

CONFERENCE PROGRAMME



18th - 21st September

€·MRS 2023 Fall Meeting

Conference and exhibition held at the Main Campus of the
Warsaw University of Technology
Plac Politechniki 1 - Warsaw, Poland



European Materials
Research Society



Warsaw University
of Technology



Polish Materials
Science Society



Institute of Physics
Polish Academy of Sciences



A Cell Press journal



Lukasiewicz
Institute of Microelect
and Photonics

CONFERENCE PROGRAMME

18 - 21 September



2023 FALL MEETING

Beatrice FRABONI

University of Bologna
Department of Physics and Astronomy
Italy



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TU Dresden
Institute for Materials Science
and Max Bergmann Center of Biomaterials
Germany

Marek GODLEWSKI

Institute of Physics
Polish Academy of Sciences
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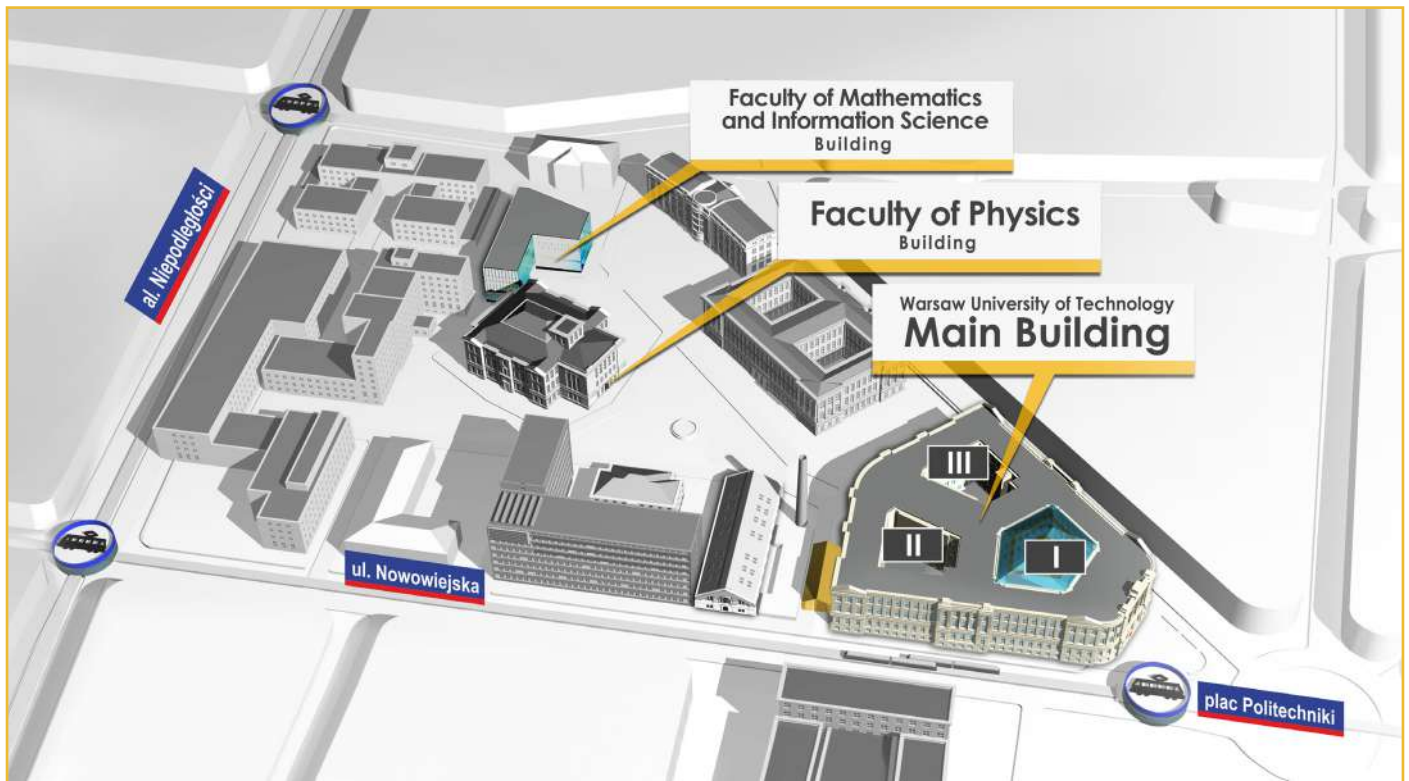


PAUL SIFFERT
General Secretary
Past President (1983-1988)

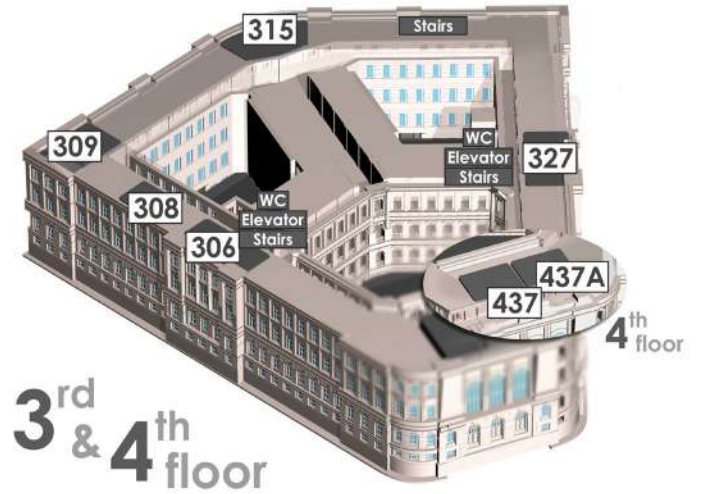
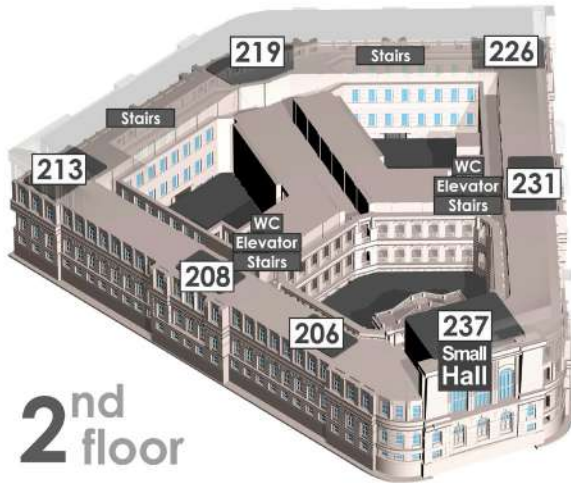
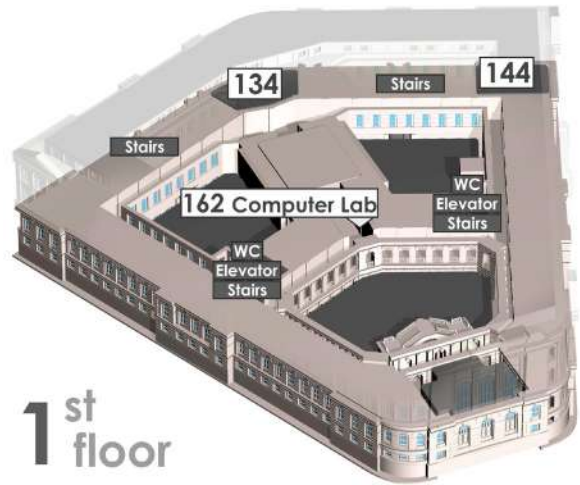
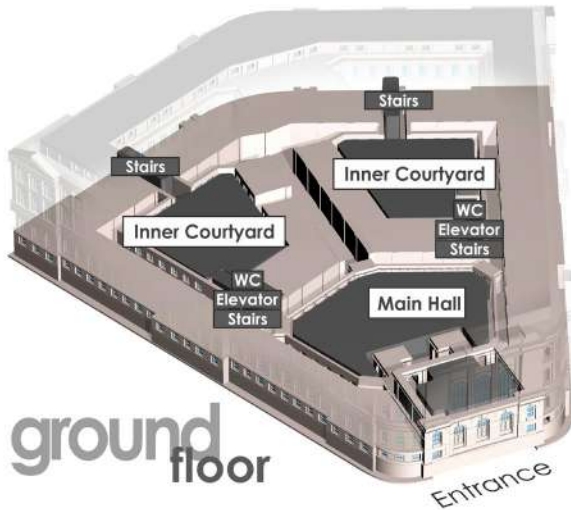
E-MRS Headquarters
France



