chairman
D. Wickramaratne

11:00	Quantum sensing with spin defects hosted in a van der Waals material	**V. Jacques**
11:30	Influence of local environment of emission center ions on the luminescence property of phosphor materials	**T. Yamamoto**
12:00	Noble gas functional defect with unusual relaxation pattern in solids	**L. Lovelesh**
12:15	The influence of the Eu3+ to Eu2+ charge tranfsormation on the charge trapping processes in Y3Al5O12 micropowder	**M. Buryi**

11:00 - 12:30

Ferroelectric domain walls

Chairman
J.-Y. Chauleau
C. Lichtensteiger

11:00	Anti-polar order at domain walls in uniaxial ferroics	**D. Meier**
11:30	Crystallography of ferroelectric superdomain boundaries	**E. Zatterin**
11:45	Complex polarisation textures and emergent functionalities at ferroelectric twins	**P. Paluch**
12:15	Ferroelectric/ferroelastic nanodomains and intersections in epitaxial GeTe thin films	**F. Leroy**

11:00 - 12:35

Photoelectrocatalysis I

Chairman
G. Cicero
L. Liu

11:00	The role of excess Bi on the properties and the performance of BiFeO3 thin film photocathodes	**A. Bieberle-Hütter**
11:30	Chalcogenide Photocathodes for Photoelectrochemcial Solar Fuel Generation	**S. Shukla**
11:50	Nitride Nanowire Lifetime and Efficiency Enhancement for Photoelectrochemical Water Splitting	**P. Murphy**
12:05	Rh–Ci/HCO3- homo-/heterogenous dual co-catalyst decorated BiVO4 photoanode for photoelectrochemical water oxidation.	**A. Mehmood**
12:20	BiVO4 photoanodes enhanced with metal phosphide co-catalysts: relevant properties to boost photoanode performance	**J. Cui**

11:00 - 12:45

Energy Materials I

Chairman
J. Adam
B. Sanyal

11:00	2-Dimensional Materials for Energy Storage and Conversion: Computational Investigations	**A. Mishra**
11:30	Development of Retrofitted Thermoelectric, Triboelectric, and Piezoelectric Devices for Energy Harvesting Applications in Autonomous Platforms for Remote Sensing	**J. Magalhães**

11:45	Development of a Thermoelectric Harvesting Unit to Retrofit a Vortex Tube for Remote Monitoring Applications	**M. Ramos**
12:00	Computational investigation of multiferroic double perovskite materials for photovoltaic applications	**A. Kumari**
12:15	Mg based Lightweight High Entropy Alloys for Hydrogen Storage	**A. Gupta**
12:30	Composite dielectric capacitors with chemically functionalized BaTiO3 nanoparticles	**B. Gackowski**

11:00 - 13:00

Energy Materials

Chairman
D. Janas
Y.-K. Mishra

11:00	Rational Design of a Sulfur Cathode for a Highly Stable Room-temperature Sodium-Sulfur Battery	**V. Kumar**
11:30	Biocompatible Energy Harvesters for Pacemaker Applications: A Simulation to Fabrication Approach	**S. Sharma**
11:45	A biocompatible PVDF-CaTiO3 composite for self-powered activity tracking and energy harvesting	**S. Panda**
12:00	FeS2 as a Photothermal Material: Effects of Synthesis Parameters on Photothermal Activity	**G. Guzel Kaya**
12:30	High performance MXene/ZnO composite for supercapacitor electrode materials	**M. Goyat**

11:30 - 12:30

Epitaxial films

Chairman
F. Sanchez

11:30	Impact of electric field on crystal structure and properties of HfO2-based ferroelectric films	**H. Funakubo**
12:00	Tailoring diverse functional properties on epitaxial ferroelectric HfO2 by substrate selection	**I. Fina**
12:15	Electrode-free epitaxial Hf1-xZrxO2 films	**J.-Á. Pardo**

12:00 - 13:00

Main building - Ground floor

Lunch

12:30 - 14:00

Main building - Ground floor

Lunch

13:00 - 14:15

Devices 3

Chairman
B. Gil

13:00	Pushing the breakdown voltage capabilities of GaN HEMTs by using UWBG Al-rich channel	**F. Medjdoub**
13:30	Heteroepitaxy of (010) ß-Ga2O3 on sapphire substrates using liquid-injection MOCVD	**H. Chouhan**
13:45	Breakthroughs in Cost-Effective, Self-Powered Deep Ultraviolet Wide Bandgap Photodetectors for Emerging Applications	**H. Yoo**
14:00	Comparison of optical properties of polar GaN/AlN and AlGaN/AlN multi-quantum wells	**A. Kaminska**

14:00 - 14:15

Welcome

14:00 - 15:30

2D materials and remote epitaxy II

14:00	Stress-free Virtual InGaN Substrate for µ-display Applications	**C. Pernel**
14:30	A theoretical analysis on the bulk photovoltaic effect in strained microstructures	**I. Zaitsev**
14:45	Self-assembly of silicon color centers via ultra-low temperature molecular beam epitaxy	**J. Aberl**
15:00	Photonic Properties of Self-Assembled Semiconductor Microstructures	**J. Pedrini**
15:15	Strategies for stable cycling of low-cost Silicon microparticulates for next generation lithium-ion batteries	**Q.-H. Yang**

14:00 - 15:30

Ions, vacancies and other defects in perovskites

Chairman
C. Das

14:00	A quantitative model of ion transport in methylammonium lead iodide	**R. De Souza**
14:30	Ion migration in metal halide perovskite CsPbBr3/Cl3 heterojunction nanowire devices studied by operando nano-XPS	**Y.-P. Liu**
14:45	A study of photoinduced ion segregation in perovskite solar cells using ultrafast transient absorption spectroscopy	**J. Baranowski**
15:00	Unconventional low-frequency features in the impedance spectroscopy response of metal halide perovskites-based systems	**P. F. Betancur**
15:15	Impact of structural strain of perovskite epitaxial thin films on their functional properties	**N.-D. Scarisoreanu**

14:00 - 15:30

Femto- and nanosecond laser doping

Chairman
D. Pastor
S. Zhou

14:00	Simulation challenges for hyperdoping by Pulsed Laser Melting	**A. La Magna**
14:30	Effective carrier lifetime in ultrashort pulse laser hyperdoped silicon: dopant concentration dependence and practical upper limits	**S. Schäfer**
14:45	Fabrication of nitrogen-hyperdoped silicon by high-pressure gas immersion excimer laser doping	**J. Barkby**
15:00	Femtosecond laser processing of semiconductors: Strategies, structures and underlying mechanisms	**J. Siegel**

14:00 - 15:30

Tailoring ferroelectric properties: Theory & Experiment

Chairman
A. Gruverman

14:00	Theoretical approach to ferroelectricity in hafnia and related materials	**J. Iñiguez**
14:30	Influence of the parasitic m-phase and La doping on the polarization switching dynamics of epitaxial HfO2 thin films	**A. Silva**
14:45	Atomistic calculations of energy formation and polarization for orthorhombic Ge doped HfO2	**O. Cojocaru**
15:00	Stabilizing polar structures in HfO2-based oxide superlattices: A first principles study	**B. Mukherjee**
15:15	Toward Highly Pure Ferroelectric Hf1-xZrxO2 Thin Films by Tailoring Strain in Unstable Thermodynamic System and Beyond	**Y.-C. Kao**

14:00 - 15:30

Metallic and oxides based nanocomposites for biomedical application

Chairman
E. Macoas
L. Tayebi

14:00	Smart hybrid silica nanocarriers	**J.-P. Farinha**
14:30	Bio-nanocomposites based on in-situ grown metallic particles on butterfly wings: preparation and characterization	**K. Kertész**

14:45	A modified Brust - Schiffrin synthesis of gold and silver nanoparticles in batch and continuous flow	**M. Distaso**
15:00	Study of the interaction between glycosylated liposomes and nanoparticles functionalized with boronic acid for the preparation of Giant Vesicles	**S. Battista**
15:15	Novel Nano-based Approaches for Hearing loss	**D. Li**

14:00 - 15:30

Hybrid interfaces

Chairman
H. Wang

14:00	Defect Engineering in 2D Semiconductors: Fabrication of Hybrid Multifunctional Devices	**S. Ippolito**
14:30	Temperature-dependent lattice expansion and phonon anharmonicity in 2H-MoS2/graphene heterostructure - a first-principles study	**K. Wilczyński**
14:45	Hybrid piezoresistive 2D MoS2/PEGDA/PANI covalent hydrogels for wearable strain sensors	**S. Domenici**
15:00	Coupling of 0D-2D materials for highly sensitive broad-band photodetector	**M.-K. Thakur**
15:15	Nanomaterials for High Responsivity Photodetectors: A Focus on Gold Nanorods, UCNPs, MoS2, and Graphene-based Systems	**S. Chattopadhyay**

14:00 - 15:30

Metamaterials and Plasmonics

Chairman
V. Kumar
R. Puglisi

14:00	Self-assembled designer monocrystalline metasurfaces	**B. Sciacca**
14:30	Gap-plasmon crystallography	**P. Poungsripong**
14:45	Benchmarks of flat Terahertz optics for nonparaxial single-pixel imaging and material inspection	**S. Orlov**
15:00	Waveguided Random Lasers: A comparison of SiO2 and Ag based Lasing Devices	**A. Dey**
15:15	Broadband plasmonic absorption of silver films deposited by chemical vapor phase deposition	**R. Leturcq**

14:00 - 15:30

Diamond I

Chairman
N. Yang
W. Zhang

14:00	Elastic properties of undoped and P-doped thin diamond films	**K. Haenen**
14:30	Vector magnetometry using Nitrogen-Vacancy color centers in nanodiamonds	**S. Sengottuvel**
14:45	High open circuit voltage diamond radiation voltaic battery achieved by introducing oxide dielectric layer	**B. Liu**
15:00	CVD diamond and it is devices	**J. Zhu**

14:00 - 15:30

Solid-State Electrolytes

Chairman
J. Bitenc
M. Yu

14:00	Solution-Processed Non-Crystalline Solid Electrolytes for Advanced Energy Storage	**A. Rettie**
14:30	Quality control of solid-state battery material components through standardization and automation of the ionic conductivity measurements of solid electrolytes	**F. Kalyk**
15:00	Construction of Dendrite-Free Metallic Lithium Anodes: From Lithiophilic Designs to Dynamic Electrochemical Diffusion Kinetics Modulations	**J. Wang**
15:15	Highly Stable Lithium Metal Anode with Synergistic Effect of Amine and Phenyl Functional Groups	**Z. Lin**

14:00 - 15:30

Sensors/actuators III

Chairman
S. Nandy
N. Tiwari

14:00	Ferroelectric & relaxor Polymers for sustainable applications	**F. Domingues Dos Santos**
14:30	Fully-printed flexible ultrasound transducer for medical applications	**K. Keller**
14:45	Environmentally friendly and biocompatible graphene based inks for printed electronics	**M. Franco**
15:00	Mechanically Robust and Bio-disintegrable Substrate for Transient Wearable Electronics	**G. Ghosh**
15:15	Additive manufacturing for multifunctional polymer composite sensors and harvesting materials based on stretchable matrices	**P. Costa**

14:00 - 15:30

2D and 3D Engineered Microenvironment for the Guidance of Cells - 1

Chairman
A. Charrier
J. Grolman

14:00	Matter to Life: Bottom-Up Assembly of Synthetic Cells and Skin	**J. Spatz**
15:15	Synergistic effects of piezoelectric materials for implant applications: enhancing osseointegration and antibacterial properties	**E. Carvalho**

14:00 - 15:30

Synthesis & Characterization I

Chairman
G. Malandrino
A.-K. Mishra

14:00	Open-air deposition of functional materials for energy applications	**D. Muñoz-Rojas**
14:30	Synthesis and characterization of stoichiometric and single-phase CZTS and CZTSe thin films via two-step magnetron sputtering of Cu2SnS3/ZnS and Cu2SnSe3/ZnSe stacks	**M.-Y. Zaki**
14:45	Green synthesis of All Inorganic Halide Perovskites using novel lead precursors	**L. Sirna**
15:00	High-temperature and high-pressure mechanical synthesis of magnesium-based hydrides	**A. Baran**
15:15	Simulating multi-component target ablation: A new combinatorial pulsed laser deposition technique	**A. Jörns**

14:00 - 15:30

OS 3

Chairman
R. Viter

14:00	Metastable defects and the fill factor of solar cells	**S. Siebentritt**
14:30	Reconstruction of extended defects in antimony sulfoselenides: atomic structure and electronic properties	**K. Mckenna**
15:15	ODMR and magneto-optical spectroscopy studies of spin dependent charge transfer in GaN:Fe single crystals	**V. Ivanov**

14:00 - 15:30

Magnetic skyrmions

Chairman
I. Lukyanchuk
P. Wei

14:00	Topological Spin Texture Dynamics - from ns dynamics for memory to slow diffusion for unconventional computing	**M. Kläui**
14:30	Interaction between topological defects in Cu2OSeO3: skyrmion lattice annihilation by 3D point defects	**H. Sabri**
14:45	Chirality and topology of metallic multilayers hosting skyrmions and cocoons	**N. Reyren**
15:15	Investigating Skyrmion stability and core polarity reversal in NdMn2Ge2	**S. Treves**

14:00 - 15:35

Electrocatalysis II

Chairman
T. Ollár
B. Shin

14:00	Transition Metal Oxide Electrocatalysts: Insights into the Activity Dependence on Composition and Coordination	**D. Fermin**

14:30	Impact of material choices on the operational stability of low temperature direct ammonia fuel cells	**S. Calnan**
14:50	Routes toward efficient electrochemical green ammonia cycle: TELEGRAM H2020 project	**S.-M.-S. Privitera**
15:05	Sensitivity Analysis of Direct Ammonia Fuel Cell Operation Using Multiphysics Simulations	**E. Kemppainen**
15:20	Testing Electrochemical Devices for a Green Ammonia Cycle under Fluctuating Conditions	**M.-F. Seidler**

14:00 - 15:40

Opening

Chairman
A. Bonanni

14:10	Topological excitonic states: fingerprint on bandstructure renormalization and condensation	**A. Lanzara**
14:40	Quantum anomalies in topological materials	**E. Hankiewicz**
15:10	Spintronic implementations of quantum information engines to harvest ambient thermal energy: experiment and theory	**M. Bowen**

14:15 - 14:35

Main building - Ground floor

Coffee Break

14:15 - 15:30

Session 1

14:15	NFFA-Europe Pilot: a great research and innovation opportunity for the European and worldwide nanoscience community.	**F. Carsughi**
14:30	Emergent honeycomb physics from chiral atomic orbitals on a triangular lattice	**D. Di Sante**
15:10	Metal–insulator transition in LAO/STO interface with insertion of SrSnO3 buffer layer	**S. Shrivastava**

14:35 - 16:00

Devices 4

Chairman
F. Medjdoub

14:35	Ga2O3 Based heterostructure and its applications	**W.-S. Hwang**
15:05	Electrical characteristics of amorphous, a and e gallium oxide	**H. Susami**
15:20	Fabrication of GeO2 thin films on 3C-SiC substrates.	**Y. Shimizu**
15:35	Introduction of step-graded a-(AlxGa1-x)2O3 buffer layers for defect density reduction	**T. Yasuoka**

15:30 - 16:00

Main building - Ground floor

Coffee Break

16:00 - 17:20

Session 2

16:00	TaCoTe2: A Candidate Magnetic Dirac System with a Large Intrinsic Nonlinear Hall Effect	**I. Vobornik**
16:20	Relevance of thermal fluctuations in Fe(100)-p(1x1)O in optically-induced ultrafast demagnetization	**A. De Vita**
16:40	Conserving approximations for the single-impurity Anderson model: Magnetic response and the Kondo scale	**Š. Kos**

17:00	Ultrafast scattering between bulk and topological states of photoexcited carriers in Bi2Se3 thin films	S. Turchini

16:00 - 17:30

Lift-off process of thin films and transfer-printing

16:00	Investigation of µm-Thin InP Single Crystals for Heterogeneous Integration of III-V on Si via Micro-Transfer-Printing	K. Stolze
16:30	Adhesive-free bonding for hetero-integration of InP based coupons micro-transfer printed on SiO2 into CMOS backend for Si photonics application on 8'' wafer platform	K. Anand
16:45	Lift-off process of monocrystalline Ge membranes: towards optoelectronic device integration on Si platform	T. Hanuš
17:00	Use of 2D ZnO Layers as Sacrificial Templates for Epitaxial Lift-off of YSZ Thin Films	D. Rogers
17:15	Porous Ge template by Fast Bipolar Electrochemical Etching and thermal annealing for III-V materials integration on Si	L. Mouchel

16:00 - 17:30

Resistive switching and oxide perovskites

Chairman
C. Aranda

16:00	Rational design of redoxed-based memristive devices for neuromorphic computing	A. Sarantopoulos
16:30	Direct observation of resistive switching in MAPbI3 using conductive AFM	N. Rasti
16:45	The Effects of Defects and Domain Wall Orientations on Ferroelectric Switching Dynamics	R. Bulanadi
17:00	Structure Activity Relationship of La1-XNdxCoO3 nanostructures Toward Oxygen Electrocatalysis	S.-M. Alharbi
17:15	BaTiO3 characterized at the atomic scale: surface structure and its ferroelectric behavior.	L. Albons Caldentey

16:00 - 17:30

Advanced characterization methods

Chairman
E. Napolitani
S. Zhou

16:00	Active Dopant Sites in Si Hyperdoped with Te Investigated by Photoemission	M. Hoesch
16:30	Advanced characterization techniques for hyper-doped Ge-based alloys.	E. Di Russo
16:45	Evolution of structural defects in heavily doped GaAs	M.-O. Liedke
17:00	TEM investigations and MD simulations of misfit dislocations in highly mismatched core/shell nanowires.	D. Janaszko
17:15	Diffuse x-ray scattering from ultra-highly doped annealed GaAs:Te single crystals - correlated disorder, or local partial chemical short-range order, from Krivoglaz fluctuation model of lattice gas with displacements	T. Slupinski

16:00 - 17:30

Progress in film processing I

Chairman
G. Niu

16:00	High-temperature operation of ferroelectric hafnium-zirconium oxide capacitors in the back-end-of-line	T. Kämpfe
16:30	Ferroelectric epitaxial Hf0.5Zr0.5O2/HfO2 nanolaminates	M. Ghiasabadi Farahani
16:45	Ferroelectricity in solution-processed La:HfO2/ZrO2 multilayers	B. Mandal
17:00	Study of the pure ZrO2 phases deposited on a Nb:SrTiO3 substrate with different orientations using TEM/HRTEM techniques	M.-C. Istrate
17:15	Comparative study between undoped and doped ferroelectric HfO2: Role of Gd-doping in stabilizing the ferroelectric phase and reducing the crystallization temperature	L. Alrifai

16:00 - 17:30

Bio-inspired and antimicrobial nanomaterials

Chairman
T. Ameri

		J.-P. Farinha
16:00	Nanocomposites Driving Angiogenesis: Synthesis and Characterization of a Copper/Magnesium Hydroxide Hybrid Nanocomposite for Enhanced Vascularization in Critical-Sized Defects	**L. Tayebi**
16:30	Carbon Nanodots – Zinc Phthalocyanine hybrid system as an effective visible light-activated antimicrobial coating	**A. Blacha-Grzechnik**
16:45	Novel antimicrobial baicalein capped Ag/Fe3O4 magnetic nanoparticles for water disinfection	**G. Rathee**
17:00	Photocatalytic dye degradation of biotemplated ZnO photonic nanoarchitectures based on butterfly wings	**G. Piszter**
17:15	Biomimetics surfaces to induce the nucleation of the biological apatite precursors.	**A. Seweryn**

16:00 - 17:30

Batteries and supercapacitors I

Chairman
N. Akimitsu

16:00	Investigating the dual reaction pathways of electrochemical potassium storage in molybdenum disulfide	**Y. Xu**
16:30	Harnessing the Potential of Ultrathin 2D Nanosheets (A2FeSiO4, A= Li, Na, K) for Next Generation Alkali-Ion Batteries	**L.-K. Singh**
16:45	The reversibility of fluorinated graphite in solvent-free lithium battery	**M. Colin**
17:00	Tunable Electron-Deficient 2D Polyarylene-Vinylenes Stabilize Sulfur for Battery applications	**A.-L. Waentig**
17:15	Porous organic frameworks materials as multifunctional carriers for biomedical applications: Coupling light driven propulsion and actuation to drug delivery and cancer therapy	**F. Podjaski**

16:00 - 17:30

Energy Applications - I

Chairman
P. Colavita
K. Haenen

16:00	Applications of Plasma Technology in Electrochemical Energy Conversion and Storage Materials	**W. Zhang**
16:30	Cesium-Mediated High Specific-Surface-Area Porous Carbons for High-Efficiency Energy Storage	**L. Jiaxin**
16:45	Boosting rGO-based Zn hybrid supercapacitors performance by thiol functionalization	**C. Valentini**
17:00	Nanowire Energy Storge Materials and Devices	**M. Liqiang**

16:00 - 17:30

Aqueous Energy Storage Systems

Chairman
C. Mattevi
L. Zhang

16:00	Electrolyte engineering in aqueous Zn-ion batteries	**G. He**
16:30	High-Energy and High-safety Zn batteries	**L. Ma**
16:45	Design and Performance Electrode and Electrolyte Materials for Aqueous Batteries	**Y. Huang**
17:00	Cesium-Mediated High Specific-Surface-Area Porous Carbons for High-Efficiency Energy Storage	**J. Li**
17:15	Microbatteries: Powering the Future with Miniaturized Energy Storage	**W. Zhang**

16:00 - 17:30

Sustainable materials

Chairman
R. Jafari
P. Kovaricek

16:00	Auxetic Composite Materials from Textile Composites	**R. Jafari Nedoushan**
16:30	Nettle (Girardinia diversifolia) yarn-preform reinforced PLA green-composites for automotive structural application	**P. Nandi**
16:45	Ion Transport through Stimuli-Responsive Hydrogels for the Development of Advanced Ionic Energy Harvesters	**M.-N. Biutty**
17:00	Sequential growth of conducting polymers directed by the substrate	**P. Kovaricek**
17:15	Unveiling the potential of silk fibroin and sericin as novel polymer binders for cathode electrodes	**R.-S. Pinto**

16:00 - 17:30

Materials Based Approaches for Mechanobiology Research - 2

Chairman
A. Angelo
A. Lesman

16:00	Enzymatic regulation of fibronectin fibrillogenesis and ECM remodeling	**H. Wolfenson**
16:30	Exploring the effects of mechanical stimuli on organotypic cell culture using 3D microstructures fabricated through 2-Photon Polymerization (2PP)	**F. Colombo**
16:50	Mechanophores for everyday force sensors	**J. Grolman**
17:15	Femtosecond Laser Assisted Fabrication of biopolymeric Micro/Nanostructures to study cellular behaviour	**T. Suryawanshi**

16:00 - 17:30

Photonics & Optoelectronics

Chairman
J. Adam
A.-K. Mishra

16:00	Functional MEMS smart glass in buildings for personalized light steering, energy savings and positive impact on health	**H. Hillmer**
16:30	On the Fundamental Absorption of Excitonic and Non-excitonic Semiconductors: An Optoelectronic and Thermal Approach	**K. Lizarraga**
16:45	Investigation on the luminescence of lanthanide activated alkaline-earth fluoride nanomaterials on varying the synthetic conditions	**E. Milan**
17:00	Optical Properties and Electronic Structures of Intrinsic Gapped Metals: Inverse Materials Design Principles for Transparent Conductors	**M.-R. Khan**
17:15	Impact of electron-phonon coupling and temperature dependent scattering time on power factor for the efficient thermoelectric energy estimation.	**N. Gupta**