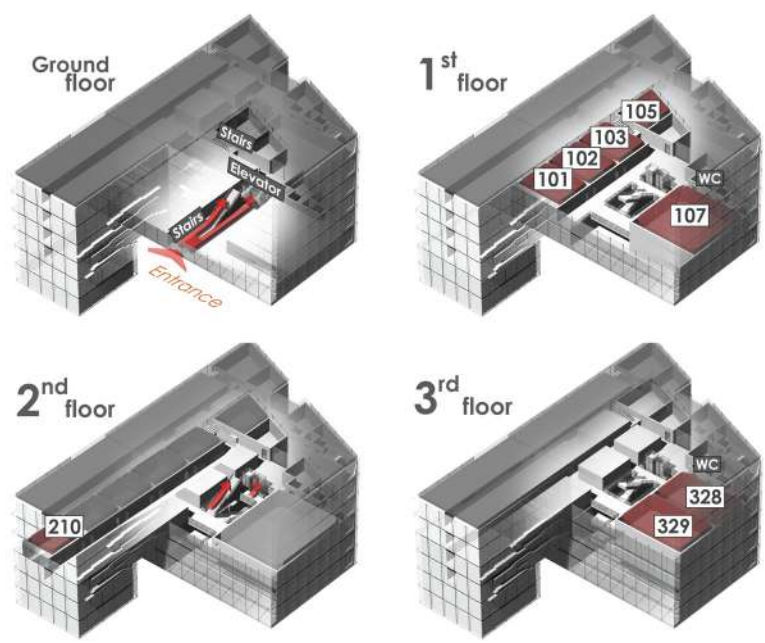
CONFERENCE VENUE



MAIN BUILDING



FACULTY OF MATHEMATICS AND INFORMATION SCIENCE



FACULTY OF PHYSICS



Wednesday, 20 September 2023 - Main Hall

- 9:15 Introduction - Conference Organizers
- 9:25 Welcome address by the Rector of the Warsaw University of Technology
- 9:30 Welcome Address by E-MRS President
- 9:35 Laudation and Presentation of the Jan Czocharlski Award to Prof. Yury Gogotsi

- 9:50 **Czocharlski Award laureate - Prof. Yury Gogotsi,**
A.J. Drexel Nanomaterials Institute and Department of Materials Science and Engineering
Drexel University, Philadelphia, PA, 19104, USA

How MXenes Expand and Change the Nanomaterials World



- 10:35 **Joachim Maier**
Max Planck Institute for Solid State Research,
Physical Chemistry of Solids, Stuttgart, 70569, Germany

Point Defect Chemistry: The Powerful Basis of Energy Materials Research



- 11:20 **Christoph J. Brabec**
Institute of Materials for Electronics & Energy Technology (i-MEET), Department of Materials Science
and Engineering, FAU, Erlangen, Germany and Helmholtz-Institute Erlangen-Nürnberg (HI ERN)
Forschungszentrum Jülich, Erlangen, Germany

Discovery and Acceleration of Emerging Photovoltaics



INFORMATION AND COMMUNICATION TECHNOLOGIES

A Integration of advanced materials on Silicon: from classical to neuromorphic and quantum applications

ENERGY AND ENVIRONMENT

B Advanced catalytic materials for (photo)electrochemical energy conversion IV

C Perovskites: from materials science to devices

D Nuclear materials under extreme conditions II

E Ultra wide bandgap semiconductors for energy and electronics (UWBS2E)

F Advanced ceramics for environmental remediation

MANUFACTURING

G Ultra-doped semiconductors by non-equilibrium processing for electronic, photonic and spintronic applications

H Ferroelectric HfO₂ and ZrO₂-based thin films

I Synthesis and characterization of functional nanocomposite materials

J Exploring the potential of bidimensional materials for energy and optoelectronics

K Smart materials for nanoelectronics and nanophotonics

L Frontiers in Carbon science and technology

M In-device materials for on-chip and flexible energy storage: technologies, designs and integrations

N Sustainable advanced and multifunctional polymer based materials for sensor and actuators, energy and environmental applications

HEALTH

O Progress in fundamental, functional material and health aspects of melanins and related materials

P New directions in 2D and 3D bionanomaterials: immunology, mechanobiology, cancer

- Q** Functional materials for energy and health solutions: modeling and characterization
- R** Neutron and synchrotron x-ray methods and applications in engineering materials and processes
- S** Metal Halide Perovskites for photonic applications: from fundamentals to devices
- T** Non-linear and dynamic thermal transport: modeling, thermo-materials, devices and applications
- U** Defect-induced effects in low-dimensional and novel materials
- V** Piezoelectric polar oxides
- W** Spin-dependent phenomena in semiconductors, topological and two-dimensional materials
- X** Topological textures in antiferroic and ferroic materials
- Y** Quantum Nanomaterials - NFFA Europe Pilot Symposium

GENERAL TIMETABLE

Symposium symbol	Symposium location		Monday September 18 th	Tuesday September 19 th	Wednesday September 20 th	Thursday September 21 st
Symposium A	Main Building	437	09:00-17:30 (1)	09:00-17:45	14:00-17:30	
Symposium B	Main Building	208	09:00-17:40 (1)	09:00-17:35 (2)	13:45-17:45	09:00-17:00
Symposium C	Main Building	231	08:45-17:30 (1)	09:00-17:30	14:00-16:45	09:00-15:30
Symposium D	Main Building	226	09:00-17:35	09:00-17:05 (2)		
Symposium E	Main Building	144	08:55-17:15 (1)	09:00-17:15 (2)	14:00-17:15	09:00-16:00
Symposium F	Main Building	206		14:00-18:15 (2)	14:00-18:00	
Symposium G	MINI Building	101	14:00-17:30	09:00-17:30 (2)	14:00-17:15	
Symposium H	Main Building	437a	11:30-17:30 (1)	09:00-17:30	14:00-17:30	
Symposium I	Main Building	315	08:45-17:30 (1)	08:30-17:30 (2)	14:00-18:00	08:30-17:15
Symposium J	Main building	134	09:00-17:30	09:00-17:30 (2)	14:00-17:30	
Symposium K	Main Building	309	08:00-18:00	08:00-17:30 (2)	14:00-17:30	08:30-17:30
Symposium L	Main Building	219	9:00-15:30	09:00-17:30 (2)	14:00-17:30	09:00-12:30
Symposium M	MINI Building	105	09:00-17:30 (1)	09:00-12:45		
Symposium N	Main Building	306	09:00-17:45	09:00-17:30 (3)	14:00-17:30	09:00-17:30
Symposium O	MINI Building	105		14:00-17:00 (3)	14:00-17:15	
Symposium P	Main Building	213	09:00-17:30	09:00-17:30 (3)	14:00-17:35	
Symposium Q	MINI Building	107	09:00-17:30	09:00-18:00	14:00-18:15	08:30-17:30
Symposium R	MINI Building	327	09:00-17:15 (1)	09:00-17:30		
Symposium S	MINI Building	103		08:50-17:15 (3)	14:00-17:30	09:00-12:30
Symposium T	MINI Building	210	09:00-17:30 (1)			
Symposium U	MINI Building	102	09:00-17:30 (1)	09:00-15:30	14:00-17:30	
Symposium V	MINI Building	210		09:00-15:15 (3)		
Symposium W	Main Building	308	14:00-17:30	09:00-17:10	14:00-17:30	
Symposium X	MINI Building	329	09:00-17:30	09:00-17:30	14:00-17:30	09:00-15:30
Symposium Y	Main Building	206	14:00-17:20	09:00-12:30		
Poster Session*	Physics Building - Aula		(1) 17:30-19:30	(2) 17:30-19:30		
	Main Building Small Hall (237)			(3) 17:30 -19:30		

* Poster Session 17:30-19:30 but may vary depending on symposium timing

	Location		Monday September 18 th	Tuesday September 19 th	Wednesday September 20 th	Thursday September 21 st
Plenary Session	Main Building Main Hall				09:15-12:30	
Thesis Competition	Main Building	308a	17:00-19:00			
Conference reception, Young Researcher & Thesis Competition Awards	Main Building Main Hall				18:00-21:00	
Computer Lab - Main Building 162						
LUNCH - Main Building ground floor - I and area II, III						



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Symposium Sponsor



Université de
Sherbrooke

Symposium A

Sessions: Room 437 | Main Building
Poster Session: Aula | Physics Building

INFORMATION AND COMMUNICATION TECHNOLOGIES:

INTEGRATION OF ADVANCED MATERIALS ON SILICON: FROM CLASSICAL TO NEUROMORPHIC AND QUANTUM APPLICATIONS

Symposium organizers:

Abderraouf **BOUCHERIF** - University of Sherbrooke

Andriy **HIKAVYY** - IMEC

Jacopo **FRIGERIO** - Physics Department of Politecnico di Milano

Katarzyna **HNIDA-GUT** - IHP GmbH Innovations for High Performance Microelectronics
Leibniz-Institut für innovative Mikroelektronik

Monday, 18 September 2023

		NEUROMORPHIC I	A01
09:00	Emergence of the highest mobility holes in a 2D system epitaxially grown on a silicon wafer Maksym MYRONOV		239
09:30	Wafer-scale 2D Materials Analog Resistive Memory Arrays for Monolithic 3D In-Memory Computation Baoshan TANG		1160
09:45	Large area pulsed laser deposition of memristive Pr _{0.7} Ca _{0.3} MnO ₃ heterostructure for neuromorphic computing Max BUCZEK		760
10:00	VO ₂ stabilization on Si for memristor in neuromorphic computing applications Swayam SAHOO		674
10:15	Relaxor ferroelectrics for mimicking biological synapses Long CHENG		630
10:30	Coffee Break		

2D MATERIALS AND REMOTE EPITAXY **A02**

11:00	MOVPE van der Waals growth of h-BN and Heterointegration of III-nitrides. Suresh SUNDARAM		1427
11:30	Integration of HfO ₂ thin films on Si via quasi van der Waals growth on graphene Urška TRSTENJAK		299
11:45	The use of h-BN based inkjet-printed ReRAM for security applications Albert CIRERA		835
12:00	Wafer-scale Hexagonal Boron Nitride Materials on Transition Metals and SiO ₂ Huanyao CUN		212
12:30	Lunch		

PHOTONICS I

A03

14:00	Stress-free Virtual InGaN Substrate for μ -display Applications Carole PERNEL	565
14:30	A theoretical analysis on the bulk photovoltaic effect in strained microstructures Ignatii ZAITSEV	1261
14:45	Self-assembly of silicon color centers via ultra-low temperature molecular beam epitaxy Johannes ABERL	1647
15:00	Photonic Properties of Self-Assembled Semiconductor Microstructures Jacopo PEDRINI	1476
15:15	Strategies for stable cycling of low-cost Silicon microparticulates for next generation lithium-ion batteries Quan-Hong YANG	1516
15:30	Coffee Break	

LIFT-OFF AND TRANSFER OF THIN FILMS

A04

16:00	Investigation of μ -Thin InP Single Crystals for Heterogeneous Integration of III-V on Si via Micro-Transfer-Printing Karoline STOLZE	1018
16:30	Adhesive-free bonding for hetero-integration of InP based coupons micro-transfer printed on SiO ₂ into CMOS backend for Si photonics application on 8" wafer platform Ketan ANAND	1113
16:45	Lift-off process of monocrystalline Ge membranes: towards optoelectronic device integration on Si platform Tadeáš HANUŠ	521
17:00	Use of 2D ZnO Layers as Sacrificial Templates for Epitaxial Lift-off of YSZ Thin Films David ROGERS	1058
17:15	Porous Ge template by Fast Bipolar Electrochemical Etching and thermal annealing for III-V materials integration on Si Laurie MOUCHEL	584

	POSTER SESSION	AP
17.30	Investigating the impact of working pressure on the ablation process for AZO thin film fabrication Elena-Isabela BANCU	01_1624
17.30	Threshold phenomena in ultrashort laser irradiated silicon Iaroslav GNILITSKYI	02_1619
17.30	Efficient design strategy of nanoscale Tunnel-FET using optimized channel binary alloys Faycal DJEFFAL	03_1236
17.30	Progress towards a solution-derived (Ba,Ca)(Ti,Zr)O ₃ film on a Si-based platform as a lead-free alternative. Hannes RIJCKAERT	04_1127
17.30	Solution-derived Calcium Strontium Barium Niobate thin layers: a novel ferroelectric in photonics Laura VAN BOSSELE	05_862
17.30	WSe ₂ FETs with Floating Gate Memory for V _{th} and Current Control Jaeryong SIM	06_613
17.30	Effect of Rapid Thermal Annealing on the Resistive-Switching Characteristics of Sputtered TiO _x Active Layers for RRAM Seoyeon AN	07_866
17.30	Silicon Nanowires Deposited with Silver Nanoparticle as Next Generation Tunable Photovoltaic Cells Savita RANI	08_789
17.30	Cuttlefish eye-inspired artificial vision for high-quality imaging under uneven illumination conditions Min Su KIM	09_772
17.30	Ambipolar Flash Memory Device with Dual Floating Gate for Bidirectional Threshold Voltage Control Chung Hwan YANG	10_421
17.30	Enhancement of electrical properties for Sol-Gel processed Amorphous In-Ga-Zn-O Thin Film Transistors by Ozonated Water Giyoong CHUNG	11_395

17.30 Improvement of 2D Material-Based Transistors Using Multi Gate Engineering
Jung Yeon LEE

12_243

Tuesday, 19 September 2023

		GeSn	A05
09:00	Reduced Pressure - Chemical Vapor Deposition of intrinsic and in-situ doped GeSn/SiGeSn heterostructures for nanoelectronics and optoelectronics Jean-Michel HARTMANN		124
09:30	EXAFS Analysis of MBE-grown GeSn heteroepitaxial layers Sliman GOUGAM		940
09:45	Performance analysis of GeSn based photodetectors operating in 2um band at low temperature. Radhika BANSAL		839
10:00	Deposition of Ge-capped and uncapped Sn-rich islands by Molecular Beam Epitaxy (MBE) Ahsan HAYAT		1435
10:15	A comprehensive analysis of the thermo-opto-mechanical properties of GeSn optoelectronic devices Costanza Lucia MANGANELLI		1259
10:30	Coffee Break		