16:00 - 17:30

OS 4

Chairman

16:00	Accumulation and Thermal Annealing of Radiation Defects in Corundum and Mineral Spinel Crystals	**A. Lushchik**
16:30	Defect engineering for oxide thin films by ion irradiation	**S. Zhou**
17:00	Vulnerability of epitaxial layers and substrates of 4H-SiC to ionizing radiation and thermal treatments	**F. Migliore**
17:15	Testing and tailoring material through electron irradiation at Sirius	**A. Alessi**

16:00 - 17:30

2D materials I

Chairman
J. Fabian

16:00	Spin/Valley Dynamics and Transport in Atomically Thin Transition Metal Dichalcogenides	**X. Marie**
16:30	Graphene/1T-TaS2 van der Waals heterostructure: proximity effects controlled with charge density wave and electric field	**K. Szalowski**
16:50	Recent advances in tuning magnetism in MPX3 vdW layered crystals	**M. Birowska**
17:10	Spin-dependent transport properties through Fe4GeTe2/GaTe/Fe4GeTe2 van der Waals heterostructures	**M. Davoudiniya**

16:00 - 17:30

Topology in ferroelectrics

Chairman
D. Meier
P. Paruch

16:00	Topological phase transitions in PbTiO3/SrTiO3 superlattices as a function of strain and temperature. A second-principles approach.	**J. Junquera**
16:30	Polar chirality emerging from periodic domain walls in BiFeO3 thin films	**S. Fusil**

16:45	Ferroelectric incommensurate spin crystals	D. Rusu
17:15	Ferroelectric polarisation rotation probed using X-ray diffraction	M. Hadjimichael

16:00 - 17:40

Photoelectrocatalysis II

Chairman
V. Andrei
S. Calnan

16:00	Extending the Success of Halide Perovskites from Solar Cells to Photoanodes and Photocatalysts for Solar Fuels	S. Eslava
16:20	Solution based synthesis of inorganic materials for (photo)electrocatalysis towards water splitting and CO2 reduction	A. Hardy
16:40	Generating added value products using photo and electrocatalysis	F. Fabregat-Santiago
16:55	Effect of SiOx defects on the functional properties of Si-Transition Metal Oxides photoanodes for water splitting	P. Ragonese
17:10	Methyl Germanane Enhanced 3D-Printed Nanocarbon Electrode as a Photoelectrocatalyst for Hydrogen Evolution Reaction	R. Nittoor-Veedu
17:25	Fluoride-Free Etched MAX Phase on 3D-printed Electrode for Photoelectrochemical Hydrogen Generation	S. Nouseen

16:00 - 18:00

Nanostructure patterning

Chairman
S. Goswami
Y.-K. Mishra

16:00	Generating Hierarchical Micro- and Nanostructures: An Approach via Substrate Conformal Imprint Lithography	E. Käkel
16:30	Maskless metal patterning on polymer surfaces at room temperature and pressure.	I.-B. Dimov
16:45	Micro-textured ETFE for self-cleaning application	J. Sharma
17:00	Photo-induced reshaping of nanoimprinted guest-host systems and development of a tunable nanoimprint stamp based on azo dyes	B. Kaban
17:15	Reusable SERS Substrate Fabrication via Two-Photon Induced Reduction of Silver Salt in Polymer Matrix	H. Joseph
17:30	Nanoengineered Surfaces for Functional Applications: Self-Cleaning/Wetting Control /SERS-PIERS	O.-C. Aktas

17:00 - 18:30 Poster hall

Poster

	Role of the Kirkendall effect in the process of thermal degradation of InxGa(1-x)N/GaN MQWs – DFT studies	R. Hrytsak
	Improvement of DC Characteristic of E-mode AlGaN/GaN HEMTs through Low-Damage Neutral Beam Etching and Post-Metallization Annealing	Y.-H. Chen
	Surface Studies of Van der Waals Crystals and GaN Hybridized Structures	D. Majchrzak
	Probing sub-bandgap absorption in a-Ga2O3 using the constant photocurrent method	D. Nicol
	Ion implanted ß-Gallium oxide with Ytterbium: Exploring the Phenomenon of Post-implantation Defect Accumulation in the Crystal Lattice	M. Sarwar
	Study of in-situ Eu doped {Zn(Mg)O/ZnCdO}m superlattices for optoelectronic devices	A. Lysak
	The influence of a nucleation layer on the structure and grain size of -Ga2O3 films grown by MOCVD on C-plane sapphire substrates	K. Kadiwala
	Self-Driven Ultraviolet Photodetectors Based on ß-Ga2O3/Si Heterostructures	R. Dhaka
	Optoelectronic properties of novel beta-phase nitrogen-based binary group V monolayer indirect semiconductors: Role of electron-phonon and exciton-phonon interactions	S. Bhattacharya
	a-Ga2O3 based Schottky Barrier Diodes: Influence of Schottky-Contact Metal and Deposition Method	C. Petersen
	Heat transport in Ga2O3 thin films with different phases	X. Xiao
	Advances in amorphous tin oxide for advanced electronics	C. Avis
	Nanoflowers like GaSe/ß-Ga2O3 heterostructure-based self-powered broadband photodetector with ultra-high responsivity	U. Varshney
	Improved Thermal Stability of Ohmic Contacts in AlGaN/GaN HEMTs (high electron mobility transistors) Devices by CVD Carbon Films	K.-K. Choi

A growth of (Ge,Ti)O2 alloy thin films for p-type UWBG semiconductor.	**T. Otsuka**
Fabrication of indium tin oxide thin films with conductivity and corrosion-resistant for metal separator of fuel cells	**T. Hattori**
Impact of extended defects in an Al0.60Ga0.40N channel high electron mobility transistor grown on a Si (111) substrate	**J. Bassaler**
ß-Ga2O3-Chemical Mechanical Polishing (CMP) with Alumina and Silica Mixed Abrasive Slurry (MAS)	**S. An**
Fundamental study of ZnO grown on ß- Ga2O3 substrates	**M. Pietrzyk**
Boron acceptor level measurement in a diamond Schottky barrier diode using a metallic doped layer for hole injection	**P. Ferrandis**

17:30 - 18:30 **Poster hall**

Poster

Investigating the impact of working pressure on the ablation process for AZO thin film fabrication	**E.-I. Bancu**
Threshold phenomena in ulrashort laser irradiated silicon	**I. Gnilitskyi**
Efficient design strategy of nanoscale Tunnel-FET using optimized channel binary alloys	**F. Djeffal**
Progress towards a solution-derived (Ba,Ca)(Ti,Zr)O3 film on a Si-based platform as a lead-free alternative.	**H. Rijckaert**
Solution-derived Calcium Strontium Barium Niobate thin layers: a novel ferroelectric in photonics	**L. Van Bossele**
WSe2 FETs with Floating Gate Memory for Vth and Current Control	**J. Sim**
Effect of Rapid Thermal Annealing on the Resistive-Switching Characteristics of Sputtered TiOx Active Layers for RRAM	**S. An**
Silicon Nanowires Deposited with Silver Nanoparticle as Next Generation Tunable Photovoltaic Cells	**S. Rani**
Cuttlefish eye–inspired artificial vision for high-quality imaging under uneven illumination conditions	**M. Kim**
Ambipolar Flash Memory Device with Dual Floating Gate for Bidirectional Threshold Voltage Control	**C.-H. Yang**
Enhancement of electrical properties for Sol-Gel processed Amorphous In-Ga-Zn-O Thin Film Transistors by Ozonated Water	**G. Chung**
Improvement of 2D Material-Based Transistors Using Multi Gate Engineering	**J.-Y. Lee**

17:30 - 18:30 **Poster hall**

Poster

A vibrational spectroscopy study on the [(CH2)2NH]PbBr3 / [(CH3)3S]PbBr3 perovskite compounds for photovoltaic applications	**N. Tagiara**
Appearance of Room-Temperature Bloch-Siegert shift in CsPbI3 and Cu-doped CsPbI3 Quantum Dots at low detuning	**A. Sharma**
Perovskite-microcrystalline films on GaAs substrate made of interconnected micron-sized crystals: a new hybrid heterostructure-based photodetectors for future optoelectronics	**T. Hidouri**
Lead Free Perovskite based Asymmetric Hybrid Flexible Supercapacitor	**A. Yadav**
Investigation of magnetodielectric properties in Pr2NiMnO6 Thin film	**P. Chander**
Domain Analysis of Perovskite Systems Through Phase Field Modelling	**I.-M. Ghitiu**
Moisture-triggered crystallization of perovskite nanocrystals at room temperature for heterogeneous photocatalysis	**M. Minguez-Avellan**
Phase Transformation and Growth Mechanism of RF Sputtered Ferroelectric Lead Scandium Tantalate (PbSc0.5Ta0.5O3) Films	**S. Gupta**
Characterization of Perovskite Solar Cells with Grain Size Control of CH3NH3PbI3 Synthesized by Vapor Phase Process	**G. Okada**
Combined first-principles and group-theoretical studies of the Jahn-Teller distortion in ferromagnetic Sr2FeO4	**G. Zvejnieks**
Properties of All-Inorganic Na2MgMnI6 Perovskite for Solar Cell Applications	**A. Kopp Alves**
Mechanically-Stacked Four Terminal Perovskite/InGaAsP Tandem Solar Cell Achieving 27.7% Efficiency	**B. Gupta**
Dicoupling the role of organic and inorganic parts in defining the anisotropic structural characteristics and physical properties of 2D perovskites	**J. Xi**
Self-assembled molecule fostering the spatial heterogeniety in highly order for efficient Ruddlesden-Popper perovskite solar cells	**J. Xi**
Intensity modulated photocurrent spectroscopy to investigate hidden kinetics at hybrid perovskite–electrolyte interface	**H. Ronchiya**

Structure Activity Relationship of La1-XNdxCoO3 nanostructures Toward Oxygen Electrocatalysis	**S.-M. Alharbi**
wide bangap SnO2:F thin films deposited by RF magnetron sputtering for perovskite solar cells	**A. Bouloufa**
Optimization of Aluminum Frame Design for Commercialization of Perovskite Tandem Solar Modules: A Deep Learning Surrogate Model Approach	**D.-W. Han**
Thermal and Electrical Properties of ZnO-PCBM Composite Layer for p-i-n Perovskite Solar Cells	**S. Kim**
Behaviour of ferroelastic and ferroelectric domains in AgNbO3 under temperature and stress influence	**X. Shi**
High-performance semi-transparent perovskite solar cells based on 3D-patterned FTO	**S. Ju**
Optimization of lead free La2NiMnO6 based double perovskite solar cells using SCAPS-1D simulation	**U.-U. Rehman**
Low Band Gap 2D Carbon Nitrides as Hole Transport Layer (HTL) to Engineer the HTL/Perovskite Interface	**M.-N. Tahir**
Inorganic hole Transport Materials for Organic and Perovskite Solar Cells	**A. Chroneos**
Facile Preparation of Semitransparent and Neutral-colored Perovskite Solar Cells with Laser Patterning	**H.-J. Lee**
Performance comparison of metal halide perovskite MAPbBr3 X- and ?-ray detectors with different metal contacts	**N. Maticiuc**
Enhancing Exciton Confinement in Perovskite Light-Emitting Diodes through Spray-Coating: The Energy-Well Band Structure Approach	**J.-K. Park**
In Situ Fabrication of Lead-Free Double Perovskite/Polymer Composite Films for Optoelectronic Devices and Anti-counterfeit Printing	**J. Shi**
Unveiling the Efficiency Potential: Optimal CH3NH3/Cs Ratio for Enhanced Performance in Lead-Free Perovskite Solar Cells Based on (CH3NH3)x(Cs)1-x)3Bi2I9 Composition	**M. Ataei**
Enhanced Inverted Perovskite Solar Cells Performance using the SbCl3 doped PTAA Hole Transport Layer	**S.-Y. Hong**
Spectrally Stable and Efficient Pure Blue-Emitting Perovskite Nanocrystal Thin Films for Light-Emitting Diodes	**S.-K. Gundam**
Effect of A-site engineering on the crystal structure and UV light photodetection properties of cesium copper iodide perovskite	**J. Nawrocki**
Azahomofullerenes as Novel n-Type Acceptor Materials for Efficient and Stable Perovskite Solar Cells	**D. Prochowicz**
Perovskite solar cells upscaling	**I. Paloumpa**
The role of atomic layer deposited alumina on the perovskite solar cells' stability and efficiency	**M. Kot**
Understanding the effect of TiO2 defects at the perovskite/TiO2 interface using soft and hard X-ray PES	**C. Das**
Inorganic-derived Zero-Dimensional Perovskite Induced Surface Lattice Engineering for Efficient and Stable All-inorganic Perovskite Solar Cells	**J.-H. Heo**
The electrical properties of piezoelectric-magneto strictive heterostructure obtained by Pulsed Laser Ablation	**V. Ion**
Colour-tunable, flexible, semitransparent halide perovskite solar cells for BIPV application.	**V. Sharma**
The carrier densities of perovskite solar absorbers under dark and light conditions	**K. Gawlinska-Necek**

17:30 - 18:30 **Poster hall**

Poster

Poly(lactic acid)/carbon nanotubes composites: elaboration, structure and thermoelectric properties	**V.-H. Vo Le**
Development of Thin Film NMC cathodes for the study of surface reactions	**S. Rodrigues**
Inside Biopolymer-mediated Perovskite self-assembly: an effective approach towards the scalability	**A. Giuri**
Investigation of Opto-Electrical, Mechanical and Surface properties of AgNWs-PEDOT: PSS based Ultraflexible and Transparent Conductive Electrode for Sensing Applications	**J. Dcosta**
Growth optimization of Td-WTe2 thin films by molecular beam epitaxy	**A. Llopez**
Addressing Printability Challenges in PbS Quantum Dot Solar Cells Electron Transport Layer through Dual Metal Doping and Solvent Engineering of ZnO Nano Inks	**R. Holfeuer**
Molecularly Engineering (Multi-)Functional Inorganic Materials: From 2D Materials to Micromotors	**J. Muñoz**
Influence of TPS on the properties of PHBH-based polymeric blends	**A. Mtibe**
Tubular Glassy Carbon Microneedles with Fullerene-like Tips for Biomedical Applications	**S. Malik**
Plasmon-Driven Growth of Germanium Nanostructures	**R. O'meara**
Tuning of Volatile Molecular Thorium Precursors for the Chemical Vapor Deposition of Thorium Oxide Thin Films	**A. Lichtenberg**

	Molecular Uranium Single Source Precursors Designed for the Synthesis of Uranium Oxide Nanomaterials	**A. Lichtenberg**
	Study of the Structural, Optical, and Electrical Properties of Bilayer Chemiresistive Gas Sensors	**F. Bravo**
	Functional unidirectional hybrid nanomaterials	**A. Fahmi**
	Morphology and structure of SnO2-based nanomaterials obtained by different synthesis routes for gas sensing applications	**C.-G. Mihalcea**
	Optical properties of bismuth quantum dots	**E. Dudutienė**
	Long-lasting Performance of High-flux LaxCe1-xCoO3 Perovskite Membrane Synthesis for the Treatment of POPs in Pesticides and Herbicides Containing Wastewater	**A. Arvind Kumar**
	Developing Multifunctional Carbon Nanotube Buckypapers by Hybridizing Cellulose Nanocrystals for Enhanced Dispersion Quality	**F. Kayginok**
	Understanding the effects of primary and secondary doping via post-treatment of p-type and n-type hybrid organic-inorganic thin film thermoelectric materials	**R. Rubio-Govea**
	Controlled Design of M@SCs Nano-Heterodimers by Laser Photodeposition: Growth Mechanism and Modeling (SC= Metal Oxide and QD Semiconductor)	**E. Pariente**
	Nanocomposites of Hexagonal Boron Nitride Nanosheet with Chlorin e6 as a Bimodal Nanosensitizer for Cancer Therapy	**N. Komatsu**
	Transparent wood-based multi-functional devices for smart windows application.	**S. Bruno**
	Scaling-up 2D Transition Metal Dichalcogenides synthesis through Chemical Vapor Deposition	**R. Elnahas**
	Interphases in various types of nanocomposites filled with luminescent oxides	**S. Nedilko**
	Self-assembly of nanographene with nitrogen-doped zigzag edges on Au(111) and its electronic properties	**T. Onishi**
	Composite Fabrics Obtained through In Situ Chemical Reactions within Polymeric Microfibers	**A. Sitt**
	Electrically conductive hot melt ethylene-vinyl acetate adhesives containing carbon nanotubes	**M. Misiak**
	Investigating the role of particle shape in the network structure and conductivity of conductive particle composites	**D. Perius**
	Upconversion Emission Studies on PEG coated KY3F10:Ho3+/Yb3+ Phosphors for Optical Thermometry and Contrast Enhancement in Bio-imaging	**K. Shwetabh**
	Synthesis and Characterization of Graphene Reinforced Aluminium Metal Matrix Nano-composite Through Liquid Melt Casting Route	**S. Das**
	Synthesis and proton-conducting properties of UiO-66-type metal-organic frameworks encapsulating hydrogen-bonded phosphoric acid	**K. Maegawa**
	Development of novel high entropy alloys for energy intensive industries	**D. Sharma**
	Study of Electrical Conduction and Frictional Resistance of Nanocomposite Hybrid Sol-Gel Coatings Formulated with Carbon Conductive Fillers	**J. Acquadro**
	Analysis of Heat Transfer performance for nanomaterial composite coating utilizing spray cooling technique	**S. Bhattacharyya**
	Tailoring the properties of Poly(vinyl alcohol) blends/cryogels via sebacic acid decoration	**D. Bandelli**
	Control the metal-cation cross-linking to synthesise high-quality graphene oxide membranes for water treatment	**R.-(. Chen**
	Conjugation of tetrapyrrolic macrocycles with graphene quantum dots: Application and future challenges	**E. Macoas**
	2D-Nanomaterial Directed Molecular Aggregation and Energy Transfer	**H. Xiang**
	Cement Composites Based on Graphite / MnFe2O4 Spinel Ferrite Nanoparticles for Electromagnetic Interference Shielding and Microwave Absorption Application	**V. Mariappan**
	Broadband Electromagnetic Wave Absorption of MoS2@CoFe2O4 Hybrid Composites in Ku-band	**B. Kıvrak**
	Preparation of DNA nanoflower-modified silica monolith for capillary electrochromatography chiral separation	**T. Hong**
	The Mechanical Behavior of Cellular Lattices Made From Two-dimensional Heterogenous Materials	**K. Liao**
	Temperature-modulated Solution-based Synthesis of Copper Oxide Nanostructures for Glucose Sensing	**Y. Zhu**
	Solution Combustion Synthesis: Towards a Sustainable Approach for Metal Oxides	**R. Branquinho**
	Fundamental characterization of interaction between gas and polyaniline composites dedicated to ammonia detection	**M. Pascaud**
	Gold nanostars decorated with polyoxometalates for for cancer therapy	**J.-F. Ramirez Henao**
	Synthesis of Alginate/GO/Pd–AuAg Trimetallic Nanocomposite and Its Application in the Continuous Flow Catalytic Reduction of Hexavalent Chromium	**A. Pradyasti**
	Integrating Metal-Organic Framework in Alginate Hydrogel for Protein Encapsulation	**J. Bachir**
	Simultaneous enhancement of electrical conductivity and magenetization in graphene using silver nanoparticles	**P. Chettri**
	Incoherent and Coherent Random Lasing from a Carbon dot-TiO2 colloidal disordered system	**A. Pramaniik**
	Transparent Conductive Films of PEDOT:PSS-Amino Acid Composite	**R. Adhikari**
	Antibacterial studies of ZnO and silica capped manganese doped zinc sulphide nanostructures	**S. Gupta**
	Temperature-dependent study of the fabricated ZnS/p-Si heterojunction	**S. Gupta**
	Titanium dioxide-based nanocomposites fabrication and characterization	**F. Giuffrida**

Cation insertion characteristics of mesoporous titania-silica composite layers	**D. Chakravorty**
Development of rGO-AgNP Based Chemiresistive Sensor For ppb Level Pb(II) Detection	**M. Deb**
Synthesis of Epoxy-Functionalized Isosorbide-Siloxane Hybrid Materials as Interconnection Adhesives for Sustainable Flip-Chip Process	**G.-M. Choi**
Interfacial Diatomic Pt Ring Boost the Electrochemical ORR and HER Performance of Ni-Hydroxide Supported Pd Nanoparticles	**A. Beniwal**
Fabrication of polyaniline (PANI) and functionalized graphene nanocomposite thin films using thermal evaporation	**S. Thakur**
Strengthening of equiatomic CoCrCuFeNi -based ODS high entropy alloys with measured amount of Y2O3 addition	**S. Sinha**
Ligand Assisted Volatilization of Indium Complex for CVD of In2S3 Thin Films and its Photoelectrochemical Application	**C.-K. Amadi**
Luminescent zero dimensional inorganic perovskite -photocurable resin composites for scintillator application	**M. Calora**
Ozonolysis of surface-bonded alkenes	**N. Iqbal**
Impact of three amines interfering with ammonia response of polyaniline-based sensor	**M. Pascaud**
Development of plasma-assisted methods in liquids for preparation of perovskite oxides nanomaterials	**N. Tarasenka**

17:30 - 18:30 — Poster hall

Poster

State-of-Health Estimation of Lithium-Ion Batteries based on machine learning	**B. Kang**
On-chip micro-supercapacitors based on dielectrophoretic assembly of porous microwires electrodes	**S. Seo**
Current collector-free printed three-dimensional MXene-based anodes for lithium-ion batteries	**A. Nurpeissova**
Zn-rejuvenated and SEI-regulated Additive in Zinc Metal Battery via the Iodine Post-functionalized Zeolitic Imidazolate Framework-90	**Y. Zhao**
Synthesis and structural properties of piezoelectric-magnetostrictive hybrid nanowires for nano magneto- electro- mechanical systems (NMEMS)	**W. Zajkowska**
Porous anode materials and solid polymer electrolyte for improving the performances of SSBs	**R.-D. Andrei**
Enhancing the performance of NiO-based transparent planar Micro-Supercapacitors by introducing defects and increasing strain with Phosphorus doping.	**S. Siddiqui**
Electrochemical characteristics of nickel-rich single crystal cathode materials for lithium ion batteries according to lithium composition	**S. Jong-Tae**
A flexible and biocompatible nanostructured NbN@Ni foam supercapacitor towards implantable energy storage applications	**S. Sharma**
Laser-based microstructuring of Nickel ferrite (NiFe2O4) thin film based on-chip spiral inductors	**S. Itapu**

17:30 - 18:30 — Poster hall

Poster

The effect of hole localization on the magnetophotoluminescence of modulation-doped CdTe/CdMgTe quantum wells	**W. Solarska**
Positron annihilation study of free-volume defects in doped BaTiO3 ceramics	**H. Klym**
Defect-related effects in functional Cu0.1Ni0.8Co0.2Mn1.9O4 ceramics	**H. Klym**
Analytical 3D picture of the arbitrary metal surface response to a molecular adsorbate	**T. Bednarek**
Material engineering research with time-resolved VUV spectroscopy facilities at DESY PETRA III synchrotron	**A. Kotlov**
Radiation Defectss in Scintillator Materials Induced by Swift Heavy Ions	**V. Pankratov**
Study of yttria stabilized zirconia by VUV excitation spectroscopy	**V. Pankratova**
Surface defects in TiO2 doped with rare earth elements: effect on photocatalytic activity and up-conversion luminescence	**D. Bocharov**
Predicting crystal properties of chalcopyrites from chemical descriptors	**D. Bocharov**
Current status of the diffusion-controlled radiation defects annealing in heavily irradiated binary and complex oxides – disordering effects.	**A. Popov**
Photocatalysis and beyond: the antibacterial properties of titanium dioxide	**A. Podelinska**
Effect of ion-induced nuclear reactions on structure modification and radiolysis in LiF irradiated by 410 MeV 36S ions	**A. Popov**
Calculation of physicochemical properties of alkali metal oxide nanotubes	**A. Istlyaup**
Defects in photojunction - exchange interaction with free minority carriers	**B. Orlowski**