		GERMANIUM ON SILICON	A06
11:00	Germanium-on-Silicon dual-band photodetectors for imaging and spectral analysis applications Andrea DE IACOVO		393
11:30	Selective Epitaxy of Germanium by Reduced Pressure Chemical Vapor Deposition: Effect of Area Growth Size on Morphology, Strain, and Optical Emission Diana RYZHAK		198
11:45	Advanced process for the fabrication of defect-free Ge-rich SGOI layers Anne-Flore MALLET		1059
12:00	Hybrid time-frequency domain studies of acoustic phonons with pumped Brillouin Light Scattering Anuj DHIMAN		1644

12:15 Hybrid Metallic-Dielectric Al/Si/Ge Optical Metasurface for Wavelength-Selective Photodetection **1203**
Paul OLEJNIK

12:30 Lunch

NEUROMORPHIC II A07

14:00 A depletion mode single-hole spin qubit in Ge **405**
Jaime SAEZ-MOLLEJO

14:30 From Plastic to Elastic Relaxation in SiGe Microcrystals **1492**
Andrea BARZAGHI

14:45 Ultra-low-temperature epitaxy: Novel defect-free group-IV nanolayers of vastly extended thickness and their applications **1623**
Andreas SALOMON

15:00 Spin-dependent transport in dopant network processing units **326**
Fabiana TAGLIETTI

15:15 Enhancing the temporal stability of superconducting resonators: Passivation of superconducting surfaces with self-assembled monolayers **868**
Harsh GUPTA

15:30 Coffee Break

FOCUS ON MATERIALS A08

16:00 Material-centric-strategies of ML and DL packages for programability of developers **1207**
Sunghoon KIM

16:30 Study of the electrical and structural properties of Ru thin films annealed by Microsecond UV Laser Annealing for future BEOL interconnections **954**
Richard DAUBRIAC

16:45 Selective chemical vapor deposition of Cu using CuI-precursor for fine structured metallization **590**
Gento TOYODA

17:00	Manufacturing of large area thin films through PLD Mihai SOPRONYI	1246
17:15	Reconstructed Porous Ge mediated Detachable Ge membrane Ahmed AYARI	583
17:30	Terahertz time-domain and time-resolved spectroscopic studies of correlated La _{0.3} Sr _{0.7} TiO ₃ epitaxial thin film Anagha PREMARAJ	552

Wednesday, 20 September 2023

PHOTONICS II A09

14:00	Mid-Infrared photonics circuits based on graded index Silicon Germanium waveguides Delphine MORINI	97
14:30	Scalable fabrication of silicon-based telecom quantum emitters upon non-stationary thermal treatment Greta ANDRINI	588
14:45	Phase Transformation in nanostructures for integration of hexagonal 2H-SiGe Theo VAN DEN BERG	607
15:00	Modelling of an intersubband quantum confined Stark effect in Ge quantum wells for mid-infrared photonics Stefano CALCATERRA	1554
15:30	Coffee Break	

INTEGRATION OF III-Vs ON SILICON A10

16:00	Epitaxial integration of mid-infrared III-V devices on group-IV substrates Eric TOURNIÉ	94
16:30	Electric-field-assisted phase switching in GaAs nanowires Qiang YU	1091

16:45	Monolithic integration of waveguide-coupled III-V photodetectors on silicon Cristina MARTINEZ-OLIVER	544
17:00	Continuous Wave Lasing from Individual InAs Nanowires Benjamin HAUBMANN	115
17:15	Low-cost transistor-based biosensor for real-time specific and label-free sensing of Alpha-Fetoprotein from ultra-small samples of diluted serum Soumadri SAMANTA	659



2023 Fall Meeting

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Symposium Sponsors



Symposium B

Sessions: Room 208 | Main Building
Poster Session: Aula | Physics Building

ENERGY AND ENVIRONMENT:

ADVANCED CATALYTIC MATERIALS FOR (PHOTO)ELECTROCHEMICAL ENERGY CONVERSION IV

Symposium organizers:

Byungha **SHIN** - Korea Advanced Institute of Science and Technology (KAIST)

Joachim **JOHN** - Interuniversity MicroElectronic Centre (IMEC)

Lifeng **LIU** - International Iberian Nanotechnology Laboratory (INL)

Monday, 18 September 2023

ELECTROCATALYSIS I

B01

9:00	Advanced Materials and Processes for Climate Technology Solutions: an Industry Perspective Alexander CRUZ	253
9:30	Ab initio design of nanomaterials with applications in electrocatalysis Giancarlo CICERO	1135
9:50	Corrosion-resistant and Electrically Conductive Oxide Coatings for Metal Bipolar Plates for PEM Electrolyzers David KOLENATÝ	428
10:05	Novel Carbon Heterostructures for Electrocatalytic Transformations Christian SCHRÖDER	1441
10:20	Soft-templated, Mesoporous Co ₃ O ₄ Thin Films for Electrocatalysis of the Oxygen Evolution Reaction Qingyang WU	967
10:30	Coffee Break	

PHOTOELECTROCATALYSIS I

B02

11:00	The role of excess Bi on the properties and the performance of BiFeO ₃ thin film photocathodes Anja BIEBERLE-HÜTTER	365
11:30	Chalcogenide Photocathodes for Photoelectrochemical Solar Fuel Generation Sudhanshu SHUKLA	701
11:50	Nitride Nanowire Lifetime and Efficiency Enhancement for Photoelectrochemical Water Splitting Patrick MURPHY	722
12:05	BiVO ₄ photoanodes enhanced with metal phosphide co-catalysts: relevant properties to boost photoanode performance Junyi CUI	288
12:30	Lunch	

ELECTROCATALYSIS II

B03

14:00	Transition Metal Oxide Electrocatalysts: Insights into the Activity Dependence on Composition and Coordination David FERMIN	447
14:30	Impact of material choices on the operational stability of low temperature direct ammonia fuel cells Sonya CALNAN	1143
14:50	Routes toward efficient electrochemical green ammonia cycle: TELEGRAM H2020 project Stefania M. S. PRIVITERA	1010
15:05	Sensitivity Analysis of Direct Ammonia Fuel Cell Operation Using Multiphysics Simulations Erno KEMPPAINEN	537
15:20	Testing Electrochemical Devices for a Green Ammonia Cycle under Fluctuating Conditions Martin Florian SEIDLER	287
15:30	Coffee Break	

PHOTOELECTROCATALYSIS II

B04

16:00	Extending the Success of Halide Perovskites from Solar Cells to Photoanodes and Photocatalysts for Solar Fuels Salvador ESLAVA	1366
16:20	Solution based synthesis of inorganic materials for (photo)electrocatalysis towards water splitting and CO2 reduction An HARDY	388
16:40	Generating added value products using photo and electrocatalysis Francisco FABREGAT-SANTIAGO	1150
16:55	Effect of SiOx defects on the functional properties of Si-Transition Metal Oxides photoanodes for water splitting Paola RAGONESE	1610
17:10	Methyl Germanane Enhanced 3D-Printed Nanocarbon Electrode as a Photoelectrocatalyst for Hydrogen Evolution Reaction Radhika NITTOOR-VEEDU	1371

17:25 Fluoride-Free Etched MAX Phase on 3D-printed Electrode for Photoelectrochemical Hydrogen Generation 995
Shaista NOUSEEN