Color centers in BaFBr crystals: experimental study and theoretical modeling	**A. Akilbekov**
Noble gas functional defect with unusual relaxation pattern in solids	**L. Lovelesh**
Micromechanical properties of ZnWO4 crystals irradiated with 28 MeV Oxygen Ions	**A. Akilbekov**
Multitarget reactive magnetron sputtering towards the production of strontium molybdate thin films	**N. Sobolev**
Electron irradiation effects on Si/SiO2/CaF2 structures studied by photoelectron emission technique	**M. Romanova**

17:30 - 19:30 — Poster hall

Poster

Chairman
S. Lancaster
G. Niu
F. Sanchez
J. Silva

Investigation of oxygen vacancy conductive filament formation and resistive switching stability in HfO2-based RRAM	**D. Zhang**
Negative Differential Resistance (NDR) phenomenon in antiferromagnetic NiOx / ferroelectric HfO2 heterostructures	**S. Itapu**
Thermostimulated luminescence analysis of oxygen vacancies in HfO2 nanoparticles	**K. Laganovska**
Growth orientation dependence on the stabilization of the polar orthorhombic phase of Hf1/2Zr1/2O2 thin films	**A. De**
A Study on the Control of Oxygen Vacancy Concentration in Ferroelectric (Hf, Zr)O2 Thin Film by Using Oxidized W Electrodes	**K. Yang**
A Comprehensive Study of Ferroelectric Properties of Fluorite-Structured Hf1-xZrxO2 Thin Films Grown on Mo Electrode with Various Thickness and Compositions	**J.-Y. Park**

17:40 - 18:30 — Poster hall

Poster

Photocatalytic Oxygen Evolution Reaction Catalyzed by Crystalline Cu-coordinated Perylene Diimide Assemblies	**S.-Y. Lee**
Electrochemical reduction of Copper catalyst on band edge modulated p-Silicon photoelectrode	**S. Harilal**
Band bending in Cu-Cu2O-Cu3N nanocomposite and green photocatalysts for Azo Dyes degradation	**P. Paredes**
Natural sunlight-driven dual organo-photo redox reaction mediated by a metal-free porous organic polymer: a step toward sustainable carbon neutrality	**N. Saini**
Energy-saving hydrogen production enabled by defective Ru-doped a-MnO2 nanorods	**Z. Yu**
Synthesis and Characterization of Iron-Doped Lithium Niobate for Hydrogen Production via UV-Assisted Water Splitting	**F. Amorim Berutti**
Copper Nanoparticle Intercalated TiO2 Thin Film with Enhanced Photocatalytic Activity	**T. Sebastian**
Advancing Gold Recycling: Electrochemical Systems and Dissolution Kinetics	**C. Diac**
Photoelectrochemical activity of porous TiO2 thin film deposited by spin-coating method	**A. Abdizhamil**
The impact of Ge doping on hematite photoanodes: a study of hematite grain boundaries and FTO/hematite interfaces	**T.-E.-R. Fiuza**
Spin-coating deposition of TiO2–rGO thin films with enhanced photoelectrochemical activity	**L. Serik**
The impact of different capping ligands on the hematite photoanodes prepared by the CND process	**T.-E.-R. Fiuza**
Energy-saving hydrogen production through asymmetric seawater electrolysis	**L. Liu**

08:00 - 10:30

Photonics and Optoelectronics 1

Chairman
Y.-K. Mishra
R. Puglisi

08:00	Synthesis and photoluminescence properties of rare-earth-doped ternary oxide based phosphors for solid-state lighting applications	**V. Kumar**
08:30	Photoluminescence and Judd-Ofelt estimations of red-emitting Eu3+ doped BaLa2ZnO5 phosphor	**I. Ayoub**
08:45	Exploring the Optical Properties and Thermal Stability of Eu3+-Doped Ba2Tb8(SiO4)6O2 Red Phosphor: A Study on Structure, Photoluminescence, and Judd-Ofelt Analysis	**N. Hussain**
09:00	Color-tunable luminescence and Judd-Ofelt analysis of Dy3+ doped zinc gallate phosphor	**U. Mushtaq**
09:15	Micro- and nano- Zn2GeO4 as new nanomaterial for optoelectronic applications.	**P. Hidalgo**
09:30	The Study of LLZO Thin Film Electrolyte using Pulsed Light Treatment	**A. Ryu**
09:45	To study the nanostructured particles as sorbents for water purification application	**P. Pietrzyk**
10:00	Quasi-static puncture resistance and yarn pull-out performance of novel shear thickening fluid impregnated jute fabric	**M.-S. Goyat**
10:15	Tetrapods based Smart Materials for Advanced Technologies	**Y. Mishra**

08:30 - 10:30

Energy Saving devices based on nanocomposites

Chairman
D. Guldi
A. Rizzo

08:30	Nanocomposites and their interfacial properties for energy harvesting	**A. Vomiero**
09:00	Stabilizing Halide Perovskites In Aqueous Electrolytes for Solar Fuel Generation	**E. Edri**
09:15	Multicolour thermocromic material based on a blend of polymer and hybrid organic-inorganic perovskite	**C.-T. Prontera**
09:30	A new synthesis method of highly calibrated CsPbBr3 nanocrystals perovskites by soft chemistry for OLEDs devices.	**C. Mayer**
09:45	A TiO2 sponge to prevent lead pollution in water	**C. Spampinato**
10:00	Taming defects in halide perovskites: insights from atomistic and molecular modelling	**S. Tao**

08:50 - 09:00

Welcome address

09:00 - 10:30

GeSn

09:00	Reduced Pressure - Chemical Vapor Deposition of intrinsic and in-situ doped GeSn/SiGeSn heterostructures for nanolectronics and optoelectronics	**J.-M. Hartmann**
09:30	EXAFS Analysis of MBE-grown GeSn heteroepitaxial layers	**S. Gougam**
09:45	Performance analysis of GeSn based photodetectors operating in 2um band at low temperature.	**R. Bansal**
10:00	Deposition of Ge-capped and uncapped Sn-rich islands by Molecular Beam Epitaxy (MBE)	**A. Hayat**
10:15	A comprehensive analysis of the thermo-opto-mechanical properties of GeSn optoelectronic devices	**C.-L. Manganelli**

09:00 - 10:30

Electrocatalysis III

Chairman
J. John
S. Shukla

09:00	Upscaling CO2 Electroreduction	**J. Vaes**
09:30	A density functional theory-based screening of efficient 2D catalysts for CO2 reduction reaction	**D. Misra**

09:45	Study on the Structure vs Activity of Designed Non-Precious Metal Electrocatalysts for CO2 Conversion	**W. Yuan**
10:00	High Entropy Alloys for Aqueous Electrocatalytic N2 Reduction: Utilizing Deep Neural Networks and a Probabilistic Approach to Quantify Competitive Relations	**R. B. Araujo**
10:15	Low loading gold deposition on Ni foam for nitrogen reduction reaction	**R.-G. Milazzo**

09:00 - 10:30

Band alignment and tandem devices

Chairman
M. Kot

09:00	Insights into perovskite materials and devices from UV photoelectron spectroscopy and related methods	**L. Korte**
09:30	Investigation of the band alignment in the 2D/3D Perovskite structure	**P. Dally**
09:45	Overcoming voltage losses in narrow bandgap perovskites and application in all-perovskite tandem PVs	**A. Fakharuddin**
10:00	ALD of conformal, transparent conducting SnOx?passivation layers for Si/Perovskite Tandem Cell	**B. Mandol**
10:15	Rational Design of Photoelectrochemical Perovskite-BiVO4 Tandem Devices for Scalable Fuel Production	**V. Andrei**

09:00 - 10:30

Growth 1

Chairman
J. Brault

09:00	Bulk ß-Ga2O3 and ß-(AlxGa1-x)2O3 single crystals grown by the Czochralski method	**Z. Galazka**
09:30	Two stage MOVPE growth of high-quality h-BN on the wafer-scale sapphire: the role of substrate off-cut	**M. Tokarczyk**
09:45	Exploration of zirconium doping in pulsed laser deposited a-Ga2O3	**S. Vogt**
10:00	Structural and optical characterization of Eu-implanted CdMgO and CdO/MgO superlattices	**E. Przeździecka**
10:15	Effect of hydrogen in Si-doped ß-Ga2O3 grown by liquid-injection MOCVD	**F. Egyenes**

09:00 - 10:30

Ge and GeSn

Chairman
G.-E. Chang
S. Prucnal

09:00	Heavily-doped Ge-on-Si: an all-semiconductor material platform for mid-infrared plasmonics.	**J. Frigerio**
09:30	Performance analysis of GeSn based photodetectors operating in 2um band at low temperature.	**R. Bansal**
09:45	Ex-situ incorporation of Sn in Ge by nanosecond pulsed laser melting	**D. Fontana**
10:00	Investigation of the interaction between hemin and human serum albumin in the THz range using ultra-high doped Ge-based Plasmonic Antenna	**E. Hardt**

09:00 - 10:30

Insights on reliability

Chairman
S. Lancaster

09:00	Metastable phase of HfO2-based ferroelectric thin films and the memory device mechanics	**Y. Zhou**
09:30	Reliability of Hf0.5Zr0.5O2 films obtained by pulsed laser deposition under low oxidation conditions	**F. Ali**
09:45	Novel insights on HfO2-based capacitors: How to improve device reliability by targeted band alignment	**L. Baumgarten**
10:00	Study of Imprint dynamics in CMOS compatible HZO ferroelectric capacitors	**B. Vilquin**
10:15	Investigation of Endurance, Retention, and Partial Switching in Hf0.5Zr0.5O2 Ferroelectric Crosspoint Memories for In-Memory Computing: A Damascene Process Approach	**D. Coffineau**

09:00 - 10:30

Nanographenes: optical properties

Chairman

09:00	Synthesis and Optical Properties of "Bottom-up" Graphene Quantum Dots	**S. Campidelli**
09:30	The influence of functionalization on graphene flakes	**D. Suwala**
09:45	Theoretical insight into optoelectronic properties of carbon dots, organic molecules and graphene derivatives	**M. Langer**
10:00	Graphene-encapsulated hybrid perovskite photodetectors	**D. Voiry**

09:00 - 10:30

CNTs

Chairman
Q. Li
H. Randria

09:00	Transport Properties of Carbon Nanotubes Under High Magnetic Fields	**T. Kulka**
09:15	Selective differentiation of polydisperse mixtures of single-walled carbon nanotubes	**D. Janas**
09:30	Elemental Amorphous Carbon versus Binary Amorphous Boron Nitride Monolayers	**Y. Zhang**
09:45	Field Emission Performance of VACNTs Synthesized by Vacuum Decomposition	**E. Gurpinar**
10:00	Catalytic Growth of Single-Walled Carbon Nanotubes with Specified Structure	**Y. Li**

09:00 - 10:30

Advanced Materials for Energy Storage

Chairman
A. Rettie
M. Zhu

09:00	High-Kinetics Energy Storage by 2D Layered Materials.	**M. Yu**
09:30	Transparent Lithium-Ion Thin-Film Battery Fabricated by Stack Configuration of Transparent Materials	**J.-W. Choi**
09:45	Atomic Layer Deposition of Multivalent Vanadium Oxide on Laser Induced Graphene Fibers for Flexible Supercapacitor	**S. Deshmukh**
10:00	Advanced storage materials for the IoT	**A. Chroneos**
10:15	Intergrated Flexible Self-powered Energy Storage Systems with Long-term Stability for Wearable and Implantable Electronics	**M. Xu**

09:00 - 10:30

Biomaterials and sensors for applications

Chairman
G. Hernandez-Sosa
H.-B. Yildiz

09:00	Bio-based polymers from lignocellulosic biomass: from structural characterization to application as advanced materials	**A. Operamolla**
09:30	Tunable surface properties of polypropylene using direct fluorination under various conditions and stabilization by esterification	**N. Suchet**
09:45	Hydrogen and Photocurrent Generation By Conductive Biopolymer/Cyanobacteria Based Biological Photovoltaics Via Photosynthesis and Respiratory System	**H.-B. Yildiz**
10:00	Impact of the solvent on the performance of polyaniline-based sensors devoted to ammonia detection	**S. Vassaux**
10:15	Fluorescent Yeonnokjam Silk as a Smart Textile Chemo-Sensor	**R.-K. Jha**

09:00 - 10:30

3D micro-/nano- structurures for ex-vivo manipulaiton on cells - 2

Chairman
B. Blanco Fernandez
C. Prinz

09:00	Engineering programmable nanoscale tools to manipulate cells	**N. Voelcker**
09:30	Two-photon polymerization of 3D engineered cell microenvironments for brain cancer mechanobiology and treatment	**A. Accardo**
10:00	Catalytic Bioswitch of Platinum Nanozymes: Mechanistic Insights of Reactive Oxygen Species Scavenging in the Neurovascular Unit	**G. Tarricone**
10:15	Ice-templated Hierarchically Porous 3D Silica Nanoparticle Assemblies for Controlling Drug Releas	**S.-K. Palvai**

09:00 - 10:30

2-D Materials II

Chairman
J. Adam
B. Sanyal

09:00	Theoretical Investigations of Group-IV Janus Monolayers: Prospective Materials for Green Energy Solutions	**S. Singh**
09:30	MOF-MXene heterostructure for promising detection of asthma through H2S biomarkers	**S. Kapoor**
09:45	Characterization of Functionalized Graphene Structures for H2 Separation from Syngas Mixtures	**E. Mamut**
10:00	Non- HF low Temperature Synthesis Approach for MXene and optimization for Hydrogen Evolution Activity and Stability	**R. Mohili**
10:15	First Principle Investigation of Strain-Induced Structural,Electronic, and Transport Properties of Janus MoSeTe Monolayer	**S. Saini**

09:00 - 10:30

2D perovskites for light emitting applications

Chairman
C. Katan
T. Pullerits

09:00	Luminescence in 2D Perovskites – The Complex Interplay of Excitons, Traps, and the Lattice	**S. Kahmann**
09:30	2D Metal Halide Perovskites: Energy Gap and Exciton Binding Energy vs. Octahedral Twist and Quantum and Dielectric Confinement	**A. Kahn**
09:45	A theoretical perspective on tuning the excitonic properties of layered halide perovskites and vacancy-ordered double perovskites	**M. Kepenekian**
10:00	Phase Transitions of Hybrid Organic-Inorganic Perovskites	**W. Li**
10:15	Novel fabrication method of a low dimensional perovskite halide photodetector with enhanced stability via 3D printing	**A. Ioannou**

09:00 - 10:30

OS 5

Chairman
D.-O. Scanlon

09:00	Volumetric defect analysis in functional ceramic materials with positron annihilation lifetime spectroscopy	**H. Klym**
09:30	5D0??7F2 red emission of Eu3+ in ZnO and ZnMgO single layers and ZnMgO-based quantum structures doped during growth by MBE	**A. Kozanecki**
09:45	Effect of strain on acceptor states in ZnO and ZnO:N films	**E. Guziewicz**
10:00	Defectivity and Electrical Properties of Al:ZnO Thin Films with Different Crystalline Order Grown by RF Magnetron Sputtering	**R. Magrin Maffei**
10:15	Electrospinning of epoxy micro- and nano-fibers	**H.-D. Wagner**

09:00 - 10:30

Piezoelectric polar oxides - 1

Chairman
H. Fritze
Y. Suhak

09:00	Solid solutions of LiNbO3 and LiTaO3 – phase diagram and growth of single crystals	**S. Ganschow**
09:30	Phase Transformation in Lithium Niobate-Lithium Tantalate (LiNb1-xTaxO3) Solid Solutions	**F.-E. El Azzouzi**
09:45	Acoustic Loss in Li(Nb,Ta)O3 at Temperatures up to 900°C	**U. Yakhnevych**
10:00	Vibrational and optical properties of LiNbO3 and LiTaO3 under uniaxial stress	**M.-N. Pionteck**
10:15	Small polaron hopping in iron-doped lithium niobate: from microscopic hopping processes to macroscopic observables	**M. Bazzan**

09:00 - 10:30

Spin-dependent transport

Chairman
R. Raimondi

09:00	Topological Spin Transport in Quantum Materials and Entanglement	**S. Roche**

09:30	Topological insulator Bi(x)Sb(1-x) films on GaAs substrates as current-induced Spin-Orbit Torques generators	**M.-A. Khaled**
09:50	Observation of the Orbital Inverse Rashba-Edelstein effect	**M. Viret**
10:10	Inverse spin Hall effect and interface structure in topological insulator Sb2Te3/Ferromagnets	**M. Morota**

09:00 - 10:30

Magnetic skyrmionic textures

Chairman
M. Klaeui
N. Reyren

09:00	Resonant dynamics of three-dimensional skyrmionic textures in thin film multilayers	**T. Srivastava**
09:30	Texture-induced spin-orbit coupling and skyrmion-electron bound states in a Néel antiferromagnet	**R. Ramazashvili**
09:45	Topotronics with Ferromagnetic Topological Materials and Antiferromagnetic Half-Skyrmions	**O. Tretiakov**
10:15	Nucleating antiferromagnetic skyrmion analogues in an a-Fe2O3/Co/Pt heterostructure	**J.-C. Lin**

09:00 - 10:40

Session 3

09:00	Semiconductor Quantum Dot arrays for Quantum Information Transfer	**G. Platero**
09:40	Arrangement, composition and magnetisation of epitaxial iron oxide nanoislands on strontium titanate	**S. Tober**
10:00	Plasma-Engineered Bioresource-Derived Graphene Quantum Dots as the Metal-Free Raman Scattering-Active Nanosensors for Amino Acids	**N. Sharma**
10:20	Investigation of magnetoelastic coupling in Fe(10 nm)/Py(10 nm) nanowire array	**M. Brioschi**

10:30 - 10:50 — **Main building - Ground floor**

Coffee Break

10:30 - 11:00 — **Main building - Ground floor**

Coffee Break

10:40 - 11:10 — **Main building - Ground floor**

Coffee Break

10:50 - 12:00

Growth 2

Chairman
Z. Gałązka

10:50	van der Waals epitaxy of AlGaN based heterostructures on h-BN for applications in the UV range	**J. Brault**
11:20	Mapping of threading dislocation directions in aluminum nitride wafers using X-ray topography in reflection geometry	**R. Weingärtner**
11:35	Phase formation, catalysis and In incorporation in single-crystalline a-Ga2O3 grown on a-Al2O3 by metal-oxide catalyzed molecular beam epitaxy	**M. Alonso-Orts**

11:00 - 12:30

Germanium on Silicon

11:00	Germanium-on-Silicon dual-band photodetectors for imaging and spectral analysis applications	**A. De Iacovo**
11:30	Selective Epitaxy of Germanium by Reduced Pressure Chemical Vapor Deposition: Effect of Area Growth Size on Morphology, Strain, and Optical Emission	**D. Ryzhak**
11:45	Advanced process for the fabrication of defect-free Ge-rich SGOI layers	**A.-F. Mallet**
12:00	Hybrid time-frequency domain studies of acoustic phonons with pumped Brillouin Light Scattering	**A. Dhiman**
12:15	Hybrid Metallic-Dielectric Al/Si/Ge Optical Metasurface for Wavelength-Selective Photodetection	**P. Oleynik**

11:00 - 12:30

Stability I

Chairman
D. Prochowicz

11:30	Improving the performance and stability of Sn-based perovskite solar cells	**O.-E. Solis**
12:00	Pressure Induced Oscillating Band-gap Variation in KBaTeSbO6 : Towards Transparent Solar Cell	**M. G. Basavarajappa**
12:15	Various methods for Optimizing Cs2AgBiBr6 Perovskite Film Production under Atmospheric Conditions	**I.-C. Kaya**

11:00 - 12:30

Doping for nanoelectronics

Chairman
J. Frigerio
S. Schäfer

11:00	Comparison of Conventional Impurity Doping with Modulation Doping of Silicon Nanostructures	**D. Hiller**
11:30	Nanostructured Silicon Hyperdoped with Se by Ion Implantation and Flash Lamp Annealing	**B. Radfar**
11:45	Tailoring the properties of carbon nanotubes by means of doping	**D. Janas**
12:00	Contact engineering for 2D materials through ion implantation and flash lamp annealing	**K. Lin**

11:00 - 12:30

Novel devices I

Chairman
T. Kämpfe

11:00	Ferroelectric Hafnia Superlattices for Bio-Inspired Computing	**L. Bégon-Lours**
11:30	Artificial Synapses made of ferroelectric epitaxial Hf0.5Zr0.5O2 / SrTiO3-d on silicon	**N. Siannas**
11:45	Accelerating Neural Network Training using HfxZr1-xO2 Based Ferroelectric Tunnel Junction Memristors	**R. Athle**
12:00	Advancements in HZO Layer Engineering for Ultimate 3D Vertical Transistors : Towards a Logic-In-Memory Application	**K. Moustakas**
12:15	Robustly Stable Ferroelectric Polarization States Enable Long-Term Nonvolatile Storage against Radiation in HfO2-Based Ferroelectric Field-Effect Transistors	**J. Liao**

11:00 - 12:30

Advanced Optical Characterisation of nanocomposites

Chairman
T. Ameri
S. Tao

11:00	Adaptive Down- and Up-Conversion	**D. Guldi**
11:30	Thin film plasmonic broadband absorber based on Al2O3/Cu nanocomposites from vapor deposition	**A. Vahl**
11:45	Investigation of bismuth quantum dots in GaAsBi quantum wells by spatially resolved luminescence spectroscopy.	**A. Vaitkevičius**
12:00	Optical properties of gold nanoclusters obtained by pulsed laser ablation in water	**F. Enrichi**

12:15	Nanographene-polysterene nanocomposites as fluorescent unclonable microlabels for anti-counterfeiting applications	**F. Messina**

11:00 - 12:30

Perovskites

Chairman
D. Voiry

11:00	Physical properties of 2D multilayered perovskites and 2D/3D bilayers for photovoltaics	**J. Even**
11:30	Enhancing Stability and Band Alignment in Cs2AgBiBr6-based HTM Free Solar Cells by Applying a 2D Surface Modification	**F. Schmitz**
11:45	Flexible and Efficient Semi-Empirical DFTB methods for Electronic Structure Prediction of 3D, 2D and 3D/2D Halide Perovskites	**J. Jiang**
12:00	Gaining a sounded understanding of excitons in 2D halide perovskites: contributions from atomistic modeling	**C. Quarti**

11:00 - 12:30

Sensing

Chairman
A. Kruge
Y. Tian

11:00	Nanodiamond based magnetic guided therapeutic strategy for tumour hypoxia	**C.-L. Cheng**
11:30	Quantum sensing of free radicals in primary human granulosa cells with nanoscale resolution	**N. Lin**
11:45	Preparation, Regulation and Application Technology of Nitrogen-Vacancy Centers in diamond	**S. Zhang**
12:00	Nanodiamond based non-local deformation sensing—towards live cell applications	**Q. Li**

11:00 - 12:30

More Than Batteries

Chairman
G. He
C. Zhi

11:00	Multivalent metal anode-organic cathode batteries: Promise and challenges	**J. Bitenc**
11:30	Sputter-grown high voltage (>3V) on-chip microsupercapacitor for miniaturized energy storage application	**S. Issar**
11:45	On-chip power sources for printed thin film transistors and circuits	**S. Priyadarsini**
12:00	Hybrid piezoresistive 2D MoS2/PEGDA/PANI covalent hydrogels for wearable strain sensors	**S. Domenici**
12:15	Advancing Data Processing Efficiency: Multivalued Logic Circuits and Vertically-Integrated Heterojunction Transistors	**H. Yoo**

11:00 - 12:30

Photovoltaic devices and transistors applications

Chairman
A. Khodr
A. Operamolla

11:00	Advancing Towards 20% Efficiency in Industrial Green Organic Photovoltaics	**A. Khodr**
11:30	Optical and Electrical Properties of Type II Ge/GeSi Clathrate Film for Photovoltaic Application	**R. Kumar**
11:45	Use of a biodegradable and non-toxic solvent for the fabrication of reproducible and stable p-type accumulation mode all-printed organic electrochemical transistors	**A. Makhinia**
12:00	Improved Performance of P-Type Organic Field Effect Transistors Using Phosphonic Acid Based Self Assembled Monolayer.	**N. Chennai Gunasekaran**
12:15	Bio-phosphors with natural and artificial fluorescent proteins for deep-red light-emitting diodes	**S. Ferrara**

11:00 - 12:30

Materials Based Approaches for Mechanobiology Research - 3

Chairman
S. Ghassemi
A.-S. Smith

11:45	Fibrous environments in long-range cellular mechanical interaction	**A. Lesman**
12:15	Mechanisms of stiffness induced contact guidance	**C. Ureña Martín**

11:00 - 12:30

Complex Electronic Structures & Correlated Materials

Chairman
J. Adam
B. Sanyal

11:00	Altermagnetism, symmetries and dimensionality	**C. Autieri**
11:30	Energy levels of Eu3+ ions in BaF2 defective sites obtained from multireference quantum mechanical calculations	**E. Radicchi**
11:45	Charge ordering as the driving mechanism for superconductivity of rare-earth nickel oxides	**A.-A. Carrasco Alvarez**
12:00	Investigation of topology in Eu-based compounds by means of ab-initio calculations	**G. Cuono**
12:15	Gapped metals as new type of quantum materials: Inverse materials design	**H.-R. Gopidi**

11:00 - 12:30

PeLEDs and PeLETs

Chairman
S. Kahmann
B. Pietka

11:00	Increasing Performance and Reproducibility of in Pb and Sn based Perovskite LEDs	**I. Mora-Sero**
11:30	Tin-based perovskites for photonic devices	**J.-P. Martinez-Pastor**
11:45	A versatile device platform enabling all-solution-processed perovskite light-emitting transistors	**F. Reginato**
12:00	Unleashing the Potential of CsPbBr3 Nanocrystals Embedded in Polymer Matrices for Quantum-Dot Perovskite Light-Emitting Diodes	**Q.-H. Do**
12:15	Room-Temperature Growth of Perovskite Single Crystal thin films via Antisolvent-Assisted Confinement for High-Performance Optoelectronic Devices	**A.-A.-A. Pirzado**

11:00 - 12:30

OS 6

Chairman
R. Kudrawiec

11:00	The role of metal vacancies in thermal degradation of InGaN	**J. Smalc-Koziorowska**
11:30	Exciton engineering in single-walled carbon nanotubes by precise introduction of defects	**D. Janas**
11:45	Halogen Element Doping-Induced Enhancement of Thermoelectric Properties in Layered SnSe2	**A.-T. Pham**
12:00	Extrinsic Doping in Hexagonal-Diamond Type Crystals	**M. Amato**
12:15	Studies on carrier transport mechanisms in thermal strained p-type transparent off-stoichiometric Cu-Cr-O delafossite thin films	**P. Lunca-Popa**

11:00 - 12:30

Piezoelectric polar oxides - 2

Chairman
S. Sanna
E. Tichy-Racs

11:00	Growth and properties of LiNbO3 films for high-frequency BAW devices	**A. Bartasyte**
11:30	Ferroelectric polarization distribution of periodically poled and single-domain LiNbO3 crystals determined on graphene covered samples by Raman spectroscopy	**P. Ciepielewski**
11:45	Comparing the solvothermal synthesis and high energy ball milling methods for preparing nanoscaled LiNbO3 doped with different RE ions	**G. Dravecz**
12:00	Rare-earth ions in LiNbO3 nanocrystals from the view of spectroscopic and force-field calculation	**K. Lengyel**

11:00 - 12:30

Molecular spintronics

Chairman
M. Bowen

11:00	Integration of Molecular Spin Qubits into Planar Superconducting Microwave Resonators	**C. Bonizzoni**
11:30	Enhancement of charge-transfer mediated cooperativity in a hybrid spincrossover composed of Fe-Triazole/MoS2 core shell nanostructures	**S. Bhattacharya**
11:50	Voltage driven fluorine motion for novel organic spintronic memristor	**T. Chen**

12:10	Combining Molecular Qubits with Semiconductors	J. Van Slageren

11:00 - 12:30

PbZrO3 vs CaTiO3

Chairman
J. Junquera
M. Otonicar

11:00	Why is PbZrO3 antiferroelectric while CaTiO3 is not ?	P. Ghosez
11:30	Orthorhombic distortions and ferroelectricity in epitaxially strained CaTiO3 thin films	L. Korosec
11:45	Antiferroelectric till next time: Raman and dielectric spectroscopy of PbZrO3	C. Milesi-Brault
12:00	Probing the Electric-Field Induced Antiferroelectric-Ferroelectric Phase Transition in PbZrO3 with Second Harmonic Generation Imaging	A. Levchuk
12:15	In situ atomic STEM monitoring of ferroelectric phase transitions in a 45 nm thick antiferroelectric PbZrO3 thin film	M. Vallet

11:00 - 12:45

Characterization

Chairman
A. Chatzitakis
B. Shin

11:00	Operando optical spectroscopy analyses of (photo)electrochemical water oxidation kinetics	J. Durrant
11:30	Photoelectron Spectroscopy Characterisation of High Entropy Sulphide Materials as Electrocatalysts for Oxygen Evolution Reaction	K. Hazeldine
11:45	A study on the electrochemical properties of metal oxide electrocatalyst for alkaline water electrolysis	G. Lee
12:00	Predicting the interaction of CO with bimetallic Cu/M surfaces via DFT-based Machine Learning Models	M. Salomone
12:15	Methanol Sensing Behavior Analysis of Pt-Sn/C Based Micro DMFC	M. Soundrapandian
12:30	Exploiting immobilization, re-dissolution and degradation resulting from ancillary ligands of molecular complexes in water oxidation catalysis	J.-S. Pap

11:00 - 13:00

Photonics and Optoelectronics 2

Chairman
V. Kumar
R. Puglisi

11:00	Phase-Change Materials for Tunable Photonic: A holistic approach to modulate the photonic properties	V. Srivastava
11:30	Wide optical range microcavities in luminescent beta-Ga2O3 nanowires and applications in wide temperature range sensors	E. Nogales
11:45	Crystal field analysis of Tb3+ ions doped indium tin oxide thin films	E. Serquen
12:00	Rare earth doped ZnO-ZnWO4 eutectic composite	M. Tomczyk
12:15	Exploring luminescence properties of beta-and gamma-Ga2O3 nanoparticles	B. Méndez
12:30	Bright and stable yellow light-emitting electrochemical cells using BN-doped contorted nanoribbons	L.-M. Cavinato
12:45	AIIIBV eutectic material - manufacturing, properties and applications	K. Sadecka

11:10 - 12:40

Session 4

11:10	Superconducting quantum optoelectronics	A. Hayat
11:50	Mn Doping in Low-Dimensional Perovskites: A Switch for Controlling Dopant and Host Emission	B. Pradhan
12:10	Tuning shape-imposed anisotropy via magnetic multilayers on self-organized nanospheres	A. Qdemat

12:00 - 13:00

Main building - Ground floor

Lunch

12:30 - 14:00 — Main building - Ground floor

Lunch

12:40 - 14:00 — Main building - Ground floor

Lunch

13:00 - 14:00 — Main building - Ground floor

Lunch

13:00 - 14:15

Growth 3

Chairman
J. Binder

13:00	New material for power device : GeO2	**K. Kentaro**
13:30	Indium: A Surfactant for the growth of e-Ga2O3 by plasma-assisted MBE	**A. Karg**
13:45	Plasma-assisted molecular beam epitaxy of wurtzite AlN(0001) on beta-Ga2O3(-201)	**E. Monroy**
14:00	Advances in MOCVD of ß-Ga2O3 epitaxial film growth, in-situ etch, and regrowth	**A. Osinsky**

13:45 - 15:30

Advances in Electrochemical Applications and Theoretical Modelling of Melanin Systems

Chairman
P.-S. Lee
J.-V. Paulin

14:00	Eumelanin as Novel (Bio)Material for Energy Applications ?	**A. Pezzella**
14:30	Molecular modeling of eumelanin aggregation and drug binding	**M. Karttunen**
15:00	Ionic Liquids & Melanin Mix and Match: redox behaviour and charge carrier transport tuning via the interplay between their chemical, structural and electrical properties	**M. Ambrico**
15:15	Inkjet-Printed Melanin-Salt Humidity Sensors	**P. Krebsbach**

14:00 - 15:30

Neuromorphic I

14:00	A depletion mode single-hole spin qubit in Ge	**J. Saez-Mollejo**
14:30	From Plastic to Elastic Relaxation in SiGe Microcrystals	**A. Barzaghi**
14:45	Ultra-low-temperature epitaxy: Novel defect-free group-IV nanolayers of vastly extended thickness and their applications	**A. Salomon**
15:00	Spin-dependent transport in dopant network processing units	**F. Taglietti**
15:15	Enhancing the temporal stability of superconducting resonators: Passivation of superconducting surfaces with self-assembled monolayers	**H. Gupta**

14:00 - 15:30

Photoelectrocatalysis III

Chairman
L. De Taeye
A. Hardy

14:00	Hands-on public funding to facilitate innovation for solar fuels & chemicals	**C. Faber**
14:20	The grand challenge of solar energy conversion into fuels and chemicals	**J. Kargul**
14:40	In2S3/In2O3/Au nanocomposite as highly active visible light photocatalytic for seawater splitting	**Y.-R. Lin**
14:55	ZnO-GO; An efficient catalyst for photodegradation of Sandalfix orange P3R and Sandalfix Turq. blue PG dyes under irradiation of sunlight	**M. Saeed**
15:10	Photoelectrochemical Water-splitting device based on a halide perovskite solar cell protected by a single crystal TiO2	**B. Shin**

14:00 - 15:30

Stability II

14:00	Thermal, humidity and photo-degradation study of halide perovskite using in situ characterization techniques	**F. Sauvage**
14:30	Enhancing Performance of Sn-Perovskite Solar Cells	**I. Mora-Sero**
14:45	Halide Remixing under Device Operation Imparts Stability on Mixed-Cation Mixed-Halide Perovskite Solar Cells	**K. Galkowski**
15:00	Phase stability of perovskite oxide materials based on dense bulk electrode for solid oxide fuel cell	**J. Lee**
15:15	The Influence of the Ionic Liquid BMIMBF4 on Thermal Induced Halide Mixing in Mixed Hybrid Perovskites	**C. Greve**

14:00 - 15:30

Materials synthesis 1

Chairman
S. Gross
E. Moretti

14:00	Novel Materials Chemistry for Applications in Energy, Catalysis and Environmental Remediation	**N. Pinna**
14:30	Formation of iron rich/iron oxide nanoparticle with superior catalytic activity for visible light assisted Fenton reaction induced by organic acid addition in hydrothermal synthesis	**T. Basuki**
14:45	Reusable BiSI@PVDF composite membranes for effective Rhodamine B degradation from water effluents by a multifunctional adsorptive and piezocatalytic effect	**A. Zarandona-Rodríguez**
15:00	The heat storage characteristic of MgO-based pellet with high thermal storage density and outstanding cycle stability	**S. Choi**
15:15	A study on the characteristics of electrolyte-supported solid oxide electrochemical cells (SOCs) based on proton-conducting ceramic materials	**G.-D. Nam**

14:00 - 15:30

Doping for nanoelectronics

Chairman
D. Hiller
A. La Magna

14:00	Doping challenges for future nanoelectronic devices	**R. Duffy**
14:30	Elastic backscattering during boron implantation in Si1-xGex	**Q. Bai**
14:45	Stepped energy density strategy for solid-phase epitaxial regrowth of Si:P by nanosecond laser annealing	**S. Kerdiles**
15:00	Strain engineering in Si1-x-yGexSny alloys by post growth thermal treatments	**S. Prucnal**
15:15	Exploring strain relaxation limits on Ge: Sb and Sn heavy doping by pulsed laser melting	**F. Sgarbossa**

14:00 - 15:30

Ferroelectric switching and piezoelectricity

Chairman
H. Funakubo

14:00	Interplay between oxygen migration and ferroelectric polarization in epitaxial HfO.5Zr0.5/LaSrMnO3 heterostructures	**B. Noheda**

14:30	Interplay Between Ferroelectric and Filamentary-Type Resistive Switching in Epitaxial Hf0.5Zr0.5O2	J. Knabe
14:45	In-operando optical tracking of oxygen vacancy migration and phase change in few-nm ferroelectric HZO memories	A. Jan
15:00	Unconventional Piezoelectricity of Hafnia-based Ferroelectrics	A. Gruverman

14:00 - 15:30

Mechanical and morphological properties of Nanocomposites

Chairman
E. Macoas
C. Muller

14:00	Exploring Functional Nanocomposites at the Extreme Limits of Molecular-scale Confinement	R. Dauskardt
14:30	Core selective metal doping of Cellulose – Gold nanocluster composites	A. Sciortino
14:45	Tailoring the curing activator morphology to control the cross-links distribution and the mechanical behaviour of rubber nanocomposites	S. Mostoni
15:00	Mechanical Performance Enhancement of Vinyl Ester with Surface-Modified GnP	A. Lee
15:15	The Mechanical Behavior of Cellular Lattices Made From Two-dimensional Heterogenous Materials	K. Liao

14:00 - 15:30

Transport properties in confined materials

Chairman
C. Quarti

14:00	Thiophene Backbone Enables Two-Dimensional Poly(arylene vinylene)s with High Charge Carrier Mobility	L. Yamei
14:15	Quantitative scanning thermal microscopy studies of the influence of interfaces and heat transport anisotropy in 2D materials	S. Gonzalez-Munoz
14:30	On-Water Surface Synthesis of Two-Dimensional Polymer Films toward Optoelectronic and Energy Devices	Z. Wang
14:45	Exceptionally High Charge Carrier Mobility in Phthalocyanine-Based Ladder-Type 2D Conjugated Polymers	M. Wang
15:00	Antidoping behavior in two-dimensional materials: when doping moves band in opposite direction	A. Yadav
15:15	Symmetry Reduction Strategy Towards Semiconducting Conjugated Coordination Polymers with High Mobility	X. Huang

14:00 - 15:30

2D Materials I

Chairman
V. Kumar
Y.-K. Mishra

14:00	Layer-dependent optical and thermal properties of atomically thin MoSe2 and MoS2	S. Rath
14:30	Exciting optoelectronic behavior of Antimonene/hexagonal Boron Nitride van-der Waals heterostructure for Sensor and Photonic applications: An Ab-Initio Analysis	A. Shrivastava
14:45	Layered Nanostripes of Transition Metal Dichalcogenides Obtained using the Surface Rubbing Method	G. Shmavonyan
15:00	Effects of gamma on the switching performance of MoS2 based Resistive Random Access Memory (RRAM) devices	A. Nimmala
15:15	Fabrication of 2D Materials-based Memristive Artificial Synapses	A. Jayaraj

14:00 - 15:30

Applications -Battery

Chairman
Z. Wen
Q.-H. Yang

14:00	Carbon Anodes for Sodium-Ion Batteries: In situ Characterization of the Solid/Electrolyte Interface	S. Daboss
14:30	Revealing the Factors of Broadening Potential Windows of Diamond Electrodes by Redox-active Additives	T. Guo
14:45	New Structure Materials Design for Electrochemical Energy Storage	J. Cheng
15:00	Shrunk graphene network toughening micro-silicon anodes towards 1000 Wh/L Li-ion batteries	D. Kong

14:00 - 15:30

Advanced processing materials and techniques

Chairman
S. Lanceros Mendez
E. Mullen

14:00	Advances of block co-polymer-based lithography and potential impact on the semiconductor industry	**E. Mullen**
14:30	Single-Step Fabrication of Emissive Polymeric Whispering Gallery Mode Resonators via Two-photon Lithography	**G.-P. Singh**
14:45	Comparisons of linear and branched polymers made from cyanoacrylate adhesives	**A.-P. Roxas**
15:00	Advancements and Applications of Lightweight Biopolymer Foams Processed with Supercritical Carbon Dioxide	**G. De Macedo Rooweder Lima**
15:15	A novel ultra-thin conformal coating for applications in harsh weather conditions	**T. Dimitriadis**

14:00 - 15:30

Nanoscale materials and methods for the study of the immune system -1

Chairman
J. Guasch
E. Klotzsch

14:45	Spatial requirements for T-cell receptor triggering probed via a DNA origami-based biointerface	**E. Sevcsik**
15:15	Molecular Scale Spatio-Chemical Control of the Activating-Inhibitory Signal Integration in NK Cells	**E. Toledo**

14:00 - 15:30

Battery Materials I

Chairman
G. Malandrino
B. Sanyal

14:00	Degradation in Li ion battery cathodes: A strong correlations perspective	**H. Banerjee**
14:30	On the Origin of the Non-Arrhenius Ionic Conductivity Behaviour in Sodium Antiperovskite Solid Electrolytes	**B. Darminto**
14:45	Novel Organic Molecule Enabling a Highly-stable and Reversible Sodium Metal anode for Room-temperature Sodium-Metal Batteries	**C.-B. Soni**
15:00	Solid-state battery: Empower your understanding of competitive and technology landscape thanks to patent analysis	**F. Thissandier**
15:15	Beyond the Bulk: Modelling Interfaces and Ion Transport in Solid Electrolytes for Batteries	**J. Dawson**

14:00 - 15:30

Perovskites for ASE and Lasing

Chairman
I. Mora-Sero
T. Stoeferle

14:00	Amplified Spontaneous Emission in Lead Halide Perovskite Nanocrystals	**G. Itskos**
14:30	Temperature-Dependence of Cooperative Photon Emission from Giant Cesium Lead Halide Perovskite Nanocrystals	**E. Kobiyama**
14:45	Low-Loss Perovskite LEDs for Continuous-Wave Optical Amplified Spontaneous Emission and High-Current-Density Operation	**I. Goldberg**
15:00	Distributed Feedback Cavity Optimization of Thin Film Lasers Using Deep-UV Lithography Defined High-Quality Gratings	**N. Annavarapu**
15:15	Colloidal Perovskite Nanocrystal Lasers: On-chip with Low-threshold and Room-temperature Operation	**F. Fabrizi**

14:00 - 15:30

OS 7

Chairman
V. Jacques

14:00	Unraveling the local atomic structure with X-ray absorption spectroscopy	**A. Kuzmin**

14:30	Revealing the role of phase segregation in the optical response of Zn2GeO4/SnO2 nanowire architecture	B. Méndez
14:45	Correlated KPFM and TERS Imaging to Elucidate Defect-induced Inhomogeneities in Oxygen Plasma Treated 2D-MoS2 Layers	S. Gupta
15:00	Harvesting dislocations and deformation twin traces for auto-catalytic growth of semiconductors on surfaces of gold alloys and gold thin-films	L. Portal
15:15	Structure, magnetic behavior and thermoelectric properties of nanostructured AlSiCrMnFeNiCu high entropy alloy processed through cryomilling	A. Tiwari

14:00 - 15:30

Piezoelectric polar oxides - 3

Chairman
M. Bazzan
K. Lengyel

14:00	Manipulation of piezoelectric domain formation and surface acoustic wave propagation in (K,Na)NbO3 thin films by strain and defect engineering	J. Schwarzkopf
14:30	Tuning leakage current in high-temperature piezoelectric bismuth ferrite by doping	T. Granzow
14:45	Probing the behavior of surface water on ferroelectrics as a function of relative humidity and temperature	L. Musy
15:00	Flexoelectricity and surface ferroelectricity in natural ice	X. Wen

14:00 - 15:30

2D materials II

Chairman
X. Marie

14:00	Spintronics with 2D materials	J. Fabian
14:30	Seebeck measurements on the 2D ferromagnet CrSBr	P. Gehring
14:50	Magnetic skyrmions of Ti2C MXenes doped with Cr, Mn, and Fe	T. Kulka
15:10	Contribution of the antiferromagnetic coupling on the skyrmion dynamics in ferrimagnets and synthetic antiferromagnets	S. Rohart

14:00 - 15:30

Domains and textures

Chairman
S. Fusil
M. Viret

14:00	Probing magnetic chiral textures through spin waves with a quantum sensor	A. Finco
14:30	Rare-earth doped ferroelectrics towards all-optical sensors	J. Zou
14:45	Destabilization of the cycloidal state in BiFeO3 nanoparticles	B. Dkhil
15:00	BiFeO3 domain walls and nanodomains at low temperature	M.-A. P. Gonçalves
15:15	Electrical control of magnetic texture in a multiferroic oxide	P. Meisenheimer

14:15 - 14:35 — Main building - Ground floor

Coffee Break

14:35 - 16:00

Growth 4

Chairman
K. Kaneko

14:35	Epitaxial hexagonal boron nitride for hydrogen applications and photonics	J. Binder
15:05	hBN epitaxial growth on patterned epigraphene by MOVPE	V. Ottapilakkal
15:20	Growth kinetics and phase diagram of ß-Ga2O3 and ?/?-Ga2O3 on AlN(001) by molecular-beam epitaxy	S. Raghuvansy
15:35	Growth and Ambient-driven Crystalline Phase Transition in Ga2O3 Thin Films	A. Khare

15:30 - 16:00 — Main building - Ground floor

Coffee Break

16:00 - 17:30

Solvents

16:00	The evolution of stability over the years in perovskite solar cells: key issues and associated solutions	**S. Akin**
16:30	Green Solvent Engineering for Highly Efficient Perovskite Solar Cells	**M. Zohdi**
16:45	Controllable FAPbI3 crystal defects using the strongly coordinating solvent	**J. Lim**
17:00	Antisolvent-free crystallization of Tin Halide Perovskite	**G. Nasti**
17:15	A Facile and Green Route to the Synthesis and Deposition of All Inorganic Perovskite CsPbBr3 films on rigid and flexible substrates	**L. Sirna**

16:00 - 17:30

Materials synthesis 2

Chairman
N. Pinna
A. Vomiero

16:00	Rational and sustainable low-temperature design of inorganic materials and ceramics for environmental applications	**S. Gross**
16:30	Synthesis and characterization of composite structure based on zinc and copper oxides for gas sensing applications	**H. Pakdel**
16:45	Novel hybrid rare-earth metalorganic frameworks for water purification	**F. Lo Presti**
17:00	Mixed ionic electronic dual-phase membrane reactors for CO2 separation	**P. Sanchez Camacho**
17:15	Regulating Cu element in mesoporous Fe2O3 photocatalysts for ultrafast mineralization of isopropyl alcohol via activation of peroxydisulfate under UV light	**T. Thi Le**

16:00 - 17:30

Photodetector application

Chairman
R. Duffy
M. Hoesch

16:00	Hyperdoped Silicon Photodetectors Fabricated by Femtosecond Laser	**Q. Wu**
16:30	On-chip planar Si:Te PIN photodiodes for room-temperature detection in the telecom optical wavelength bands	**M.-S. Shaikh**
16:45	On-chip photodetection at telecom wavelengths: a silicon-on-insulator hyperdoping approach with tellurium.	**D. Caudevilla**
17:00	Sub-bandgap absorption in GaAs hyperdoped with Chromium	**S. Algaidy**
17:15	Lifetime and optoelectronic characteristics of Ti hyperdoped Si photodiodes	**E. García-Hemme**

16:00 - 17:30

Electrodes and interfaces

Chairman
B. Noheda

16:00	Characterization of field cycling and polarization reversal on oxygen vacancies and correlation with the performance of ferroelectric, hafnia-based, non-volatile memories	**N. Barrett**
16:30	Influence of dopants on the phase formation of ferroelectric HfO	**S. Yang**
16:45	Co/Hf0.5Zr0.5O2 multiferroic heterostructures	**A. Quintana**
17:00	Interfaces engineering to enhance ferroelectricity in ultra-thin HZO CMOS compatible FTJ	**B. Vilquin**
17:15	Employing Tungsten Oxide Electrode to Forge improved ferroelectricity in Sputtered Hafnia-Zirconia	**X. Wang**