		POSTER SESSION	BP01
17:40	Photocatalytic Oxygen Evolution Reaction Catalyzed by Crystalline Cu-coordinated Perylene Diimide Assemblies Sang-Yup LEE		01_31
17:40	Electrochemical reduction of Copper catalyst on band edge modulated p-Silicon photoelectrode Sherina HARILAL		02_155
17:40	Band bending in Cu-Cu ₂ O-Cu ₃ N nanocomposite and green photocatalysts for Azo Dyes degradation Patricio PAREDES		03_383
17:40	Natural sunlight-driven dual organo-photo redox reaction mediated by a metal-free porous organic polymer: a step toward sustainable carbon neutrality Neha SAINI		04_482
17:40	Energy-saving hydrogen production enabled by defective Ru-doped α -MnO ₂ nanorods Zhipeng YU		05_497
17:40	Synthesis and Characterization of Iron-Doped Lithium Niobate for Hydrogen Production via UV-Assisted Water Splitting Felipe AMORIM BERUTTI		06_579
17:40	Copper Nanoparticle Intercalated TiO ₂ Thin Film with Enhanced Photocatalytic Activity Tina SEBASTIAN		07_616
17:40	Advancing Gold Recycling: Electrochemical Systems and Dissolution Kinetics Cornelia DIAC		08_637
17:40	The impact of Ge doping on hematite photoanodes: a study of hematite grain boundaries and FTO/hematite interfaces Tanna FIUZA		10_666
17:40	Spin-coating deposition of TiO ₂ -rGO thin films with enhanced photoelectrochemical activity Lazzat SERIK		11_668
17:40	The impact of different capping ligands on the hematite photoanodes prepared by the CND process Tanna FIUZA		12_671

17:40 Energy-saving hydrogen production through asymmetric seawater electrolysis
Lifeng LIU

13_1658

Tuesday, 19 September 2023

ELECTROCATALYSIS III

B05

9:00	Upscaling CO2 Electroreduction Jan VAES	1657
9:30	A density functional theory-based screening of efficient 2D catalysts for CO2 reduction reaction Debolina MISRA	1444
9:45	Study on the Structure vs Activity of Designed Non-Precious Metal Electrocatalysts for CO2 Conversion Wangchao YUAN	142
10:00	High Entropy Alloys for Aqueous Electrocatalytic N2 Reduction: Utilizing Deep Neural Networks and a Probabilistic Approach to Quantify Competitive Relations Rafael BARROS NEVES DE ARAUJO	964
10:15	Low loading gold deposition on Ni foam for nitrogen reduction reaction Rachela Gabriella MILAZZO	989
10:30	Coffee Break	

CHARACTERIZATION

B06

11:00	Operando optical spectroscopy analyses of (photo)electrochemical water oxidation kinetics James DURRANT	111
11:30	Photoelectron Spectroscopy Characterisation of High Entropy Sulphide Materials as Electrocatalysts for Oxygen Evolution Reaction Kerry HAZELDINE	1006
11:45	A study on the electrochemical properties of metal oxide electrocatalyst for alkaline water electrolysis Gahyeon LEE	374
12:00	Predicting the interaction of CO with bimetallic Cu/M surfaces via DFT-based Machine Learning Models Mattia SALOMONE	479

12:15	Methanol Sensing Behavior Analysis of Pt-Sn/C Based Micro DMFC Muthuraja SOUNDRAPANDIAN	1161
12:30	Exploiting immobilization, re-dissolution and degradation resulting from ancillary ligands of molecular complexes in water oxidation catalysis József Sándor PAP	1531
12:45	Lunch	

PHOTOELECTROCATALYSIS III B07

14:00	Hands-on public funding to facilitate innovation for solar fuels & chemicals Carina FABER	1539
14:20	The grand challenge of solar energy conversion into fuels and chemicals Joanna KARGUL	1537
14:40	In ₂ S ₃ /In ₂ O ₃ /Au nanocomposite as highly active visible light photocatalytic for seawater splitting Ying Ru LIN	238
14:55	ZnO-GO; An efficient catalyst for photodegradation of Sandalfix orange P3R and Sandalfix Turq. blue PG dyes under irradiation of sunlight Muhammad SAEED	149
15:10	Photoelectrochemical Water-splitting device based on a halide perovskite solar cell protected by a single crystal TiO ₂ Byungha SHIN	1655
15:30	Coffee Break	

ELECTROCATALYSIS IV B08

16:00	Enhancing the electrocatalytic activity of Pt in hydrogen evolution reaction through 2D MoS ₂ interaction and size control Tamás OLLÁR	1580
16:20	Efficient and stable saline water electrolysis assisted by small molecule electro-oxidation Zhipeng YU	495

16:35	Strain engineering of 2D BeN ₄ Dirac material and Janus MoS ₂ WSSe lateral heterojunction towards enhanced catalytic applications Rajeev AHJUA	974
16:50	Next generation heterogeneous catalysis: a conceptual design of Single Nanoparticle Reactor Tsan-Yao CHEN	642
17:05	Oxygen Reduction Reaction on Pt / Transition Metal High Entropy Alloy Single Crystal Model Catalyst Surface Toshimasa WADAYAMA	233
17:20	Penta nitrogen coordinated cobalt single atom catalysts with oxygenated carbon black for electrochemical H ₂ O ₂ production Wenjun ZHANG	15

POSTER SESSION BP02

17:35	Exploiting GaN nanowire arrays for selective photoelectrochemical reduction of CO ₂ Mahsa BARZGAR VISHLAGHI	01_941
17:35	Investigating the Synergistic Effects of FeNi-Oxide Nanoparticles as Water Electrolysis Catalysts: A Multi-Technique Characterization Approach Heydar HABIBIMARKANI	02_1034
17:35	Single-Phase CoCrFeMnNi High-Entropy Alloys for Lithium-Mediated Electrochemical Nitrogen Reduction Jakob THYR	03_1220
17:35	Impact of grain boundaries in Pt-Co nanowires on the oxygen reduction reaction Jung Ki KIM	04_1268
17:35	Enhancing electrooxidation efficiency for ammonia by Pt nanocubes decorated with single-atom metal catalysts Juhyun CHO	05_1269
17:35	Enhancing the performance of anion exchange membrane water electrolysis with Ni nanoplates encapsulated by β-NiOOH Mrinal Kanti KABIRAZ	06_1381
17:35	Gentle electrodeposition of 'CuO' on α-Fe ₂ O ₃ nanoarrays using Cu-peptides for efficient photoelectrocatalytic water oxidation Tímea BENKÓ	07_1456
17:35	Thickness-Dependent Photoelectrochemical OER Water Splitting Performances of Perovskites Thin Films Florin ANDREI	08_1599

17:35	Tunnel oxide passivated contact on silicon photoelectrode for BiVO ₄ -Si tandem photoelectrochemical water-splitting device Byungha SHIN	09_1656
17:35	Atomically Dispersed Dinuclear Iridium Active Sites for Efficient and Stable Electrocatalytic Chlorine Evolution Reaction Lifeng LIU	10_1659
17:35	Hydrothermal synthesis of Mo and Fe sulfides for the HER in PEM water electrolysis Naomi BILLIET	12_854
17:35	Development of heterojunction between TiO ₂ and g-C ₃ N ₄ for visible light assisted degradation of dyes Muhammad SAEED	13_150
17:35	Understanding the charge transfer processes in Au/CeO ₂ photocatalyst during glucose oxidation: a first path towards the development of biomass fueled photo fuel cells Gwladys POURCEAU	13_1716