16:00 - 17:30

Energy harvesting and Photocatalysis applications

Chairman
R. Dauskardt
R.-S. Yadav

16:00	Bulk-Processed Plasmonic Plastic Nanocomposite Materials for Optical Hydrogen Detection	**C. Muller**
16:30	Biosynthetic Routes to Heterostructured Quantum Dot Photocatalysts	**S. Mcintosh**
16:45	?anocomposites of titanate nanotubes with S and N doped reduced graphite oxide: boosting biomass-derived HMF photocatalytic selective oxidation	**D. Giannakoudakis**
17:00	Photo active graphene based materials for energy conversion application	**D. Dinda**
17:15	Earth Abundant Elements Based Lithium Niobate type Chalcogenide Nanocomposites for Micro-Energy Harvesting	**A. Datta**

16:00 - 17:30

2D materials beyond graphene

Chairman
T. Gatti

16:00	Opto-electronic properties of 2D/layered materials by DFT and post-DFT methods: from TMDs to halide perovskites	**M. Palummo**
16:30	Cathodic deposition voltage-dependent properties of electrodeposited CdSe thin films from cadmium nitrate source for solar energy application	**F. Dejene**
16:45	Sputter deposition and pulsed laser crystallisation of MoS2 films	**A. Tonon**
17:00	Strain-doping tailoring of MoS2 on Au substrate under controlled environment conditions	**E. Sangiorgi**
17:15	Exploring the optical properties of In_{x}Ga_{1-x}Se	**R. Canet-Albiach**

16:00 - 17:30

2D Materials II

Chairman
D. Janas
S. Rath

16:00	Pressure- and temperature-dependent photocurrent in 2D materials	**A. Di Bartolomeo**
16:30	Solution approach for smart Janus 2D heterostructures	**N. Vassilyeva**
16:45	Architectural design of flexible and transparent photodetector via layer transfer technique based on MBE grown MoTe2 nanosheets	**N. Chaudhary**
17:00	Low-dimensional Mo and W oxide materials synthesized by resistive Joule heating	**B. Rodríguez Fernández**
17:15	Fabrication of nanostructured lanthanum disulfide as an efficient field emitter	**A. Mahajan**

16:00 - 17:30

Mechanisms

Chairman
C.-L. Cheng
C. Kranz

16:00	Mechanism and Applications of Multicolor Carbon Dots with Improved Fluorescence Quantum Yield	**Y. Tian**
16:30	Luminescence phenomena of citric acid-derived carbon dots – a molecular insight	**W. Kasprzyk**
16:45	Artificially edited group-targeting aptamers for photoelectrochemical sensing of environmental endocrine disruptor family molecules	**G. Zhao**
17:00	Stretchable Electrochemical Sensors for Cell and Tissue Detection	**W.-H. Huang**

16:00 - 17:30

Biomedical applications

Chairman
T. Goda
R. Zhao

16:00	Osmotic pressure: a tool to stiffen structured hydrogels	**R. Zhao**
16:30	Thermal determination of perfluorooctanoic acid in environmental samples employing a molecularly imprinted polyacrylamide as a receptor layer	**F. Ahmadi Tabar**

16:45	A reversible water-based electrostatic adhesive	**A. Sierra-Romero**
17:00	Porous microgels and their impact on the stiffness of double network granular hydrogels	**A. Thoma**
17:15	Bioreceptor-functionalized soft interfaces toward wireless and battery-free biosensing	**T. Goda**

16:00 - 17:30

Progress in Melanin Synthesis and Derivatization

Chairman
C. Graeff
A. Pezella

16:00	Exploring the two-component and colloidal behavior of melanin materials	**K. Vercruysse**
16:30	Another piece of the eumelanin charge transport puzzle	**J.-V. Paulin**
16:45	Nature-Inspired Eumelanin Derivatives for Energy Storage Applications Using Aqueous and Ionic Liquid Electrolytes	**N. Al-Shamery**

16:00 - 17:30

Nanoscale materials for the immunodulation

Chairman
M. Schvartzman
K. Spillane

16:00	Lymphocyte mechano-stimulation for adoptive immunotherapies	**E. Klotzsch**
16:30	Bottom-up assembly of synthetic cell-based tissues and their application for immunotherapy	**O. Staufer**
16:55	Nanobiologic-based therapies for modulating the innate immune system	**J. Morla-Folch**
17:15	Tuning cytotoxic lymphocyte activity on antigen functionalized nanowires	**G. Le Saux**

16:00 - 17:30

Synthesis, surface chemistry and crystal growth

Chairman
C. Katan
A. Mohite

16:00	Structural and Compositional Engineering of Superlattices Comprising Halide Perovskite Nanocubes	**M. Bodnarchuk**
16:30	Deciphering the Role of Water in Promoting the Optoelectronic Performance of Surface-Engineered Lead Halide Perovskite Nanocrystals	**H. Bhatia**
16:45	Contactless passivation on MAPbBr3 Single Crystal: photoluminescence enhancement by in situ formation of PbBr2	**I. Fernandez**
17:00	Crystallization of thick polycrystalline layers of hybrid perovskites on pixel matrices: specific opportunities and challenges for direct X-ray detection.	**J. Zaccaro**
17:15	The Molten Core Method - fabrication and properties of CsPbBr3 perovskite core optical fiber	**P. Socha**

16:00 - 17:30

Advanced spintronics

Chairman
A. Bonanni

16:00	Semiclassical kinetic theory for systems with non-trivial quantum geometry	**R. Raimondi**
16:30	Photovoltage Detection of Spin Excitation of Nanomagnetic materials with 2DEG System	**N. Almulhem**
16:50	Investigation of the structure of In-Bi layers on Si(111) prepared by molecular beam epitaxy	**P. Novák**

16:00 - 17:30

Under pressure

Chairman
V. Garcia

16:00	Defect structures in ferroelectrics caused by pressure-dissolution	**M. Otonicar**
16:30	Flexure-induced strain control of antiferromagnetic domains and topological textures in crystal membranes	**J. Harrison**
16:45	Pressure-induced evolution of ferroelastic and ferroelectric domain structures in PbTiO3 thin films.	**I. Gaponenko**
17:00	Ferroelectric switching in ultrathin films of SrTiO3 under compressive strain	**E. Stylianidis**

17:15	Nanolithography using switchable tribology of ferroelectrics	S. Cho

16:00 - 17:35

Electrocatalysis IV

Chairman
L. Liu
R. Paramaconi

16:00	Enhancing the electrocatalytic activity of Pt in hydrogen evolution reaction through 2D MoS2 interaction and size control	T. Ollár
16:20	Efficient and stable saline water electrolysis assisted by small molecule electro-oxidation	Z. Yu
16:35	Strain engineering of 2D BeN4 Dirac material and Janus MoSSe|WSSe lateral heterojunction towards enhanced catalytic applications	R. Ahjua
16:50	Next generation heterogeneous catalysis: a conceptual design of Single Nanoparticle Reactor	T.-Y. Chen
17:05	Oxygen Reduction Reaction on Pt / Transition Metal High Entropy Alloy Single Crystal Model Catalyst Surface	T. Wadayama
17:20	Penta nitrogen coordinated cobalt single atom catalysts with oxygenated carbon black for electrochemical H2O2 production	W. Zhang

16:00 - 17:45

Neuromorphic II

16:00	Material-centric-strategies of ML and DL packages for programability of developers	S. Kim
16:30	Study of the electrical and structural properties of Ru thin films annealed by Microsecond UV Laser Annealing for future BEOL interconnections	R. Daubriac
16:45	Selective chemical vapor deposition of Cu using CuI-precursor for fine structured metallization	G. Toyoda
17:00	Manufacturing of large area thin films through PLD	M. Sopronyi
17:15	Reconstructed Porous Ge mediated Detachable Ge membrane	A. Ayari
17:30	Terahertz time-domain and time-resolved spectroscopic studies of correlated La0.3Sr0.7TiO3 epitaxial thin film	A. Premaraj

16:00 - 18:00

Dynamical Properties

Chairman
J. Adam
B. Sanyal

16:00	Dynamical materials: From rotational disordered layered materials to soft modes in perovskites	P. Erhart
16:30	Quantum Dynamics of Exciton Transport and Dissociation in Organic Opto-electronic Materials	J. Blumberger
17:00	Coherent vibrational dynamics in TiN films: real-time detection and analysis	A. Iudica
17:15	Tuning the electron injection mechanism by changing the adsorption mode: the case study of Alizarin on TiO2	C. Daldossi
17:30	Mysterious Casimir forces lead the way to novel 3D self-assembly in Yin-Yang structures	B. Elsakka
17:45	Kinetics of Single Polarons in Transition Metal Oxides	P. Kocan

17:00 - 18:30 Poster hall

Poster

	Suitability of a-GaO3 sensors for water-quality monitoring	D. Nicol
	Potential of Gallium Oxide for Radiation Hard Technologies	M. Usman
	Solution-Based Synthesis of Metal Sulfides nanoinks for Energy-Related Application	G. Basina
	Performance improvement of broadband photodetectors based on light trapping management	F. Djeffal
	Tantalum Contamination and Related Defects on 4H-Silicon Carbide	B.-M. Cagni
	Transparent photovoltaics for energy ubiquity and applications	J. Kim
	Thermal perspective of GaN membrane devices	L. Mitterhuber
	Investigating the photo response of wide bandgap materials and the applicability of Photo Hall measurements on Silicon doped alpha Gallium Oxide with the PDL-1000	A. Bojtor
	Ultrahigh-Quality pi-Conjugated Polymer for Organic Solar Cells	C. Yang

Nano-engineering of sp3 : sp2 to improve the contact-electrification and durability of energy harvesting devices	**A. Ejaz**
Comparison of two methods for one-dimensional Ga2O3-ZnGa2O4 core-shell heterostructure synthesis	**E. Butanovs**
Study of in-situ Eu doped {Zn(Mg)O/ZnCdO}m superlattices for optoelectronic devices	**A. Lysak**
Tuning of physico-chemical and electrical properties of PEALD AlN and Al2O3 thin films through substrate polarisation	**F. Bassani**
Strategic Patterning of ZnO using Femtosecond Laser for Optoelectronic Device Applications	**A. Palwe**
V2O5 - B2O3 - P2O5 thin film semiconductive glasses	**V. Craciun**
Peculiarities of the formation of the (MgO)x(ZnO)1-x solid solutions	**L. Khomenkova**
Growth mechanisms of As mediated dodecagonal III-nitride microrods	**L. Janicki**
Ga2O3 Atomic Layer Deposition from water and ozone	**L. Wachnicki**
HfO2 films grown by ALD using TDMAH and water or ammonia water	**S. Gieraltowska**
Fabrication of high efficiency photocatalysts based on plasmonics doped semiconductors as an excellent candidate for renewable energy applications	**C. Awada**

17:30 - 18:30 — Poster hall

Poster

Trace Detection of Ciprofloxacin in Milk by Label-free Raman Enhancement using Two-dimensional Magnesiochromite	**A. Chakraborty**
Modeling of water pollutant degradation through ozone oxidation in a catalytic dual membrane reactor with a modified ceramic membrane	**R.-M.-N. Lintag**
Fabrication of nanoporous ceramic membranes for nanofiltration applications	**S.-E. Nam**

17:30 - 18:30 — Poster hall

Poster

Native Ge oxide layer role when implanting at cryogenic temperatures for hyperdoped materials.	**D. Caudevilla**
Structural and Magnetic Properties of Lu3+ doped SmFeO3 Single Crystals	**A. Padmanaban**
Band structure mapping of monolayer graphene via electrical resistance	**Y.-H. Chuang**
Front-illuminated interdigitated back-contacted Ti hyperdoped Si photodevice	**E. García-Hemme**

17:30 - 18:30 — Poster hall

Poster

Plasma and laser assisted fabrication of silicon-based composite nanostructures	**M. Tarasenka**
Cobalt-Iron bi-metallic catalyst for chirality-specific growth of single-walled carbon nanotube	**Q. Hu**
Demonstration of synthesis of MXenes (Ti3C2) by using HF-etchant mixed in supercritical CO2	**J.-Y. Feng**
Solid-State Displacement Synthesis of Alkaline-Earth Selenide for White Emission	**Y. Wang**
Enhanced Dispersibility, Antibody Immobilization, and Electrical Performance of Gold Nanostars for Biomedical Applications	**Y.-S. Kim**
Growth And Synthesis Of Graphene-based ZnO-nanorods For Strain	**S.-M. Baek**
Controlled Nanoscale Doping Effect on Metal-Polymer Nanocomposites Properties for Optoelectronics Applications	**I. Jum'h**
Investigation of Properties of Protein Based Coating for Anti-Icing	**V. Jankauskaite**
The effect of surfactants and precursors on the structure and properties of ZnS:Cu nanocrystalline particles	**M. Dile**
A flexible molecular-imprinted antifouling electrochemical sensor with synergistic effect of SWCNTs base and Pt single atom catalyst was used for ultrasensitive detection of emerging phenols	**. Zhang**
Composites based on microcrystalline cellulose and K3Tb(PO4)2 and K2Eu(PO4)(WO4) complex oxides phosphors	**S. Nedilko**
UV-Accelerated Synthesis of Gold Nanoparticle–Pluronic Nanocomposites in Application X-ray Computed Tomography Contrast and in vivo Maternal and Fetal Toxicity Assays in Rats	**A.-B. Da Silva Santos**
Graphene-polymer nanocomposite via float-stacked method	**S.-I. Kim**
Fundamental study of Niobium laser polishing processes	**F. Brockner**

	Binder Free Approach to Synthesize MoO2 Electrodes for Energy Storage Applications	**P. Kumar**
	Nanocomposite Synthesis using Colloidal reduced Graphene Oxide/Sodium Silicate Solution	**Y.-N. Lee**
	Investigations of the formation of thin MXene films with different chemistries and particle sizes for VOC microsensors	**K. Ćwik**
	Analysis of Rheological and Multifunctional Properties of CNT Reinforced Epoxy Nanocomposites Coating	**M. Yasacan**
	Environmental Effects on the Performance of Luminescence Solar Concentrators Based on Colloidal QDs in Polyacrylate Nanocomposites	**M. Siripurapu**
	The electronic structure of the carbon nanotubes modified with CdTe nanoparticles	**N. Kurgan**
	Combined laser-plasma assisted approach for the formation of metal oxides heterostructures	**U. Korneu**
	Correlative morphology of two-dimensional material MoS2 with sputtering deposition time	**P. Gurawal**
	Exploring the impact of irradiation on the structural and electrical properties of PEDOT:PSS nanocomposites	**H. Klym**
	Enhanced thermo-physical properties of epoxy resin with carbon nanotube reinforcements	**H. Klym**
	Synthesis and Characterization of IZO thin films obtained by Pulsed Laser Deposition for Surface Acoustic Wave sensors	**I. Constantinoiu**
	Enhanced photoelectrochemical water splitting with doped transition metal dichalcogenide nanofilms	**C. Ilhan**
	Synthesis of magnetic Fe3O4@Mn-MOFs core-shell composites with tunable shell thickness	**S. Kirti**
	Investigation of Low-Concentration Phosphoric Acid-Doped PBI Membrane	**Y. Nakamura**
	High-Quality Bioethanol and Vinegar Production from Saudi Arabia Dates: Characterization and Evaluation of Their Value and Antioxidant Efficiency	**F. Alminderej**
	A novel process intensification tool in catalysis: Electromagnetic treatment of wate	**D. Giannakoudakis**
	Efficient removal of indigo carmine dye by zeolite imidazole framework-67 (ZIF-67)	**D. Yanardağ**
	Synthesis of porous Ag–Ag2S@Ag–Au hybrid nanostructures with broadband absorption properties and their photothermal conversion application	**A. Pradyasti**
	Synthesis, Characterization, and Performance of Pyridomethene–BF2 Fluorescence Dye-Doped PVA Thin Film and PVP Nanofibers as Low ?-ray Dosimeters	**F. Alminderej**
	Impact of synthesis conditions on optical and electrochemical properties of SnO2 nanomaterials	**R. Ponte**
	Reduced graphene oxide - porous silicon hybrid structures for sensing application	**I. Olenych**
	One-step electrodeposition of molybdenum nickel cobalt sulfides on Ni foam for high-performance asymmetric supercapacitors	**E. Uwamahoro**
	Investigating the effect of the annealing parameters on the resistance of indium tin oxide nanocrystalline films	**M. Bellingeri**
	Optical absorption and electric conductivity of two-dimensional carbon nitride films prepared by thermal chemical vapor deposition	**H. Hitoe**
	Long term performance monitoring of hydrogen sensors based on size limited Pd nanoparticle deposited on SWCNT	**F. Todesco**
	Low density polyethylene/clay nanohybrids' films with improved antioxidant, antimicrobial and barrier properties	**A. Ladavos**
	Synthesis and Characterisation of Asymmetric Perylene-based Supramolecular Polymers	**H. Alharbi**
	Mechanochemical synthesis of selected complex vanadium (V) oxides	**K. Huma**
	Multifunctional magnetic nanoparticles obtained through microfluidic techniques	**A.-G. Niculescu**
	Analysis of the electrical conductivity of a rGO/CNF composite using the four-point probe	**V. Aedo**
	Electrical Conductivity of silkf ibroin/rGO hydrogels and the influence of concetration biopolymers on conductivity	**V. Aedo**
	Dye-sorption in liquid for surface area analysis	**G. Petrone**
	Topotactic reaction of lithium aluminum layered double hydroxide layers on aluminum metal substrates for lithium recovery	**Y. Lee**
	Luminescence properties of o-toluidine based carbon dots	**W.-T. Hong**
	Development of Epoxy-Boron Nitride Based High Thermal Conductive Films for Flip Chip Bonding Process	**J.-H. Oh**
	Synthesis and Characterization of ZnO NiO nanocomposites for antibacterial activity	**K. Kayani**
	Study on invar Fe-Ni alloy electroforming process to replace all-solid-state battery electrodes as collector	**K.-B. Kim**
	Investigation of during heating in vacuum r of a double chromium-copper coating deposited on alumina ceramic	**T. Stetsyuk**
	Synthesis and Analysis of Exquisite Hierarchical Porous Metal Oxide Nanostructured Materials Using Nature's Inspiration	**K. Yong Jung**
	Aerogel-based composites obtained through microfluidic methods for water decontamination	**A.-C. Bîrcă**
	Graphene-based quantum dots as promoters of the photocatalytic activity of anodic nanostructured TiO2 nanotube layer	**A. Knoks**
	Giant Magnetoelastic effect in Tb1-xCox amorphous thin films.	**M.-L. Soltani**
	Photobleach effect of multi-color emitting carbon dots for UV-light sensing	**J.-Y. Park**
	Self-aligned 1D ZnO with NiO multi-nanosheets for high efficiency of photonic emitter	**Y.-H. Kim**

NO_2 gas sensor using ZnO hemitubes and nanotubes covered with TiO_2 nanoparticles for room temperature operation by ultraviolet photoactivation	**T.-K. Moon**
Glass fiber decorated with SiO_2 and reduced graphene oxide: a versatile system to simultaneously upgrade mechanical and electrical properties of glass fiber reinforced polymer composites.	**M. Colombo**
Fabrication of optically transparent and highly hydrophobic GaN thin films by reactive magnetron sputtering	**A. Bansal**
Electrochemical Characterization alginate/rGO hydrogels as dressings for wound healing	**V. Aedo**
Undirected C-H Bond Activation in Aluminium Hydrido Enaminonates	**C.-K. Amadi**
Magnetic Iron Oxide Nanoparticles Coated in Silica to Form a Protective Fe_3O_4@SiO_2 Core/Shell Structure	**P.-E. Rose**
Synthesis of Cu and Sn co-doped NiO nanoparticles for electrochemical sensing of urea	**A. Mustafa**
Reactivity of functionalised surfaces with atmospheric radicals	**A. Wolstenholme-Hogg**
Luminescence tuning of Polyvinyl Formal-based nanocomposite films	**G.-C. Vásquez**
Se-Vacancy Healing with Substitutional Oxygen in WSe_2 for High-Mobility p-Type Field-Effect Transistors	**R. Dutta**

17:30 - 18:30 — Poster hall

Poster

Impact of Graphene Oxide Addition on Photovoltaic Properties of Non-Fullerene Bulk Heterojunction Solar Cells	**M.-L. Stingescu**
Photoresponse of Graphene Channel in Graphene-Oxide-Silicon Photodetectors	**K.-C. Lee**
Facile synthesis of 2D MoS_2/BiOI heterojunctions as photoanodes	**M. Pozzati**
Synthesis of atomically thin yellow pearl: An impetus for non-linear optical effects assisted light scattering applications	**N. Mandal**
Investigating and Modulating Interfacial Charge Flow across Graphene/WS_2 Heterostructure	**G. Wen**
Manipulation of thermal conductivity in twisted bilayer $MoSe_2$	**M. Mandal**
Probing phonon anharmonicity induced thermal conductivity in Multilayer MXene $Ti_3C_2T_x$	**K. Kumari**
Ligand Decomposition Governs the Inter-Nanoplatelet Distance and Coupling Strength by Thermal Annealing	**S. Chen**
Strongly Hydrogen-bonded Water Molecules Confined in $Nb_4C_3T_x$ MXenes	**M. Liu**
Harnessing the Potential of Two-Dimensional Heavy Pnictogen Chalcohalides for Solar Energy Harvesting Device Applications	**Y.-C. Choi**
Fablication of MoS_2 using mist chemical vapor deposition	**M. Komatsu**
Copper tin oxide: An amorphous ternary oxide system with tunable optical and electrical properties	**A. Jörns**

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Poster

Carbon ink printed flexible aptasensor for rapid and point of care detection of Chikungunya virus	**P. Sharma**
DFT study of electronic and magnetic properties of small bimetallic CuNin (n=1-14) materials	**I. Oulkhiari**
Preparation of Ultra-long Doped Titanium Dioxide Nanowires for Artificial Intelligence Sensor Array	**K. Zhang**
Electrical and photoelectrical properties of ZnO nanorods and ZnO-F8BT-PEDOT:PSS-Ag heterojunction	**K. Nagpal**
Photo-response properties of Au/SiC/Si multilayer structure in Infra-Red region	**A. Arora**
MXene-based impedimetric electronic tongue for neurotransmitters detection	**M.-H.-M. Facure**
Indium nanostructures growth mechanisms on A3B6 layered templates	**T. Makar**
Brazing of Al_2O_3-ceramic to metal for high-temperature application	**T. Stetsyuk**
Low dimensional nanometere-thin amorphous oxide semiconductor depsited by solution process for high performance trasnsistors	**J.-H. Park**
Inexpensive synthesis of borophene for sensing application	**J. Casanova-Chafer**
A cutting-edge approach for advancing Raman nanoscopy using photonic nanojet	**G.-M. Das**
Self-arrayed GaN nanorod photonic emitters by the electric field assist for display pixels	**S. Kim**
Characteristics of low-scale photonic emitters with oxide passivation	**Y. Kim**
Optically active defects in 4H-SiC	**T. Duarte**
Heat-induced Fragmentation of Gold Nanowires for Surface Enhanced Raman Scattering Substrates	**A. Trausa**

Efficient design strategy of nanoscale Tunnel-FET using optimized channel binary alloys	**F. Djeffal**
Ultra Broad Supercontinuum Generation with Elliptical Core Chalcogenide Fiber	**P. Roy**
High performance electric field sensing using BiFe0.9Co0.1O3 hosted in fiber-optic Fabry-Perot configuration	**I. Sharma**
Light trapping in arrays composed of sub-wavelength for Photovoltaic application	**A. Kumar**
Morphological variations of ITO nanorods by controlling growth conditions through the thermal chemical vapor deposition	**H.-T. Kim**
ZnO Bimetallic Complexes for Chemiresistive Detection of Ethanol Vapours	**S. Mukherjee**
Optical Properties of Free-standing laser-induced graphene	**L. Qaddah Dukhan**

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Poster

Engineering bifunctional PtCo@NC electrocatalyst for efficient hydrogen evolution and methanol electrooxidation	**Y. Qin**
Research on Biomass-Derived Hard Carbon Materials and Application in Sodium-Ion Batteries	**H. Wang**
Electrochemical Reduction of CO2 using Boron-Doped Diamond Electrodes: The Influence of Deposition Times	**H. Liu**
Air Plasma to Fabricate N-doped Carbon Host for High Reversible Sodium Metal Anode	**H. Wang**
Ultra-fast hard carbon-based sodium ion battery at -40?	**H. Wang**
Machine Learning-Powered Raman Histopathology for PD-L1 Expression Visualization in Glioblastoma Immune Microenvironment	**J. Guo**
Biohybrids Nanocarbons Functionality: DNA-templated fullerene C60 molecular photonics	**E. Buzaneva**
pH-regulated electrochemical exfoliated graphene for highly sensitive sensing of biomolecules	**X. Li**
Construction of MAPbBr3@carbon nanospheres@Bi2O3 ternary heterojunctions for high-efficient photoelectrochemical deoxynivalenol immunosensing	**M. M. Chen**
Low Emissivity Sheets and Coatings using Carbon Nanotubes and Cellulose for Infra-Red Shielding	**J.-M. Ashraf**
Nanocomposites of Hexagonal Boron Nitride Nanosheet with Chlorin e6 as a Bimodal Nanosensitizer for Cancer Therapy	**N. Komatsu**
Enrichment of Semiconducting SWNTs through the Extraction with Phenanthroline-based Nanocalipers	**N. Komatsu**
Optical Resolution of SWNTs with Small Chiral Molecules Tethered by Dipyrrin Nanobrackets through Metal Complexation	**N. Komatsu**
Investigating the energetic band diagrams of oxygen-terminated CVD grown e6 electronic grade diamond	**K. Liu**
Ni-based Catalysts for Energy-Saving CO2 Electroreduction to CO by Coupling Hydrazine Oxidation	**Z. Wen**
Laser Induced Ti3C2Tx MXene Reinforced Carbon Nanofibers for Flexible Solid-State Supercapacitor	**B. Hu**
Biocompatibility : intermediate water concept in design biomedical materials future	**E. Buzaneva**
All-printed flexible quasi-solid hybrid supercapacitors	**H. Randriamahazaka**
Electrochemical Sensor of Furan Antibiotics Based on Laser Induced Graphene Electrode Modified by Single Atom Cu-N-C Catalyst	**L. Chen**
Controlled generation and quantification of multiple reactive oxygen species in the living brain: a therapeutic integrated nanoprobe	**Y. Da**
MPCVD grown diamond for quantum devices: Effect of nitrogen in the growth chamber	**R. Raj**
Ultra-nanocrystalline boron-doped diamond to achieve higher kinetic inductance	**J. Jana**
Carboxylic group Intercalation into NiFe-LDH for High-Performance and Durable Large-Current Seawater Electrooxidation	**Y. Li**
Nanometer-sized Diamond for Bioimaging and Medical Applications	**C.-L. Cheng**
Precise control of carbon crystal structure	**Y. Zhu**
Framework nucleic acid probe for quantification and real-time imaging of norepinephrine in neurons and in vivo	**Y. Chen**
Microfluidic Oxidation of Graphite	**Y. Zhu**
A novel electrochemical sensor based on CoFe@NC nanocubes for ultrasensitive analysis of nitrite	**N. Yang**
Cu based-Diamond Electrodes for Highly Selective Production of Ammonia from Electrochemical Nitrate Reduction Reaction	**X. Chen**
Biocompatibility : intermediate water concept in design biomedical materials future	**E. Buzaneva**
Biocompatibility : intermediate water concept in design biomedical materials future	**M. Tanaka**
Discrete graphitic crystallites promise high-rate ion intercalation for KC8 formation in potassium ion batteries	**Y. Zhang**

Modification strategies of Silicon anodes for lithium ion battery	**Q.-H. Yang**
The effect of N-doping on porous carbon scaffolds for improving the charge transfer kinetics of vanadium redox couples	**M.-A. Costa De Oliveira**
Highly sensitive, wide-range embroidered interdigitated capacitive pressure sensor coated with glucose based Graphene oxide/silicon dioxide textile paste	**S. Qureshi**
Construction of Crystalline Nitrone-Linked Covalent Organic Frameworks via Kro¨hnke Oxidation	**F. Kang**
Comparison of optical and luminescence properties of as prepared and annealed ZnO nanoparticles prepared using sol-gel method	**F. Dejene**
Kinetic modeling of transient electroluminescence and transient photoluminescence of doped blue TADF in host-guest matrix	**D.-K. S**
Activated carbons derived from zeolitic imidazolate framework for CO2 adsorption	**N. Khethula**
Gold Extraction by Graphene and Its Reuse Exploration	**H.-M. Cheng**
CNT - Bimetal (Cu and In) hybrids for field emission applications : Correlation with morphology, microstructure and electronic structure	**S. Saini**
Structural Transformation of Pyrolyzed Quinacridones and Utilization as Anodes for High-performance Sodium-ion Batteries	**S. Chae**
X-ray Micro-Computed Tomography (XMCT) for Quantitative Morphometry of Topological Graphene-based Aerogels and Carbon Foams	**S. Gupta**
Organic Dye Derived Carbonaceous Nanocomposites as Anode Materials for Lithium Ion Batteries	**T. Lee**
Nitrogen/Oxygen Dual-doped Porous Carbon Hosts derived from Pigments for Lithium Sulfur Batteries	**W.-S. Heo**
Photosensitive-Stamp-Inspired Scalable Fabrication Strategy of Wearable Sensing Arrays for Noninvasive Real-Time Sweat Analysis	**H. Junxing**
Laser-induced integrated graphene-based array for the determination of trimetazidine	**K. Wu**
Confined Electrical double-layers in expanded graphite nanosheets	**B. Chen**
Fabrication of Diamond Nanoneedle Arrays Containing High-Brightness Silicon-Vacancy Centers	**B. Yang**
Metal-organic frameworks meet Uni-MOF: a transformer-based gas adsorption detector	**J. Liu**
Effects of temperature and number of coatings of carbon nanotubes formed on paper substrates	**M. Kim**
A highly sensitive nonenzymatic electrochemical sensor for glucose based on the synergistic effect of graphene and HKUST-1	**C. Xuerong**
Role of Reabsorption in the Photoluminescence Quenching of Carbon dots	**D. Cherumukk**
Bimetallic MOFs derived CoFe-alloy@C composites-based electrochemical sensor for quantification of acetaminophen	**H. Gu**
Sulfuration of Layered Nickel-Cobalt-Manganese Hydroxides Towards Novel Supercapacitor Electrode with Enhanced Performance	**W. He**
Bamboo-like Fe/Fe3C@N-doped carbon heterostructure-based electrochemical sensor for highly sensitive detection of caffeic acid	**S. Zhang**
Two-dimensional diamond formation drivers in chemical vapor deposition: planar defects and graphite	**N. Huang**
Osmanthus fragrans-derived porous carbon: Tunable electrochemistry and sensing application	**L. Ji**
Enhanced electrochemical supercapacitor performance with transition metal phosphides/boron-doped diamond composite film	**J. Xu**

17:30 - 18:30 **Poster hall**

Poster

Novel cellulose-blends/graphene composites to be used as electrodes and conductive pastes.	**E. Palmieri**
Unveiling the Potential of Novel Poly(vinylidene fluoride-co-hexafluoropropylene) Polymers for Enhanced Industrial Applications	**C.-M. Costa**
Optimization of the electrocaloric film for an electrostatic cooling device	**N. Zeggai**
Visible light and temperature responsive untethered soft actuators for dry and wet environments.	**A. Saifi**
The effect of molybdenum oxide on thermo-physical and morphology of HDPE composites	**M. Alsuhybani**
Electrospun polymethylmethacrylate fibers blended with a quaternary ammonium compound for air filtration and bacterial inactivation	**R.-M.-N. Lintag**
Paper-based foldable radio frequency energy harvesting system for remote charging of energy storage devices	**I. Oh**
Surface functionalization of poly(3,4-ethylenedioxythiophene) with heavy metals, adhesives, and nutrients improved biomass and viability of Shewanella oneidensis MR-1	**A. Abdullah**
Laser-induced graphene from starch bioplastic en route to transient electronics	**A.-C. Bressi**
Investigation of Light Fastness Enhancer Additives on Recycled PET for Automotive Applications	**W.-S. Heo**
Stretchable Bi2Te3 Thermoelectric Fabric for Lateral Strain, Normal Pressure and Temperature Sensing	**C. Kwon**

Multi-vapour responsive and directional controlled actuation of biopolymer-based soft actuators	**V. Kumar**
Ultra-high power factor of flexible thermoelectric films for powering wearable electronics	**S. Kumar**
Paper-based solid-state micro-supercapacitors produced by hydrophobic wax barrier printing.	**N. Kim**
Vertically stacked multi-electrodes inside a single sheet of paper for a high energy density supercapacitor	**J. Jin**
Robust Interface with Stretchable-Gradient Structure for Wearable Devices	**S. Kang**
Dual-doping as a strategy to modulate the electrochemical properties of the Ni-rich cathode materials for Li-ion batteries	**H. Ronduda**
3D Printed Thermoelectret with Giant Piezoelectric Coefficient as Self-Powered Wearable Pressure Sensor and Futuristic Implementation for On-spot Bone Injury	**D. Saini**
Digital Colorimetric Sensing for Real-time Gas Monitoring for Smart Green Energy System	**R. Dutta**
Printed electronics on flexible substrates and IME process for user interface applications	**I. Pereira**
The contributions of printed sensors for battery thermal management systems	**D. Dias**

17:30 - 18:30 **Poster hall**

Poster session

MelaGel – Using Eumelanin and Polypyrrole in Nanocellulose Hydrogel Networks as Hybrid Sensor/Energy Storage Material	**N. Al-Shamery**
Influence of Functional Groups on the Properties of Melanin-Based Energy storage Systems – a Computational Study	**F. Heppner**
Theorizing simple and versatile functionalization routes of eumelanin derivatives: Influencing redox chemistry and chelating properties	**S. Morgenschweis**
Living multifunctionality responding materials of the future, botanic pigments	**E. Gogotsi**
Self-assembly of epicuticular waxes: one step biomimetic approach for multi-functional coatings	**A. Das**
Catalysis by Hydroxybenzenes Derivatives	**O. Agazani**
Microsphere embedded hydroxyapatite coating on metallic implant for sustained drug release in orthopedic applications	**R. Kanike**
Biofunctionalized Nanopores for the Study of the Dynamics of Coiled Coil Protein Assembly	**G. Le Saux**

17:30 - 18:30 **Poster hall**

Poster

A real-time, specific, and label-free immunosensor for the diagnostic of Ferritin elevated cancers using a surface-biofunctionalized Meta-Nano-Channel (MNC) bioFET	**V. Kumar Garika**
State-of-the-art meta-nano-channel (MNC) field-effect transistor biosensor enables real-time, specific, and label-free detection of estriol for breast cancer and prenatal diagnostics in diluted human serum	**S. Babbar**
GelMA-Chitosan-Polyethylene oxide composite enhances proliferation of fibroblast cells in vitro	**K. Agarwal**
Exploiting the Two-Dimensional Nature of MXenes in Cancer Therapy: Drug Delivery and Photothermal Properties for Enhanced Treatment Efficacy	**L. Tayebi**
Morphology of nanostructured surfaces	**J. Neurohr**
Elastic microbrushes platform combining topographical and stiffnes parameters for the activation of CAR T cells	**C. Ureña Martín**
Advancing Boron Neutron Capture Therapy with Tailored Boron-Based Nanomaterials: Synthesis, Characterization, and Promising Anti-Tumor Effects	**A. Kumar**
Polarization-resolved third harmonic generation (P-THG) of myelin inside optic nerves	**M. Kefalogianni**
The Immune Response of Natural Killer (NK) Cells to the Environmental Mechanical Heterogeneity	**I. Nusbaum**
Hierarchical micro- and nano-interfaces as fracture propagation traps in natural layered composites	**H.-D. Wagner**
Modifications of Ganoderma lucidum spores into digestive tissue-highly-adherent porous carriers with selective affinity to hydrophilic or hydrophobic drugs by iturin A and alkali/acid treatments	**N. Liao**
Field-controlled magnetoelectric core-shell CoFe2O4@BaTiO3 nanoparticles as effective drug carriers and drug release in vitro	**M. Rizwan**
Lithographic platform for reference-free traction force microscopy	**B. Maman**
Improved osseointegration of bone implants by ferroelectric BaTiO3 coating: Dynamic in vitro culture and in vivo study	**M. Malić**
Effect of heterogenous stiffness surface on the activation of primary T cells	**J.-J. Pandit**

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Poster

New mixed-metal chalcohalides A2BCh2X3 compounds for photovoltaic applications	P. Henkel
On the mechanism of solvents catalyzed structural transformation in metal halide perovskites	J. Xi
Fabrication of FAPbI3 single-phase perovskite film Via the use of a homogeneous crystallizing agent	W. Zuo
Optical Switching of Hole Transfer in Graphene-perovskite Heterostructures	L. Gao
Superlinear Power Law Leads to Vacancy-Assisted Ion Conduction in FAPbBr2I Perovskite Single Crystal.	M. Singh
Effect of Oxygen Exposure during High-Temperature Processing on PbI2 Formation and Long-Term Stability of Black-Phase CsPbI3 Perovskite Thin Films	R.-A. Saha
Investigating the Vibrational and Optical Properties of Perovskite Nanoplatelets: A Raman Spectroscopy Approach	M.-M. Aboulsaad
Effect of Zn alloying on the structural, optical, electrical and morphological properties of the cesium lead iodide perovskite thin films	A.-M. Majeed
Degenerate top transparent electrode for soft thin film-based Photovoltaics	A. Paul
Precise Assembly of Perovskite Thin Film Heterostructures	A. Szoła

17:30 - 18:30 | Poster hall

Poster session

Polaronic structures in LiNbO3 and LiTaO3 modelled from first principles	N.-A. Schäfer
Influence of lithium stoichiometry on electrical and acoustic properties of Li(Nb, Ta)O3 single crystals	E. Tichy-Racs
Excellent piezoelectricity of [001]-textured (K, Na)Nb-based piezoceramics and their application to panel loudspeakers	S. Nahm
A high-temperature optical spectroscopy study of Li(Nb1-xTax)O3	P. Gaczyński
Ab initio investigation of the ferroelectric phase transition in LiNbO3 and LiTaO3	A. Kapp
Composition dependent optical properties of LiNb1-xTaxO3 solid solutions	F. Bernhardt
Investigation of hydrogen diffusion in LiNbO3 from density-functional theory	C. Fink
Structural and electronic properties of LiNb1??Ta?O3 solid solutions modelled from first principles	F. Schug
Enhanced piezoelectric properties of [001]-textured (Na, K)NbO3-based piezoceramics for piezoelectric energy harvesters	S.-J. Chae
Growth of crystalline NKN thin films at low temperature using SNO seed layers for artificial synaptic devices	I.-S. Kim

17:35 - 18:30 | Poster hall

Poster

Exploiting GaN nanowire arrays for selective photoelectrochemical reduction of CO2	M. Barzgar Vishlaghi
Investigating the Synergistic Effects of FeNi-Oxide Nanoparticles as Water Electrolysis Catalysts: A Multi-Technique Characterization Approach	H. Habibimarkani
Single-Phase CoCrFeMnNi High-Entropy Alloys for Lithium-Mediated Electrochemical Nitrogen Reduction	J. Thyr
Impact of grain boudaries in Pt-Co nanowires on the oxygen reduction reaction	J. Kim
Enhancing electrooxidation efficiency for ammonia by Pt nanocubes decorated with single-atom metal catalysts	J. Cho
Enhancing the performance of anion exchange membrane water electrolysis with Ni nanoplates encapsulated by ß-NiOOH	M.-K. Kabiraz
Gentle electrodeposition of 'CuO' on a-Fe2O3 nanoarrays using Cu-peptides for efficient photoelectrocatalytic water oxidation	T. Benkó
Thickness-Dependent Photoelectrochemical OER Water Splitting Performances of Perovskites Thin Films	F. Andrei
Tunnel oxide passivated contact on silicon photoelectrode for BiVO4-Si tandem photoelectrochemical water-splitting device	B. Shin
Atomically Dispersed Dinuclear Iridium Active Sites for Efficient and Stable Electrocatalytic Chlorine Evolution Reaction	L. Liu

r-trimer anchored on the Co-supported Pd nanocrystals Opens the Ultra-efficient Channel on oxygen reduction reaction	**Y. Wu**
Hydrothermal synthesis of Mo and Fe sulfides for the HER in PEM water electrolysis	**N. Billiet**
Development of heterojunction between TiO2 and g-C3N4 for visible light assisted degradation of dyes	**M. Saeed**

18:00 - 18:30 — Poster hall

Poster session

CO2 capture on pristine and Cu decorated graphene based materials	**K. Kumar**
Structural reconstruction induced peculiar magnetism in two-dimentional Fe5GeTe2	**S. Ershadrad**
Dy-doped BiFeO3 films grown by MOCVD: multiferroic materials for hybrid energy harvesters	**G. Malandrino**
Lanthanum nickelates film fabrication through various MOCVD routes including the use of a novel La-Ni single-source precursor	**M. Bombaci**
Performance improvement of broadband photodetectors based on light trapping management	**F. Djeffal**
Enhancing Extraordinary Magnetoresistance in Epitaxial Thin Film Devices via Topology Optimization	**T. Désiré Pomar**
Design of Experiments: Quantitative Comparison of Bayesian Optimization with Response Surface Methodology	**H. Lê**
Two-Dimensional Lepidocrocite-type Titanium Dioxide Based Heterojunctions for Multi-Functional Applications	**K. Asikainen**
Advancements in Atomistic Simulations of High-Entropy Materials for Lithium-ion Batteries	**P. Kowalski**
Characterization of Metal Hydride for Metal Hydride Compressor Design via FEM	**T.-F.-J. Kaufmann**
Ultrasensitive green synthesized ZnO nanosponge/MXene (Ti3C2)/ TiO2 nanocomposite-based electrochemical sensor for dopamine and acetaminophen detection	**A. Chakravorty**
Probing positive trion in a-MoO3/MoS2 van der Waals heterostructure	**R. Kumar**
Boosting thermoelectric performance in Ti doped Yb0.4Co4Sb12 via carrier engineering	**A. Dadhich**
Electrochemical Evaluation of Zn-based Metal-Organic Frameworks as Anode Materials for Rechargeable Batteries	**S. Chubachi**
Heterogeneous catalysis resulting from surface changes on oxygen-free Cu plates	**K. Niwa**
Proposal of functional capsules containing Cu microparticles	**H. Kinoshita**
Physical method for fabricating Au microparticles	**T. Noro**
Computer modelling of Co(OH)2/CdS nanocomposite for water splitting applications	**S. Piskunov**
A multi-scale approach to simulate the thermochemical energy storage characteristics of ZIF-90	**M. Van Wiggen**
Interplay Between Temperature and Distribution of Local Motifs in YNiO3	**H. Joshi**
Bivalent metal-organic batteries: Roadmap for next-generation electrolyte additives	**N. Izdebska**
Enhanced electrochemical performance of NMC811/Graphite lithium-ion cells by adding tris(trimethylsilyl)borate as electrolyte additive	**A. Spinu Zaulet**
Silica Nanospheres as Sensing Layer in Non-faradaic Detection of Chronic Diseases	**A. Assaifan**
APT's contribution on the study of high performance martensitic stainless steel for the development of computational framework	**S. Guehairia**
Mechanical properties and thermal conductivity of Ti3C2 freestanding layer using molecular dynamics	**T.-H. Fang**
An atomistic interpretation of the oxygen K edge x-ray absorption spectra of layered Li-ion battery cathode materials	**N. Ramesh**
Effect of the Electrode on the Electrical Properties of Zr-substituted BaTiO3 Thin Film Capacitors Fabricated by CSD	**M. Angermann**
Silicon anode for Li-ion Batteries: Empower your understanding of competitive and technology landscape thanks to patent analysis	**A. Capgras**
A comparative study of low Tg monomers to develop a bio-based pressure-sensitive adhesives	**M. Singh**
YSrFeCrO6 as a Robust Ferromagnetic Semiconductor with Large Photovoltaic Efficiency	**A. Ray**
Enhanced Thermoelectric Efficiency in p-Type Mg3Sb2: Role of Monovalent Atoms Codoping at Mg sites	**M. Tiadi**
Predictions of stability and band-gaps for double perovskite oxides (DPOs) using high throughput Machine-Learning Algorithms	**D. Gupta**
Anisotropic thermal conductivity in a layered GeS microwire	**P. Xiao**
Conformational analysis and vibrational study of Drugs and drug delivery systems	**S. Mishra**
Magnesium based Multi-Metallic Hybrids with Soot for Hydrogen Storage	**A. Gupta**
Targeted Chemical Modification for Controlled Supramolecular Assembly	**M. Hagemann**
Cr implantation of copper oxides thin films – simulation and measurements comparison	**K. Ungeheuer**
Dynamics of Sliding Friction between Laser-Induced Periodic Surface Structures (LIPSS) on Stainless Steel and PMMA Microspheres	**E. Cihan**

	Optical tools for rapid screening of donor/acceptor photovoltaic systems for high performances on indoor conditions	**A. Khodr**
	Bayesian Machine: Optimizing the Hubbard U Parameter in DFT+U With Machine Learning	**R. Das**

09:00 - 12:00 — Main building - Ground floor

Plenary session

12:00 - 14:00 — Main building - Ground floor

Lunch

12:30 - 13:00 — Main building - Ground floor

Lunch

12:30 - 14:00 — Main building - Ground floor

Lunch

13:00 - 14:15

Theory

Chairman
J. Zhao

13:00	Doping of aluminum gallium oxide alloys	**D. Wickramaratne**
13:30	Modeling Properties of Ga2O3-based quantum structures to achieve hole conductivity	**T. Tchelidze**
13:45	Computational study on polymorphs of Ga2O3 on alloying and epitaxy	**S.-B. Cho**

13:45 - 15:30

Photoelectrocatalysis IV

Chairman
S. Eslava
L. Liu

13:45	Advanced Properties of Cubic Silicon Carbide and Graphene for Solar-to-Fuel Conversion	**J. Sun**
14:05	Integrated light harvesting systems for scalable artificial photosynthesis	**V. Andrei**
14:25	Electronically Defective Tellurium-Doped TiO2 Catalysts for Enhanced Photoelectrochemical Water Splitting	**S.-M. Fawzy**
14:40	Light harvesting in plasmonic and nanostructured 2D system for advanced photochemical applications	**M. Gardella**
14:55	Investigating solar degradation mechanisms of the Ta3N5 photoelectrode by operando ambient pressure X-ray photoelectron spectroscopy and in-situ transmission electron microscopy	**A. Thogersen**
15:10	Recent modification strategies of nanostructured TiO2 for enhanced photocatalytic and photoelectrochemical H2 generation	**E. Wierzbicka**

13:45 - 15:30

Breakthroughs in Natural Melanin and Other Bio-Based Materials

Chairman
B. Kohler
A. Mostert

14:00	Nanocellulose Biohybrid Materials – Deriving Functionalities from Melanin and Proteins	G. Nyström
14:30	Water-soluble Eumelanin from the Black Soldier Fly (Hermetia illucens)	J.-W. Phua
15:00	Sustainable melanin and keratin waste for green electronics	S. Mattiello
15:15	Natural melanin from Hermetia illucens pupal exuviae: H2O vs D2O exposure effect on DC conducting properties	M. Ambrico