Wednesday, 20 September 2023

PHOTOELECTROCATALYSIS IV

B09

13:45	Advanced Properties of Cubic Silicon Carbide and Graphene for Solar-to-Fuel Conversion Jianwu SUN	1219
14:05	Integrated light harvesting systems for scalable artificial photosynthesis Virgil ANDREI	62
14:25	Electronically Defective Tellurium-Doped TiO ₂ Catalysts for Enhanced Photoelectrochemical Water Splitting Samar M. FAWZY	695
14:40	Light harvesting in plasmonic and nanostructured 2D system for advanced photochemical applications Matteo GARDELLA	1243
14:55	Investigating solar degradation mechanisms of the Ta ₃ N ₅ photoelectrode by operando ambient pressure X-ray photoelectron spectroscopy and in-situ transmission electron microscopy Annett THOGERSEN	744
15:10	Recent modification strategies of nanostructured TiO ₂ for enhanced photocatalytic and photoelectrochemical H ₂ generation Ewa WIERZBICKA	419
15:30	Coffee Break	

ELECTROCATALYSIS V

B10

16:00	CuCoSnOx Nanoparticles as Efficient Electrocatalyst for Accelerated Overall Water Splitting Kinjal K JOSHI	1392
16:15	Synthesis and electrochemical properties of nano-composite IrO ₂ /TiO ₂ anode catalyst for SPE electrolysis cell Kang BYEONGSU	903
16:30	Electrochemical Alloying Dealloying Strategy for Enhancement of Bi-Functional Electrochemical Water Splitting in NiFeCoP Nanosheets Krishna H. MODI	1391
16:45	3D Pyrolyzed Carbon Modified with g-C ₃ N ₄ @Ni Electrodeposit for Electrocatalytic Hydrogen Generation Nadira MEETHALE PALAKKOOL	1130
17:15	Generation of Nitrogen for Ammonia Synthesis by Electrochemical Oxygen Depletion Dominik SACHSE	499
17:30	Pt/Ru nanowires catalysts for enhanced hydrogen evolution activity in alkaline Media Jingjing YAN	1005

Thursday, 21 September 2023

THIN FILMS AND NANOSTRUCTURES I

B11

9:00	Nanostructured spinel ferrite MOCVD films for water splitting Matteo BOMBACI	1118
9:15	Metal exsolution dynamics and thermal stability limitations of exsolved nanoparticles at complex oxide surfaces Moritz Lukas WEBER	303
9:30	A low temperature thermal dewetting approach of metal nanostructures on PECVD grown carbon nanostructures for the conversion of CO ₂ to ethanol Tobias WEIDAUER	942
9:45	Enhanced Electrochemical Hydrogenation (ECH) of Benzaldehyde to Benzyl Alcohol on Pd@Ni-MOF by Modifying the Adsorption Configuration Li GONG	1247
10:00	Structural inheritance strategy of MOF derived Copper mediated NiFe double-layered hydroxide nanoprisms electrocatalyst for oxygen evolution reaction in photovoltaic-coupled alkaline water electrolysis Debabrata CHANDA	593

10:15 Ionic tuning of exciton and charge carrier properties in (glycolated) organic polymers and their nanoparticles **1013**
Filip PODJASKI

10:30 Coffee Break

PHOTOELECTROCATALYSIS V B12

11:00 Direct observation of interfacial energetics at Ta₃N₅/electrolyte and Ta₃N₅/NiO_x/electrolyte heterojunctions by operando ambient pressure X-ray photoelectron spectroscopy during photoelectrochemical water splitting **629**

Athanasios CHATZITAKIS

11:20 Harvesting Sub Bandgap Energy from Mo Doped BiVO₄ Photoanode to Enhance Photoelectrochemical Reaction via Triplet-Triplet Annihilation Upconversion **541**

Prashanth VENKATESAN

11:35 Enhanced photoelectrochemical response of semitransparent TiO₂ nanotube arrays modified with Ag₂S and Bi₂S₃ via SILAR technique. **864**

Manjunath Veeranna 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 **805**

Neha SAINI

12:05 Modification of TiO₂ by Bimetallic Nanoparticles for Selective Oxidation of Aromatic Alcohols: Photocatalytic Activity of catalyst coated Microreactor **437**

Juan Carlos COLMENARES

12:20 Role of Carbon Nitride Metastable States in Influencing the Photocatalytic Activity Under Solar Irradiation: Kinetics & Theoretical Prospects **199**

Shreya SINGH

12:35 Rh-Ci/HCO₃⁻ homo-/heterogenous dual co-catalyst decorated BiVO₄ photoanode for photoelectrochemical water oxidation. **53**

Adeel MEHMOOD

12:50 Lunch

ELECTROCATALYSIS VI B13

14:00 Bioluminescence-induced photocatalysis on semiconducting oxide nanosheets **812**
Kai KAMADA

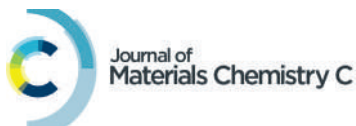
14:15 Redox-active Sn(II) to lead to SnFe₂O₄ spinel as a bi-functional water splitting catalyst **381**
Anubha RAJPUT

14:30	Controlled self-assembly of conductive polymers through surfaces: tailored properties for novel organic (bio-)electronics Dominik FARKA	1211
14:45	Stable in air light-induced Ti ³⁺ co-catalytic centers formation Ewelina SZANIAWSKA-BIALAS	1094
15:00	Synthesis and Characterization of High Surface Area Visible Light Semiconducting Polymeric Carbon Nitride Nanocomposites: Experimental and DFT Study Narayan SOM	892
15:15	Improving biohybrid technologies using diazonium-based covalent molecular wiring strategy Margot JACQUET	1405
15:30	Coffee Break	

THIN FILMS AND NANOSTRUCTURES I B14

16:00	SnPd Shell Modulation for the Enhanced ORR Performance of Pt-Clusters Decorated CoOx@SnPd Core-Shell Nanocatalyst Mingxing CHENG	984
16:15	Polyaniline/VS ₂ Composite with Nano-wired Morphology for All-solid-state Supercapacitor and Zinc-ion Battery Applications Saad ZAFAR	256
16:30	Tuning the electronic properties of Vander Waals heterostructures by varying interface terminations Assa Aravindh SASIKALADEVI	512
16:45	Tin (II) chloride salt melts as non-innocent solvents for the synthesis of low-temperature nanoporous oxo-carbons Xinyue ZHENG	628

Symposium Sponsors



Symposium C

Sessions: Room 231 | Main Building
Poster Session: Aula | Physics Building

ENERGY AND ENVIRONMENT:

PEROVSKITES: FROM MATERIALS SCIENCE TO DEVICES

Symposium organizers:

Chittaranjan **DAS**

- FZ Jülich

Clara **ARANDA**

- University of Valencia

Daniel **PROCHOWICZ**

- Institute of Physical Chemistry Polish Academy of Sciences

Malgorzata **KOT**
(Main organizer)

- BTU Cottbus-Senftenberg

Monday, 18 September 2023

8:45 Opening

ALL ABOUT PEROVSKITES

C01

9:00	Charaterization and modelling of perovskite solar cells Wolfgang TRESS	850
9:30	VIPERLAB: Unlocking the Potential of Perovskite Single and Tandem Devices through Advanced Research Infrastructures Natalia MATICIUC	1098
9:45	X-ray microscopy characterization of perovskite solar cells at CARNAÚBA/SIRIUS Rodrigo SZOSTAK	246
10:00	Synthesis of BaS ₃ Thin Films for the Facile BaZrS ₃ Thin Film Synthesis: Towards Earth- Abundant Chalcogenide Perovskites Solar Cells. Sumbal JAMSHAD	991
10:15	Ferroelectric perovskites: a promising route for self-powered photodetectors Katarzyna GWOZDZ	1361
10:30	Coffee Break	