14:00 - 15:30

Photonics I

14:00	Mid-Infrared photonics circuits based on graded index Silicon Germanium waveguides	D. Marris-Morini
14:30	Scalable fabrication of silicon-based telecom quantum emitters upon non-stationary thermal treatment	G. Andrini
14:45	Implantation Doping and Recrystallization in Hexagonal Silicon Germanium Nanowire	I. Bollier
15:00	Phase Transformation in nanostructures for integration of hexagonal 2H-SiGe	T. Van Den Berg
15:15	Modelling of an intersubband quantum confined Stark effect in Ge quantum wells for mid-infrared photonics	S. Calcaterra

14:00 - 15:30

Low dimension perovskites

14:00	Engineering light emission of lead-halide perovskite quantum dots for room-temperature classical and quantum technology	S.-C. Boehme
14:30	Optimisation of 2D hybrid perovskites for strong light-matter coupling	S. Henda
14:45	Applications of ligand-free lead halide perovskite nanocrystals prepared by scaffold-assisted method	C. Romero Pérez
15:00	Perovskite Nanocubes for Mie-Resonant Lasing in Blue and Green Region	S. Khan
15:15	Liquid crystalline low-dimensional lead halide perovskites	A. Stergiou

14:00 - 15:30

Optical materials 1

Chairman
F. Enrichi
F. Lamberti

14:00	Photonic and plasmonic multilayer metastructures with tunable properties based on alternative plasmonic nanomaterials	A. Li Bassi
14:30	Lanthanide doped ß-NaYF4/TiO2 composite films: ¬synthesis, characterization and photocatalytic properties	G. Malandrino
15:00	Integrated photocatalyst adsorbents based on silica/silicate-supported TiO2 for wastewater treatment	L. Viganò
15:15	Analysis of the electric bias induced degradation mechanism of yttria- stabilized zirconia	S.-K. Kim

14:00 - 15:30

in-situ doping

Chairman
F. Chiodi
E. Napolitani

14:00	Reduced Pressure - Chemical Vapor Deposition of heavily boron and phosphorous doped group-IV semiconductors	J.-M. Hartmann
14:30	Hightly doped conductive n+ZnO polycrystalline layers fabricated by RF magnetron sputtering in methane working gas	A.-N. Nazarov
14:45	High rate reactive deposition of ultrawide bandgap Ga2O3 by liquid metal target sputtering	J. Purans
15:00	Al-delta-doped ZnO films made by atomic layer deposition and flash lamp annealing for low emissivity coating	G. Zhang

14:00 - 15:30

Progress in film processing II

Chairman

		J. Silva
14:00	Recent advances in HfO2-based ferroelectric films and memories for their implementation at advanced technological nodes	**L. Grenouillet**
14:30	Robust ferroelectricity in freestanding Hf0.5Zr0.5O2 membranes	**C. Ge**
15:00	Sub-nanosecond laser-induced crystallisation of ferroelectric Hf0.5Zr0.5O2 films	**J.-A. Pardo**
15:15	Exploring the structural and electrical properties of epitaxial Hf0.5Zr0.5O2 thin films on YSZ 001 substrates grown by off-axis magnetron sputtering	**Y. Li**

14:00 - 15:30

Photoelectrochemical properties of Nanocomposites

Chairman
T. Ameri
Y. Xu

14:00	Design strategies for electrocatalysts with enhanced activity and selectivity	**M. Karamad**
14:30	Photoelectrochemical properties of doped Au-TiO2 nanowires	**M. Zimbone**
14:45	Wet-chemical Synthesis and Catalytic Properties of Metal Nanomaterials with Unconventional Crystal Phases	**Y. Chen**
15:00	Block copolymers-based nanoparticles as promising catalysts	**N. Baglieri**
15:15	MXene's photoactivity in service of the environment	**A. Jastrzebska**

14:00 - 15:30

Batteries and supercapacitors II

Chairman
C. Stéphane

14:00	Fluorographene derived graphenes for energy storage	**M. Otyepka**
14:30	2D Porous Frameworks for next-generation energy storage devices	**M. Yu**
15:00	Synthesis of polymer/MoS2 nanocomposites for the preparation of electrodes of sodium-ion batteries	**L. Courthéoux**
15:15	Construction of supercapacitors by assembling sputter-grown nanostructured thin film electrodes	**R. Adalati**

14:00 - 15:30

Sensors I

Chairman
D. Janas
Y.-K. Mishra

14:00	2-D nanostructures of regularly arranged nanoparticles for sensor applications	**S. Tamulevičius**
14:30	Wearable Sensors for Healthcare Applications: Recent Advancements and Future	**A. Beniwal**
14:45	PdAg alloy thin film-based hydrogen sensor at room temperature	**A. Chauhan**
15:00	An In-Situ Study of Precursor Decomposition via Refractive Index Sensing in p-Type CuxCrO2 and n-type amorphous ZTO	**A. Zhussupbekova**
15:15	Emerging electroanalytical nano-biosensing technologies for the intraoperative levelling of Hirschsprung's Disease	**S. Roy**

14:00 - 15:30

Diamond II

Chairman
N. Yang
J. Zhu

14:00	On-chip Diamond MEMS: concept and sensing applications	**M. Liao**
14:30	Investigating the energetic band diagrams of oxygen-terminated CVD grown e6 electronic grade diamond	**K. Liu**
14:45	Cu based-Diamond Electrodes for Highly Selective Production of Ammonia from Electrochemical Nitrate Reduction Reaction	**X. Chen**
15:00	Enhanced Magnetic Sensing Performance of Single-crystal Diamond Resonators through Various Interlayers	**Z. Zhang**
15:15	Tin (II) chloride salt melts as non-innocent solvents for the synthesis of low-temperature nanoporous oxo-carbons	**X. Zheng**

14:00 - 15:30

Environmental applications I

Chairman
G. Pezzotti Escobar
J. Reguera

14:00	On the Overall situation of Poly- or perfluoroalkyl substances (PFASs) and Recycling of Fluoropolymers	**B. Ameduri**
14:30	Study on the Adsorption Properties of Hydrochloric Acid Doped Microporous Conjugated Polyaniline for Hg(?)	**Y. Wang**
14:45	Eco-friendly, automatic platform based on titanium dioxide photocatalysts, for the removal of coliform bacteria from waters samples	**G. Pezzotti Escobar**
15:00	Superior piezo-photo-catalytic performance with model multiferroic BiFeO3	**W. Amdouni**
15:15	Polymer-based membranes of PVDF/ZnO:Au and TiO2:Au with nanostar morphology and size tunability for the plasmonic photocatalytic degradation of pharmaceuticals	**J. Reguera**

14:00 - 15:30

Biomaterials and Polymers for Biomedical Applications I

Chairman
J. Adam
G. Malandrino

14:00	Bioconjugated Nanocarriers for Precision Drug Delivery	**S. Mathur**
14:30	Controlling Mesenchymal Stem Cell Differentiation Using Oxide Thin Films	**W. Prellier**
15:00	Interpretation of protein adsorption on HA-Mg composites for bone tissue engineering	**A. Dubey**
15:15	polyBERT: a Large Language Model to Make Ultrafast Predictions of Polymers	**C. Kuenneth**

14:00 - 15:30

Electronic and structural disorder

Chairman
G. Raino
P. Tamarat

14:00	Electron-phonon coupling in halide perovskites from first principles	**F. Giustino**
14:30	Unusual anharmonicity and hierarchy of relaxational dynamics in 3D hybrid halide perovskites	**J. Even**
14:45	Effect of disorder and anharmonicity in the phonon dynamics and electron-phonon coupling of halide perovskites	**M. Zacharias**
15:00	The impact of anisotropy and anharmonicity on the magneto-optical properties of bulk 3D and 2D lead halide perovskite	**E. Lifshitz**
15:15	Mixed halide perovskites for light emission: inhomogeneous materials with small electronic disorder	**C. Quarti**

14:00 - 15:30

OS 8

Chairman
T. Yamamoto

14:00	Role of defects and interfaces on 2D Ising superconductors	**D. Wickramaratne**
14:30	Synthesis and experimental- theoretical investigation of a new type of heterostructures	**A. Dauletbekova**
15:00	Luminescence of BaFBr crystals irradiated with 147 MeV 84Kr ions	**A. Akilbekov**
15:15	Investigation of HfO2 nanoislands grown on HOPG and Au(111) surfaces: scalability and nucleation driven in-gap states.	**L. Bayer**

14:00 - 15:30

Spin-optronics and quantum information

Chairman
M. Sawicki

14:00	Controlling spin and light at room temperature in Chiral Metal-Halide Hybrid Semiconductors	**M. Beard**
14:30	Electrical switching of circular polarization of spin light emitting diode	**D. Pambiang Abel**
14:50	All-optical investigation of spin polarization in Si	**J. Pedrini**
15:10	Spintronic encoding of quantum information onto individual atoms within solid-state junctions	**M. Bowen**

14:00 - 15:30

Antiferromagnetic and ferroelectric topologies

Chairman
G. Catalan
A. Finco

14:00	Toroidal topology in ferroelectric polymers	**M. Guo**
14:30	Design and Control of Topological Polar Nanotextures in Multiferroic BiFeO3 Epitaxial Thin Films	**A. Chaudron**
14:45	Contribution of theantiferromagnetic coupling onthe skyrmion dynamics inferrimagnets and syntheticantiferromagnets	**S. Rohart**
15:15	Multiferroic skyrmions in BiFeO3	**M. Viret**

14:00 - 15:35

2D and 3D Engineered Microenvironment for the Guidance of Cells - 2

Chairman
A. Angelo
K. Sengupta

14:00	Mechanical regulation of receptor-mediated adhesion	**E.-A. Cavalcanti-Adam**
14:30	2D and 3D biomaterials to guide hematopoietic stem cell behavior	**C. Lee-Thedieck**
15:00	Bioengineering the tumor extracellular matrix for cancer modeling	**B. Blanco Fernandez**
15:20	Unleashing the Potential of Laser-Induced Graphene for Cell Stimulation	**H. Vazão De Almeida**

14:15 - 14:35 — Main building - Ground floor

Coffee Break

14:35 - 16:00

Theory and phase transitions

Chairman
D. Wickramaratne

14:35	Complex Ga2O3 polymorphs explored by accurate and general–purpose machine learning interatomic potentials	**J. Zhao**
15:05	Local Polymorph Conversion in Gallium Oxide via Focused Ion Beam Irradiation	**U. Bektas**
15:20	Implanted Pr3+ ions in ß-Ga2O3 single crystals: detailed spectroscopic analysis	**J. Zanoni**
15:35	High-resolution electron microscopy of phase transitions and structural segregations in ß-Ga2O3 irradiated at elevated temperatures	**C. Ghica**

15:30 - 16:00 — Main building - Ground floor

Coffee Break

16:00 - 17:20

Quantum Phases

Chairman
E. Hankiewicz

16:30	nu=5/2 phases in the fractional quantum Hall effect	**A. Das**
16:50	Observation of the Weyl semimetal phase in bulk (Pb,Sn)Te:Cr	**A. Królicka**

16:00 - 17:30

Photonics II

16:00	Emergence of the highest mobility holes in a 2D system epitaxially grown on a silicon wafer	**M. Myronov**
16:30	Wafer-scale 2D Materials Analog Resistive Memory Arrays for Monolithic 3D In-Memory Computation	**B. Tang**
16:45	Large area pulsed laser deposition of memristive Pr0.7Ca0.3MnO3 heterostructure for neuromorphic computing	**M. Buczek**
17:00	VO2 stabilization on Si for memristor in neuromorphic computing applications	**S.-P. Sahoo**
17:15	Relaxor ferroelectrics for mimicking biological synapses	**L. Cheng**

16:00 - 17:30

Quantum dots

16:00	Advanced Functionalities of Perovskite Quantum Dots Embedded in Porous Scaffolds	**H. Miguez**
16:30	Down Converted Sharp Blue and Green Emission in Eu-doped CsPbBr3 Quantum Dots for Optical Applications	**S. Kachhap**
16:45	Defect metastability in metal halide perovskites	**I. Scheblykin**

16:00 - 17:30

Superconductivity

Chairman
S. Kerdiles
A. Nazarov

16:00	Nanosecond laser doped silicon: effect of doping and strain on superconductivity	**F. Chiodi**
16:30	Fabrication of superconducting Boron hyper-doped Germanium	**Y. Cheng**
16:45	Sputter deposition and pulsed laser crystallisation of MoS2 films	**A. Tonon**
17:00	Doping Gallium Oxidewith Silicon: the disorder and strain transformation after implantation to heated substrate	**I. Demchenko**

16:00 - 17:30

Novel devices II

Chairman
L. Grenouillet

16:00	Negative differential capacitance in ultrathin ferroelectric hafnia	**S. Jo**
16:30	CMOS back-end-of-line integrated metal-ferroelectric-dielectric-metal ferroelectric tunnel junctions for neuromorphic applications	**C. Dubourdieu**
17:00	Demonstration of a p-type Junctionless Silicon Nanowire Transistor with Ferroelectric Hafnium-Zirconium-Oxide Gate	**J. Trommer**
17:15	Electrical Characteristics of FeFET with Atomic Layer Deposited HZO Thin Film and IGO Channel for Flash Memory Application	**C. Choi**

16:00 - 17:30

Mxenes for energy storage

Chairman
J. Even

16:00	4D Printing of MXene Hydrogels for High-Efficiency Pseudocapacitive Energy Storage	**K. Li**
16:15	Band transport by large Fröhlich polarons in MXenes	**W. Zheng**
16:30	Comparison of ex-situ and in-situ addition of base on the electrochemical performance of Ti3C2Tx MXene supercapacitor electrode	**A.-S. Asha**
16:45	Charge Storage Mechanism in V2CTX MXene for Aqueous Zinc-Ion Battery Studied by in situ X-ray Absorption Spectroscopy	**A. Weisser**

16:00 - 17:30

Sensors II

Chairman
A. Beniwal
D. Janas

16:00	Piezoelectric Nano Sensors and Energy Devices	**H.-J. Kim**

16:30	Robust q-BIC all-dielectric metasurface for refractive index sensing	**O. Mccormack**
16:45	Heterojunction metal oxide transistors with unconventional tri-channel geometry for various sensing applications	**W. Ghamdi**
17:00	Electroanalytical method for the estimation of Liothyronine using Molecularly Imprinted Polymer	**A. Mishra**
17:15	Plasmonic resonances observed at high resolution in silicon nanostructures	**R. Rafique**

16:00 - 17:30

Energy Applications II

Chairman
D. Kong
Q.-H. Yang

16:00	Interfacial Design for Advanced Composite Nanomaterials with Enhanced Electrochemical Performances	**W. Zhou**
16:30	The local role of active sites on carbon model electrodes and nanomaterials for the improved kinetics of vanadium redox couples	**M.-A. Costa De Oliveira**
16:45	Engineered Graphene-based Porous Nanostructures	**A. Allahbakhsh**
17:00	Heteroatom-Engineering Carbon for Electrochemical Energy Conversion and Storage	**Z. Wen**

16:00 - 17:30

Energy harvesting applications I

Chairman
S. Beuermann
J. Le Scornec

16:00	Poly(vinylidene fluoride) a versatile material for advanced applications	**S. Beuermann**
16:30	Impact of MAX Phase doping in PDMS-based self-powered flexible Triboelectric sensor for Energy harvesting and Tactile Sensing Applications	**S. Kumar**
16:45	Piezo-phototronic Aided Photodetector and Piezoelectric Nanogenerator Based on Perovskite Interfaced Polymer	**B. Mondal**
17:00	Flexoelectric energy harvester based on soft semi-conducting polymer films	**J. Le Scornec**
17:15	Surface potential modulation of 3D printed thermoelectret via corona discharge: An approach towards high piezoelectric coefficient and improved mechanical energy harvesting performances	**D. Saini**

16:00 - 17:30

Developments in Spectroscopy and Technological Applications of Eumelanin and Allomelanin

Chairman
P. Meredith
G. Nyström

16:00	Operando Spetroelectrochemical Characterization of Melanin	**G. Payne**
16:30	Revealing couplings among chromophores in melanin through femtosecond laser spectroscopy	**B. Kohler**
17:00	Melanins as a multifunctional biomaterial for the design of emergent and sustainable technologies: a chemical point of view	**P. Manini**

16:00 - 17:30

Domain walls in ferroelectrics

Chairman
M. Hadjimichael
D. Rusu

16:00	Internal Structure of Ferroelectric Domain Walls: Impact of Curvature and Orientation	**S. Cherifi-Hertel**
16:30	Phase diagram and domain wall properties in PbTiO3 ferroelectric thin films	**L. Tovaglieri**
16:45	Ferroelectric Domain Wall p-n Junctions	**M. Gregg**
17:15	In situ Characterisation of Ephemeral p-n Junctions inside Ferroelectric Domain Walls	**K. Holsgrove**

16:00 - 17:35

Oral session

Chairman
J. Guasch
O. Staufer

16:00	Roles of ligand multivalency on membrane receptor activation using self-assembled nano	**A. Teixeira**

	materials	
16:30	DNA optical probes for investigating antigen discrimination in the B cell immune synapse	**K. Spillane**
16:55	T cell mechanotransduction across scales	**P.-H. Puech**
17:20	Detection of Programmed Death Ligand 1 Protein as a Breast Cancer Biomarker by Quartz Tuning Forks	**H. Albrithen**

16:00 - 17:45

Photophysics and how to tailor it

Chairman
M. Bodnarchuk
T. Stoeferle

16:00	Deterministic synthesis of phase-pure 2D perovskite crystals via progressive transformation of quantum well thickness	**A. Mohite**
16:30	Effect of Doping on Ion Migration, Defects, Performance And Stability Of Perovskite Single Crystal-Based Photodetector	**A. Mahapatra**
16:45	Predicting Optoelectronic Performance: A First-Principles Analysis of Carrier Recombination in Metal Halide Perovskites	**U. Singh**
17:00	Highly Sensitive Self-Powered Halide Perovskite Monocrystal Photodetector	**B.-C. Das**
17:15	Photonic processes in metal halide perovskite nanostructures, from 0D to 2D.	**T. Pullerits**

16:00 - 17:45

OS 9

Chairman
A. Lushchik

16:00	Electrospun metal oxide nanostructures: synthesis, structure, optical properties and photochemical applications.	**R. Viter**
17:00	Thermal-Induced Defects in Monolayer MoS2 Flakes	**A. Madonia**
17:15	On the Nature of Defects in Super-Mossian Iron Pyrite	**S.-M. Fawzy**
17:30	Self-Healing Phenomenon in Antimony Trichalcogenides and Chalcoiodides: Insights into Photoinduced Damage Recovery and Solid-State Reactions	**E. Edri**

16:00 - 18:00

Electrocatalysis V

Chairman
L. De Taeye
J. John

16:00	CuCoSnOx Nanoparticles as Efficient Electrocatalyst for Accelerated Overall Water Splitting	**K.-K. Joshi**
16:15	Synthesis and electrochemical properties of nano-composite IrO2/TiO2 anode catalyst for SPE electrolysis cell	**B. Kang**
16:30	Electrochemical Alloying Dealloying Strategy for Enhancement of Bi-Functional Electrochemical Water Splitting in NiFeCoP Nanosheets	**K.-H. Modi**
16:45	3D Pyrolyzed Carbon Modified with g-C3N4@Ni Electrodeposit for Electrocatalytic Hydrogen Generation	**N. Meethale Palakkool**
17:00	Elucidation of Advanced Functionality of Nano-Architectured ZnO for Electrocatalytic Water Splitting Applications	**M. Kumar**
17:15	Generation of Nitrogen for Ammonia Synthesis by Electrochemical Oxygen Depletion	**D. Sachse**
17:30	Pt/Ru nanowires catalysts for enhanced hydrogen evolution activity in alkaline Media	**J. Yan**

16:00 - 18:00

Optical materials 2

Chairman
A. Li Bassi
G. Malandrino

16:00	Ag-sensitized Eu3+-doped luminescent zeolites for environment and sensing	**F. Enrichi**
16:30	Plasmon-Assisted Operando Self-Healing of Cuprous Oxide Photocathodes	**F. Lamberti**
17:00	Low-cost Structural Colour Surface Decoration with Antiviral Effect	**D. Burak**
17:15	The electrochemical synthesis of ammonia using oxygen ion-conducting ceramic-based electrolysis cells	**H.-R. Kim**
17:30	Sr and Ge Doped-PBF as a Symmetrical Electrode of Solid Oxide Cell for Fuel Cell and CO2 Electrolysis	**H. Lee**

17:45	Selective enhancement of the piezocatalytic response of BiFeO3 nanoparticles via La-doping	**W. Amdouni**

16:00 - 18:00

Storage application of nanocomposites

Chairman
M. Karamad
A. Rizzo

16:00	Discovering new intercalation materials and intercalation mechanisms for emerging sodium-ion and potassium-ion batteries	**Y. Xu**
16:30	Optimization of Prussian blue-carbon hybrid materials for their use as electrodes in Zn-ion batteries	**L.-N. Bengoa**
16:45	Flexible Zinc-Sulfur Battery with 2D-Ti3C2Tx Supported Sulfur Cathode for Augmented Aqueous Zn-S Conversion	**K.-K. Sonigara**
17:00	3D SnO anode materials for thin film lithium-ion batteries	**M.-R. Kim**
17:15	Phosphorus Based Anode Materials for Fast-Charge Li-ion Batteries	**H. Ji**
17:30	Modulating the sulphide surface with ultrathin oxide atomic layer for high performance energy storage application	**S. Adhikari**
17:45	Revealing the Roles of Oxygen Vacancies in Single Atoms to Sub-nanometers Scaled Metal Oxide Clusters for the Oxygen Reduction and Hydrogen Evolution Reactions.	**D. Bhalothia**

16:00 - 18:00

Energy Materials II

Chairman
J. Adam
G. Malandrino

16:00	Interdisciplinary Approach to Characterization of Electrochemical Materials	**P. Kowalski**
16:30	A combined investigation using machine learning and atomistic simulation approaches to screen the spinel compounds for energy storage applications	**S. Karewar**
16:45	Improving the performance of hydrogen storing metal alloys: Up-Scaling of wash coating techniques	**J. Warfsmann**
17:00	Multiscale Simulation Framework for Functional Polymers	**S. Kampmann**
17:15	Diffusion and insertion kinetics of lithium in a graphite particle using a multi-layer Cahn-Hilliard model	**A. Cordoba**
17:30	Energy storage properties of barium zirconium titanate thin films derived by aqueous chemical solution deposition	**I. Panzic**
17:45	Theory of Triboelectric Nanogenerators: A Universal Model for Optimising Practical Applications	**R.-D.-I.-G. Dharmasena**

17:10 - 17:20

Closing Remarks

Chairman
D. Kong

08:30 - 10:30

Carbon Based Nanocomposites

Chairman
K. Vandewal
R.-S. Yadav

08:30	Carbon nanotube based melt-mixed polymer composites for thermoelectric applications	**P. Pötschke**
09:00	Solution for the metal oxide nanomaterials-based electrochromic device	**K. Thummavichai**
09:15	Energy Level Control for Ambient Stable n-type Carbon Nanotube/Organic Small Molecules Thermoelectrics	**T.-H. Kim**
09:30	Voltammetric Measurement of Neuropeptides with Graphitic Carbon Nanomaterials Modified Microelectrode Biosensors	**A. Zestos**
09:45	Carbon Nanostructure – Metal Oxide Hybrid Structures for Field Electron Emission Application	**I. Lahiri**
10:00	Additive manufacturing of materials with embedded electrically conductive paths and their applications	**B. Gackowski**
10:15	The Amphipathic Nature of Pristine Graphene Flakes and Short and Thin Pristine Carbon Nanotubes	**K.-Z. Milowska**