CHARGE EXTRACTION AND DOPING

C02

11:00	Inorganic hole transporting materials for stable perovskite solar cells Katarzyna GAWLINSKA-NECEK	634
11:30	Methylammonium lead iodide: n-type doping with metastable samarium ions Zuzanna MOLEND	135
11:45	Role of interaction between tin oxide and lead iodide for improved charge extraction in halide perovskite solar cell. Vikas SHARMA	1604
12:00	Modification of electron transport layer toward efficient and stable perovskite solar cells Joanna KRUSZYŃSKA	234
12:30	Lunch	

IONS, VACANCIES AND OTHER DEFECTS IN PEROVSKITES

C03

14:00	A quantitative model of ion transport in methylammonium lead iodide Roger DE SOUZA	1302
14:30	Ion migration in metal halide perovskite CsPbBr ₃ /Cl ₃ heterojunction nanowire devices studied by operando nano-XPS Liu YEN-PO	85
14:45	A study of photoinduced ion segregation in perovskite solar cells using ultrafast transient absorption spectroscopy Jacek BARANOWSKI	237
15:00	PREVAC Łukasz WALCZAK	
15:15	Impact of structural strain of perovskite epitaxial thin films on their functional properties Nicu Doinei SCARISOREANU	1533
15:30	Coffee Break	

RESISTIVE SWITCHING AND OXIDE PEROVSKITES

C04

16:00	Rational design of redoxed-based memristive devices for neuromorphic computing Alexandros SARANTOPOULOS	859
16:30	Direct observation of resistive switching in MAPbI ₃ using conductive AFM Noushin RASTI	1030
16:45	The Effects of Defects and Domain Wall Orientations on Ferroelectric Switching Dynamics Ralph BULANADI	1083
17:00	Structure Activity Relationship of La _{1-x} NdxCoO ₃ nanostructures Toward Oxygen Electrocatalysis Sami M ALHARBI	694
17:15	BaTiO ₃ characterized at the atomic scale: surface structure and its ferroelectric behavior. Lloren_ ALBONS CALDENTHEY	947

	POSTER SESSION	CP
17:30	A vibrational spectroscopy study on the $[(\text{CH}_2)_2\text{NH}]\text{PbBr}_3$ / $[(\text{CH}_3)_3\text{S}]\text{PbBr}_3$ perovskite compounds for photovoltaic applications Nagia S. TAGIARA	01_116
17:30	Appearance of Room-Temperature Bloch-Siegert shift in CsPbI_3 and Cu-doped CsPbI_3 Quantum Dots at low detuning Ankit SHARMA	02_164
17:30	Perovskite-microcrystalline films on GaAs substrate made of interconnected micron-sized crystals: a new hybrid heterostructure-based photodetectors for future optoelectronics Tarak HIDOURI	03_178
17:30	Lead Free Perovskite based Asymmetric Hybrid Flexible Supercapacitor Ankur YADAV	04_236
17:30	Investigation of magnetodielectric properties in $\text{Pr}_2\text{NiMnO}_6$ Thin film Parvesh CHANDER	05_274
17:30	Domain Analysis of Perovskite Systems Through Phase Field Modelling Ioan-Mihail GHITIU	06_340
17:30	Moisture-triggered crystallization of perovskite nanocrystals at room temperature for heterogeneous photocatalysis Miriam MINGUEZ-AVELLAN	07_435
17:30	Phase Transformation and Growth Mechanism of RF Sputtered Ferroelectric Lead Scandium Tantalate ($\text{PbSc}_{0.5}\text{Ta}_{0.5}\text{O}_3$) Films Sanju GUPTA	08_467
17:30	Characterization of Perovskite Solar Cells with Grain Size Control of $\text{CH}_3\text{NH}_3\text{PbI}_3$ Synthesized by Vapor Phase Process Gota OKADA	09_470
17:30	Combined first-principles and group-theoretical studies of the Jahn-Teller distortion in ferromagnetic Sr_2FeO_4 Guntars ZVEJNIEKS	10_524
17:30	Properties of All-Inorganic $\text{Na}_2\text{MgMnI}_6$ Perovskite for Solar Cell Applications Annelise KOPP ALVES	11_576
17:30	Mechanically-Stacked Four Terminal Perovskite/ InGaAsP Tandem Solar Cell Achieving 27.7% Efficiency Bikesh GUPTA	12_608

17:30	Dicoupling the role of organic and inorganic parts in defining the anisotropic structural characteristics and physical properties of 2D perovskites Jun XI	13_670
17:30	Self-assembled molecule fostering the spatial heterogeneity in highly order for efficient Ruddlesden-Popper perovskite solar cells Jun XI	14_706
17:30	Intensity modulated photocurrent spectroscopy to investigate hidden kinetics at hybrid perovskite-electrolyte interface Hemant RONCHIYA	15_709
17:30	Structure Activity Relationship of La _{1-x} Nd _x CoO ₃ nanostructures Toward Oxygen Electrocatalysis Sami M ALHARBI	16_721
17:30	wide bandgap SnO ₂ :F thin films deposited by RF magnetron sputtering for perovskite solar cells Abdesselam BOULOUFA	17_748
17:30	Optimization of Aluminum Frame Design for Commercialization of Perovskite Tandem Solar Modules: A Deep Learning Surrogate Model Approach Dong-Woon HAN	18_781
17:30	Thermal and Electrical Properties of ZnO-PCBM Composite Layer for p-i-n Perovskite Solar Cells Seongtak KIM	19_792
17:30	Behaviour of ferroelastic and ferroelectric domains in AgNbO ₃ under temperature and stress influence Xi SHI	20_821
17:30	High-performance semi-transparent perovskite solar cells based on 3D-patterned FTO Sucheol JU	21_858
17:30	Optimization of lead free La ₂ NiMnO ₆ based double perovskite solar cells using SCAPS-1D simulation Ubaid Ur REHMAN	22_896
17:30	Low Band Gap 2D Carbon Nitrides as Hole Transport Layer (HTL) to Engineer the HTL/Perovskite Interface Muhammad Nawaz TAHIR	23_979
17:30	Inorganic hole Transport Materials for Organic and Perovskite Solar Cells Alexander CHRONEOS	24_990
17:30	Facile Preparation of Semitransparent and Neutral-colored Perovskite Solar Cells with Laser Patterning Hyong Joon LEE	25_1000