08:30 - 10:30

Nanomaterials synthesis 1

Chairman
M.-S. Goyat
Y.-K. Mishra

08:30	Utilization of spark discharge deposition in ultrafast thermal characterization suitable for nanoscale materials	**V. Mandić**
09:00	Functionalised nanocomposites of polyaniline for smart windows and display applications	**A. Kaur**
09:30	GaAs nanowires with (Pb,Sn)Te crystalline topological insulator shells grown by molecular beam epitaxy	**J. Sadowski**
09:45	Comparison of optical and luminescence properties of as prepared and annealed ZnO nanoparticles prepared using sol-gel method	**F. Dejene**
10:00	Toward a virtual DoE of laser annealing for silicon-germanium patterned nanostructures	**D. Ricciarelli**
10:15	Nanocube Assembly à la carte	**M.-L. Fajri**

08:30 - 10:30

Nanomaterials

Chairman
J. Adam
A.-K. Mishra

08:30	Multiscale modelling and simulations for the fabrication and functionalization of nanomaterials	**A. La Magna**
09:00	Novel nanometric phases of the monochalcogenides: Theory meets experiment	**G. Makov**
09:30	Novel hybrid nano-phages for nanotechnology applications	**H. Ahmed**
09:45	Water intrusion mechanism into ZIF-8: on the trail of water percolation through nanocages	**E. Amayuelas**
10:00	Nucleation Dynamics of Self-assembled Cobalt Nanoparticles from Solution: Core-Surface Self-restructuring and Formation of Photoactive States.	**C. Triana**
10:15	Water soluble MoS2 QDs as a fluorescent probe for Fe3+ ion detection	**A. A S**

09:00 - 10:30

Thin films and Nanostructures I

Chairman
A. Chatzitakis
L. De Taeye

09:00	Nanostructured spinel ferrite MOCVD films for water splitting	**M. Bombaci**
09:15	Metal exsolution dynamics and thermal stability limitations of exsolved nanoparticles at complex oxide surfaces	**M.-L. Weber**
09:30	A low temperature thermal dewetting approach of metal nanostructures on PECVD grown carbon nanostructures for the conversion of CO2 to ethanol	**T. Weidauer**
09:45	Enhanced Electrochemical Hydrogenation (ECH) of Benzaldehyde to Benzyl Alcohol on Pd@Ni-MOF by Modifying the Adsorption Configuration	**L. Gong**
10:00	Structural inheritance strategy of MOF derived Copper mediated NiFe double-layered hydroxide nanoprisms electrocatalyst for oxygen evaluation reaction in photovoltaic-coupled alkaline water electrolysis	**D. Chanda**

10:15	Ionic tuning of exciton and charge carrier properties in (glycolated) organic polymers and their nanoparticles	**F. Podjaski**

09:00 - 10:30

Perovskite crystals

09:00	Advanced applications for perovskite crystals, from macro to nano scales	**P.-P. Boix**
09:30	Shape Modulation of Lead Halide Perovskite Nanocrystals by Tuning the Metal-Oleate Bond Strength and Binding a Tertiary Amine	**Z. Li**
09:45	Near room temperature growth of Cesium Lead Bromide single-crystal	**A. Alhazaa**
10:00	Transient photocurrent response in a perovskite single crystal-based photodetector: A case study on the role of electrode spacing and bias.	**V. Anilkumar**
10:15	Solvent Polarity Dictates the Size of Nanorods and Microrods Self-Assembled from Perovskite Nanocrystals	**C.-Y. Huang**

09:00 - 10:30

Characterization 1

Chairman
J. Brault

09:00	Bandgap and band offset engineering in ?-Ga2O3-based thin films.	**I.-J.-T. Jensen**
09:30	ALD grown ZnMgO:Al on Si: structural and electrical properties of the films and heterostructures characteristics	**R. Schifano**
09:45	Ni-Cu-I alloy - A novel dilute magnetic semiconductor	**C. Dethloff**
10:00	Boron nitride and its polytypism	**B. Gil**

09:00 - 10:30

Biomedicine Applications

Chairman
L. Jiang
H. Randria

09:00	Tumor eradication by boron neutron capture therapy using 10-boron enriched nanoparticles	**N. Komatsu**
09:30	Single Cell Level Raman Analysis Based on Graphene-TiO2 Nanocomposites	**T. Zheng**
09:45	Covalent Organic Frameworks as Promising Platforms for Diverse Applications	**Q. Hong**
10:00	Carbon-based Functional Inks for Printed Electronics	**N. Battaglini**

09:00 - 10:30

Energy harvesting applications II

Chairman
R.-D.-I.-G. Dharmasena
R. Kumar Jha

09:00	Multifunctional Triboelectric Nanogenerators for Future Wearable Applications	**R.-D.-I.-G. Dharmasena**
09:30	Self-polarized piezoelectric fluoropolymer films developed into an energy harvester for self-powered sensor	**V. Khurana**
09:45	Investigation of Lignin-based Environmental Resistant Triboelectric Nanogenerator for Self-Powered Sensors	**R.-K. Jha**
10:00	Metal-organic framework-based triboelectric fibrous scaffolds towards the high-performance biomechanical energy harvesters	**B. Dudem**
10:15	Tailoring polymer chain morphology to enhance piezoelectric response of bio-based and biodegradable poly(L-lactide) films for energy harvesting	**R. Schönlein**

09:00 - 10:30

Polaritons

Chairman
G. Itskos
B. Pietka

09:00	Exciton-polaritons in two-dimensional metal halide perovskites	**D. Ballarini**
09:30	Towards perovskite based all-optical polariton logic circuitry	**R. Mahrt**

09:45	Electrical switching of a chiral lasing from perovskite polariton condensate in a Rashba-Dresselhaus regime	**K. Łempicka-Mirek**
10:00	Excitonic and polaritonic nonlinearities in perovskites	**I. Shelykh**

09:00 - 10:30

Antiferroelectric and relaxor behaviors

Chairman
B. Dkhil
A. Sanchez

09:00	Antiferroelectric-like switching in PbTiO3-SrTiO3 superlattices	**P. Zubko**
09:30	Ferrielectricity and translational boundaries in antiferroelectric PbZrO3	**G. Catalan**
10:00	Relaxor ferroelectrics for mimicking biological synapses	**L. Cheng**
10:15	A New Mechanism of Relaxor Ferroelectric System for Neuromorphic Computing	**H. Ma**

10:30 - 10:50

Main building - Ground floor

Coffee Break

10:30 - 11:00

Main building - Ground floor

Coffee Break

10:50 - 12:00

Characterization 2

Chairman
Z. Gałązka

10:50	Electrical properties and relative devices performance of in-situ n-type doped hetero-epitaxial b-Ga2O3 grown by MOCVD	**R.-H. Horng**
11:20	Mobility of Native Defects in ß-Ga2O3 from Isochronal Annealing of Electron-Irradiated Crystals	**M. Konczykowski**
11:35	Pump-probe thermoreflectance technique for characterizing ultrawide-bandgap semiconductors thermal properties and its extension for non-invasive monitoring	**C. Yuan**

11:00 - 12:30

Optoelectronic properties of perovskites

11:00	The power of combining AC-modulated techniques in the optoelectronic characterization of perovskite solar cells	**F. Fabregat-Santiago**
11:30	Exploring Perovskite Thin Film Formation by Machine Learning on In Situ Photoluminescence Data	**F. Laufer**
11:45	Potential of bismuth-based halide double salts and low-dimensional perovskites for optoelectronic applications	**M. Kepenekian**
12:00	Impact of composition on structural and optoelectronic properties of CsSnI3 combinatorial thin films	**F. Akhundova**
12:15	Thickness dependent optical properties of BA2PbBr4/MoS2 and BA2PbI4/MoS2 van der Waals heterostructures	**A. Yilmaz**

11:00 - 12:30

Energy storage applications I

Chairman
A. Amarjeet Kaur
C. Costa

11:00	Implementation of SiO2 Extracted From Algae Exoskeletons as Sustainable Feedstock for Li-ion	**M. Blanco**

	Battery Anodes	
11:30	A Novel Aqueous Zinc-Ion Batteries with a Spin Coated P2VP Layer with Suppressed Dendrite Formation	**D. Kurmangaliyeva**
11:45	Wool based battery separator for energy storage applications	**J. Serra**
12:00	Micro and Nano structured Parylene C layers for energy based devices	**J. Pinto**
12:15	Water processable Iota-carrageenan as sustainable polymer binder for Lithium-Ion Batteries	**R. Gonçalves**

11:00 - 12:30

Perovskite Nanocrystals for single-photon emitters

Chairman
D. Ballarini
G. Raino

11:00	Individual perovskite nanocrystals as quantum light emitters	**C. Diederichs**
11:30	Ultra-narrow room-temperature emission from single CsPbBr3 perovskite quantum dots	**S.-C. Boehme**
11:45	Band-edge exciton fine structure and charge-carrier interactions in lead-halide perovskite nanocrystals	**P. Tamarat**

11:00 - 12:35

Photoelectrocatalysis V

Chairman
S. Calnan
J. John

11:00	Direct observation of interfacial energetics at Ta3N5/electrolyte and Ta3N5/NiOx/electrolyte heterojunctions by operando ambient pressure X-ray photoelectron spectroscopy during photoelectrochemical water splitting	**A. Chatzitakis**
11:20	Harvesting Sub Bandgap Energy from Mo Doped BiVO4 Photoanode to Enhance Photoelectrochemical Reaction via Triplet-Triplet Annihilation Upconversion	**P. Venkatesan**
11:35	Enhanced photoelectrochemical response of semitransparent TiO2 nanotube arrays modified with Ag2S and Bi2S3 via SILAR technique.	**M.-V. Shinnur**
11:50	Natural sunlight-driven dual organo-photo redox reaction mediated by a metal-free porous organic polymer: a step toward sustainable carbon neutrality	**N. Saini**
12:05	Modification of TiO2 by Bimetallic Nanoparticles for Selective Oxidation of Aromatic Alcohols: Optocatalytic Activity of catalyst coated Microreactor	**J.-C. Colmenares**
12:20	Role of Carbon Nitride Metastable States in Influencing the Photocatalytic Activity Under Solar Irradiation: Kinetics & Theoretical Prospects	**S. Singh**

11:00 - 12:45

Optoelectronic Devices

Chairman
P. Pötschke
A. Rizzo

11:00	New device architectures and performance limiting factors of organic near-infrared detectors	**K. Vandewal**
11:30	Unveiling the Conduction Mechanism and Persistent Photoconductivity in WSe2 based Multifunctional Nanocomposite Thin Films	**M. Kaur**
11:45	Perovskite-Polymer nanocomposite for stable photovoltaic devices	**N. Vanni**
12:00	All solution-processed organic phototransistor for NIR light detection at low voltage for integration into optical biosensors	**G. Baroni**
12:15	Ag nanoaggregates as broadband sensitizers for RE3+-ions in sol-gel silica-soda glasses: a route to efficient and sustainable lighting	**F. Enrichi**
12:30	Photo-thermoelectric devices based on plasmonic-coupled solution-processed vanadium dioxide (VO2) sensitive to short-wave infrared photons	**F. Zhuoqun**

11:00 - 12:45

Nanomaterials synthesis 2

Chairman
A. Beniwal
D. Janas

11:00	Cu-based nanostructures in Transparent electrodes for light harvesting in solar cell.	**S. Boscarino**
11:30	Micro- and nanostructures based on combined Ni and Mn oxides fabricated by a vapor-solid method	**D. Maestre**
11:45	Formation of self-organized nano-dimensional structures on indium phosphide surfaces using ion irradiation and their wettability	**I. Sulania**

12:00	Fabrication of nanoparticle based visible metamaterial by nanoimprinting	**S.-H. Hong**
12:15	One pot synthesis of Cu@M (M=Ni, Sn) bimetallic core-shell nanowires for a new generation of transparent electrodes	**A. Krizan**
12:30	Optimizing device parameters affecting polycaprolactone nanofiber electrospinning using BBD method	**E. Chamanehpour**

11:00 - 13:00

Applications IV

Chairman
N. Komstsu
N. Yang

11:00	Bacterial detection and antibacterial research in environmental water based on transition metal carbide-gold nanocomposites	**L. Jiang**
11:30	Engineering of Functional Carbon-based Materials for the Analysis and Removal of Environmental Pollutants	**Z. Guohua**
12:00	Metal@Carbon porous electrode materials for electrocatalytic applications in biomass valorisation	**F. Pota**
12:15	Optical evaluation of the dispersant ability of amphiphilic active molecules against carbonaceous particles in oil phases	**G. Ferraro**
12:30	Drug delivery into the brain with cell membrane coated nanocarrier	**S. Chi**

11:00 - 13:00

Synthesis & Characterization II

Chairman
G. Malandrino
A.-K. Mishra

11:00	Materials-by-design for water remediation: a critical perspective	**I. Concina**
11:30	Modulating Functional Properties of Organic Films and Crystals through Modelling-guided Supramolecular Co-Assembly	**D. Thompson**
11:45	Eu-doped barium fluoride thin films: an in-depth study of the MOCVD approach and energy conversion properties	**F. Lo Presti**
12:00	Isolation of monochiral single-walled carbon nanotubes using conjugated polymers in organic solvents	**D. Janas**
12:15	A correlative microscopy study of phase transition variations in plastic crystals for barocaloric applications	**F. Rendell-Bhatti**
12:30	Subgap States in Aluminium- and Hydrogen- Doped Zinc-Oxide Thin-Film Transistors	**M. Yoon**
12:45	A unique approach to control nitrogen doping in microporous carbon at ambient conditions for a stable reversible room-temperature sodium-sulfur battery	**S. .**

11:00 - 13:00

Complex polar textures

Chairman
P. Zubko

11:00	Electric bubble quasiparticles	**J. Iñiguez**
11:30	Non-uniform strain-coupled polar textures in ferroelectric nanocylinders	**S. Kondovych**
11:45	Structural, Chemical and Electronic Structure Interplay in BaTiO3 Ultrathin Films Probed Using X-ray and Electron Spectroscopies	**S. Gonzalez**
12:00	Antipolar distortions and tilt-induced super-order in multiferroic-metal superlattices	**R. Xu**
12:15	Finite temperature properties of BaTiO3 materials using the effective Hamiltonian formalism	**M. Popov**

12:00 - 13:00

Main building - Ground floor

Lunch

12:30 - 12:40

Awards and Closing

12:45 - 14:00 — Main building - Ground floor

Lunch

13:00 - 14:00 — Main building - Ground floor

Lunch

13:00 - 14:15

Characterization 3

Chairman
F. Selim

13:00	Nanostructure of gallium oxide polymorphs studied by electron microscopy	**I. Cora**
13:30	Hydrogen-related 3.8 eV luminescence in a-Ga2O3	**D. Nicol**
13:45	Characterisation of various dislocation types in HVPE-grown GaN and considerations on their formation and their influence on stress relations during growth	**U. Bläß**
14:00	Strain and lattice vibration mechanisms in GaN-AlxGa1-xN core-shell nanowire structures grown on Si substrate	**E. Zielony**

14:00 - 15:30

Electrocatalysis VI

Chairman
C. Faber
J. Kargul

14:00	Bioluminescence-induced photocatalysis on semiconducting oxide nanosheets	**K. Kamada**
14:15	Redox-active Sn(II) to lead to SnFe2O4 spinel as a bi-functional water splitting catalyst	**A. Rajput**
14:30	Controled self-assembly of conductive polymers through surfaces: tailored properties for novel organic (bio-)electronics	**D. Farka**
14:45	Stable in air light-induced Ti3+ co-catalytic centers formation	**E. Szaniawska**
15:00	Synthesis and Characterization of High Surface Area Visible Light Semiconducting Polymeric Carbon Nitride Nanocomposites: Experimental and DFT Study	**N. Som**
15:15	Improving biohybrid technologies using diazonium-based covalent molecular wiring strategy	**M. Jacquet**

14:00 - 15:30

MXenes and application of perovskites

14:15	Performance improvement of MXene-based perovskite solar cells	**C. Graeff**
14:30	MXenes modified interface for two-dimensional hybrid perovskite solar cell	**S. Sahare**
14:45	Chalogenides and perovskites composites for energy applications	**K.-P. Mubiayi**
15:00	Luminescent zero dimensional inorganic perovskite -photocurable resin composites for scintillator application	**M. Calora**
15:15	Unravelling the ozone sensing mechanism of all-inorganic metal halide perovskites	**A. Argyrou**

14:00 - 15:30

Advanced Structural and Morphological Characterisation of Nanocomposites

Chairman
T. Ameri
A. Khare

14:00	Nanoscale morphology and composition of functional thin films studied by near-field optical microscopy	**A. Hartschuh**
14:30	Disentangling the structure of nanocrystalline materials for Energy by Crystallography	**A. Moliterni**
14:45	Highly tuneable plasmonic and interferencial response on gold implanted glasses by femtosecond laser irradiation	**M. Garcia-Lechuga**
15:00	An optical probe for determining the domain size in organic bulk heterojunctions	**A. Armin**

14:00 - 15:30

Electronic applications 1

Chairman
A. Jain
R. Puglisi

14:00	Role of Nanomaterials in point of care diagnostics	**A. Mathur**
14:30	Scanning Spreading Resistance Microscopy and Scanning Capacitance Microscopy for two dimensional carrier profiles of 4H-SiC	**P. Fiorenza**
14:45	The molecules aggregation kinetics in the Molecular Doping and their effect on the electrical efficiency.	**R.-A. Puglisi**
15:00	Hybrid Piezo-Triboelectric Nanogenerator For Self-Powered Applications	**S. Hajra**
15:15	Ferromagnetism and Ferroelectricity in a Superlattice of Antiferromagnetic Perovskite Oxides Without Ferroelectric Polarization	**A. Ray**

14:00 - 15:30

Energy Storage applications II

Chairman
M.-V. Blanco
R. Gonçalves

14:00	High-Performance Supercapacitors based on Activated Carbon Electrodes Prepared from the Biomass	**A. Kaur**
14:30	Stretchable Strain Sensor for Lithium-ion Battery Expansion monitoring	**P. Nazari**
14:45	Dynamically crosslinked self-healable solid-state polymer electrolyte for lithium metal batteries	**Y.-T. Chen**
15:00	Solid State Electrolytes Reimagined: Unraveling the Potential of High Dielectric Constant Polymers in Ionic Liquid-Based Solid Polymer Electrolytes	**J. Barbosa**
15:15	High-performance three-component solid-state electrolyte combining NASICON-type Li1.5Al0.5Ti1.5(PO4)3 with ionic liquid and polymeric binders	**H. Salazar**

14:00 - 15:30

Battery Materials II

Chairman
J. Adam
G. Malandrino

14:00	New Insights on the role of Li vacancies and Manganese cation substitution in LNO cathodes	**S. Yousuf**
14:15	Mapping of Diffusion Pathways in a Novel Composite Electrode From Images And Lattice Boltzmann Modeling	**S.-R. Sethi**
14:30	A quasi-solid state polymer electrolyte for high-rate and long-life sodium-metal batteries	**V. S. K.**
14:45	Lithium Storage in Titania Films: Unification of Intercalation Electrode and Supercapacitor Concepts	**C. Xiao**
15:00	Electrochemistry of vanadium hexacyanoferrate in aqueous zinc-ion batteries	**Y. Aniskevich**
15:15	Sodium Ions Pre-Intercalated Vanadium Oxide Cathodes for Aqueous Zn-Ion Batteries	**Y. Lu**

14:00 - 15:30

Ultrafast manipulation and complex multiferroic textures

Chairman
T. Oleg
T. Srivastava

14:00	Ultrafast creation of a topological magnetic phase	**B. Pfau**
14:30	Light-induced sub-THz and THz coherent acoustic phonons in BiFeO3-based nanostructures	**P. Ruello**
14:45	New perspectives on the domain configuration puzzle in single crystal BiFeO3	**A.-M. Sanchez**
15:15	Anisotropic strain-induced single antiferromagnetic cycloid direction in BiFeO3	**A. Abdelsamie**

14:15 - 14:35

Main building - Ground floor

Coffee Break

14:35 - 16:00

Characterization 4

Chairman
I. Cora

14:35	Defect engineering and tunning the band gap of Ga2O3	**F.-A. Selim**
15:05	Implantation for polymorphic transformation in Ga2O3: thermal evolution and luminescence	**S.-B. Kjeldby**
15:20	ScAlMgO4 as a promising substrate for future optoelectronic devices	**T. Stefaniuk**
15:35	Cathodoluminescence of epitaxy lateral overgrowth of a-Ga2O3	**M. Maruzane**

16:00 - 17:15

Thin films and Nanostructures II

Chairman
L. Liu

16:00	SnPd Shell Modulation for the Enhanced ORR Performance of Pt-Clusters Decorated CoOx@SnPd Core-Shell Nanocatalyst	**M. Cheng**
16:15	Polyaniline/VS2 Composite with Nano-wired Morphology for All-solid-state Supercapacitor and Zinc-ion Battery Applications	**S. Zafar**
16:30	Tuning the electronic properties of Vander Waals heterostructures by varying interface terminations	**A.-A. Sasikala Devi**
16:45	Tin (II) chloride salt melts as non-innocent solvents for the synthesis of low-temperature nanoporous oxo-carbons	**X. Zheng**

16:00 - 17:30

Structural and Opto-electronic Characterisation of Nanocomposites

Chairman
A. Ardalan
A. Hartschuh

16:00	Brownmillerite/Perovskite Oxide Nanocomposite Thin Films: Growth, Electronic Structure and Spectroscopic Studies	**A. Khare**
16:30	Highly pure nanocomposites of monochiral SWCNTs and conjugated polymers	**D. Janas**
16:45	Smart graphene-based cement composites: impedance spectroscopy study	**M. Safuta**
17:00	Multi-layered Thermoplastic Polyurethane Nanocomposites with Spinel Ferrite Nanoparticles and Graphite for Electromagnetic Interference Shielding Application	**N.-H. Wilson**
17:15	Excellent Electromagnetic Wave Absorption of Fe3O4:MoS2 Hybrid Composites	**M. Akyol**

16:00 - 17:30

Electronic applications 2

Chairman
D. Janas
Y.-K. Mishra

16:00	Development of surface modified carbon material electrode for EDLC application	**A. Jain**
16:30	Resistive switching in RRAM structures based on hydrothermally grown CuO thin films	**M. Ozga**
16:45	Piezo/photo-electricity of SbSI nanowire heterostructure	**B. Nowacki**
17:00	Subfield Addressing of Ring-Shaped MEMS Shutter Arrays with Polygonal Structures	**R. Donatiello**
17:15	Redox-based Resistive Switching in Polyoxometalate Memory Devices	**E. Gerouville**

16:00 - 17:30

Advanced Applications

Chairman
P. Cataldi
A. Stelson

16:00	Microwave Microfluidics for Biotechnology	**A. Stelson**
16:30	Smart and Sustainable Bio-Composite Facesheets for Aerospace Interiors	**M. Khalifa**
16:45	Cork embedded with silver-lignin nanoparticles as an additive for adsorption filters for tertiary wastewater treatment	**J. Blair**
17:00	Biodegradable, Self-Healing, Recyclable, Electrically Conductive Vitrimer Coating for Soft Robotics	**P. Cataldi**
17:15	Development of biodegradable glucose sensors utilizing printed nanocellulose-based composites	**D. Batet**

16:00 - 17:30

Biomaterials & Polymers for Biomedical Applications

Chairman
J. Adam
G. Malandrino

16:00	The Last Frontier: Biomaterials that Help Human Health and Save the Environment	**T. Webster**
16:30	Surface Modified Drug Eluting Magnesium Based Biodegradable Porous Scaffold for Treating Bone Defects	**D. Lahiri**
16:45	An optimized Model of a Functional Bone Scaffold for Critical-Sized Defects: Modeling and Experimental Characterization	**L. Tayebi**
17:00	Antibacterial and Cytotoxicity Potentials of Metformin and Ciprofloxacin Based Nano-Sized Cu(II) Complexes: Experimental and Computational Study	**M. Alem**
17:15	Electrochemical analysis and numerical modeling of wearable electrodes for iontophoretic transdermal drug delivery	**M. Rafie Jirdehi**