17:30	Performance comparison of metal halide perovskite MAPbBr ₃ X- and γ -ray detectors with different metal contacts Natalia MATICIUC	26_1100
17:30	Enhancing Exciton Confinement in Perovskite Light-Emitting Diodes through Spray-Coating: The Energy-Well Band Structure Approach Jin Kyoung PARK	27_1205
17:30	In Situ Fabrication of Lead-Free Double Perovskite/Polymer Composite Films for Optoelectronic Devices and Anti-counterfeit Printing Jindou SHI	28_1265
17:30	Unveiling the Efficiency Potential: Optimal CH ₃ NH ₃ /Cs Ratio for Enhanced Performance in Lead-Free Perovskite Solar Cells Based on (CH ₃ NH ₃) _x (Cs) _{1-x} 3Bi ₂ I ₉ Composition Mojtaba ATAEI	29_1395
17:30	Enhanced Inverted Perovskite Solar Cells Performance using the SbCl ₃ doped PTAA Hole Transport Layer Seok Yeong HONG	30_1528
17:30	Spectrally Stable and Efficient Pure Blue-Emitting Perovskite Nanocrystal Thin Films for Light-Emitting Diodes Sandeep Kumar GUNDAM	31_1529
17:30	Effect of A-site engineering on the crystal structure and UV light photodetection properties of cesium copper iodide perovskite Jan NAWROCKI	32_1568
17:30	Azahomofullerenes as Novel n-Type Acceptor Materials for Efficient and Stable Perovskite Solar Cells Daniel PROCHOWICZ	33_222
17:30	The carrier densities of perovskite solar absorbers under dark and light conditions Katarzyna GAWLINSKA-NECEK	34_1699
17:30	The role of atomic layer deposited alumina on the perovskite solar cells' stability and efficiency Malgorzata KOT	35_1596
17:30	Understanding the effect of TiO ₂ defects at the perovskite/TiO ₂ interface using soft and hard X-ray PES Chittaranjan DAS	36_1639
17:30	Inorganic-derived Zero-Dimensional Perovskite Induced Surface Lattice Engineering for Efficient and Stable All-inorganic Perovskite Solar Cells Jin Hyuck HEO	37_1643
17:30	The electrical properties of piezoelectric-magneto strictive heterostructure obtained by Pulsed Laser Ablation Valentin ION	38_1629

17:30 Colour-tunable, flexible, semitransparent halide perovskite solar cells for BIPV application.
Vikas SHARMA

39_1602

Tuesday, 19 September 2023

BAND ALIGNMENT AND TANDEM DEVICES

C05

9:00	Insights into perovskite materials and devices from UV photoelectron spectroscopy and related methods Lars KORTE	1314
9:30	Investigation of the band alignment in the 2D/3D Perovskite structure Pia DALLY	1245
10:00	ALD of conformal, transparent conducting SnOx passivation layers for Si/Perovskite Tandem Cell Bireswar MANDOL	1491
10:15	Rational Design of Photoelectrochemical Perovskite-BiVO ₄ Tandem Devices for Scalable Fuel Production Virgil ANDREI	63
10:30	Coffee Break	

STABILITY I

C06

11:00	The evolution of stability over the years in perovskite solar cells: key issues and associated solutions Seckin AKIN	462
11:30	Improving the performance and stability of Sn-based perovskite solar cells Omar E SOLIS	1165
11:45	Various methods for Optimizing Cs ₂ AgBiBr ₆ Perovskite Film Production under Atmospheric Conditions Ismail Cihan KAYA	16
12:00	Pressure Induced Oscillating Band-gap Variation in KBaTeSbO ₆ : Towards Transparent Solar Cell Manasa MANASA G B	376
12:15	Near room temperature growth of Cesium Lead Bromide single-crystal Abdulaziz ALHAZAA	122

12:30 Lunch

		STABILITY II	C07
14:00	Thermal, humidity and photo-degradation study of halide perovskite using in situ characterization techniques Frédéric SAUVAGE		1627
14:30	Enhancing Performance of Sn-Perovskite Solar Cells Iván MORA-SERO		908
14:45	The Influence of the Ionic Liquid BMIMBF ₄ on Thermal Induced Halide Mixing in Mixed Hybrid Perovskites Christopher GREVE		1464
15:00	Phase stability of perovskite oxide materials based on dense bulk electrode for solid oxide fuel cell Jinsil LEE		768
15:30	Coffee Break		

		STABILITY III AND SOLVENTS	C08
16:00	Defect metastability in metal halide perovskites Ivan SCHEBLYKIN		1677
16:30	Fabrication of FAPbI ₃ single-phase perovskite film Via the use of a homogeneous crystallizing agent Weiwei ZUO		1594
16:45	Controllable FAPbI ₃ crystal defects using the strongly coordinating solvent Jaekun LIM		1605
17:00	Antisolvent-free crystallization of Tin Halide Perovskite Giuseppe NASTI		612
17:15	A Facile and Green Route to the Synthesis and Deposition of All Inorganic Perovskite CsPbBr ₃ films on rigid and flexible substrates Lorenzo SIRNA		1279

Wednesday, 20 September 2023

LOW DIMENSION PEROVSKITES

C09

14:00	Engineering light emission of lead-halide perovskite quantum dots for room-temperature classical and quantum technology Simon C. BOEHME	758
14:30	Optimisation of 2D hybrid perovskites for strong light-matter coupling Sara HENDA	1586
14:45	Applications of ligand-free lead halide perovskite nanocrystals prepared by scaffold-assisted method Carlos ROMERO PÉREZ	847
15:00	Perovskite Nanocubes for Mie-Resonant Lasing in Blue and Green Region Sana KHAN	1515
15:15	Liquid crystalline low-dimensional lead halide perovskites Anastasios STERGIOU	679
15:30	Coffee Break	

QUANTUM DOTS

C10

16:00	Advanced Functionalities of Perovskite Quantum Dots Embedded in Porous Scaffolds Miguez HERNAN	346
16:30	Down Converted Sharp Blue and Green Emission in Eu-doped CsPbBr ₃ Quantum Dots for Optical Applications Santosh KACHHAP	681

Thursday, 21 September 2023

PEROVSKITE CRYSTALS

C11

9:00	Advanced applications for perovskite crystals, from macro to nano scales Pablo P. BOIX	988
9:30	Shape Modulation of Lead Halide Perovskite Nanocrystals by Tuning the Metal-Oleate Bond Strength and Binding a Tertiary Amine Zhanzhao LI	247

9:45	Solvent Polarity Dictates the Size of Nanorods and Microrods Self-Assembled from Perovskite Nanocrystals Chien-Yu HUANG	624
10:00	Transient photocurrent response in a perovskite single crystal-based photodetector: A case study on the role of electrode spacing and bias. Vishnu ANILKUMAR	133
10:30	Coffee Break	

OPTOELECTRONIC PROPERTIES OF PEROVSKITES

C12

11:00	The power of combining AC-modulated techniques in the optoelectronic characterization of perovskite solar cells Francisco FABREGAT-SANTIAGO	770
11:30	Exploring Perovskite Thin Film Formation by Machine Learning on In Situ Photoluminescence Data Felix LAUFER	546
11:45	Potential of bismuth-based halide double salts and low-dimensional perovskites for optoelectronic applications Mikael KEPENEKIAN	1292
12:00	Impact of composition on structural and optoelectronic properties of CsSnI ₃ combinatorial thin films Fatima AKHUNDOVA	1470
12:15	Overcoming voltage losses in narrow bandgap perovskites and application in all-perovskite tandem PVs Azhar FAKHARUDDIN	1336
12:30	Lunch	

MXENES AND APPLICATION OF PEROVSKITES

C13

14:15	Performance improvement of MXene-based perovskite solar cells Carlos GRAEFF	455
14:30	MXenes modified interface for two-dimensional hybrid perovskite solar cell Sanjay SAHARE	746

14:45	Chalogenides and perovskites composites for energy applications Pierre Kalenga MUBIAYI	151
15:00	Luminescent zero dimensional inorganic perovskite -photocurable resin composites for scintillator application Mario CALORA	815
15:15	Unravelling the ozone sensing mechanism of all-inorganic metal halide perovskites Aikaterini ARGYROU	1293



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

Symposium D

Sessions: Room 226 | Main Building

Poster Session: Aula | Physics Building

ENERGY AND ENVIRONMENT:

NUCLEAR MATERIALS UNDER EXTREME CONDITIONS II

Symposium organizers:

Céline **HIN**

David **SIMEONE**

Manuel A. **POUCHON**

Valentin **CRACIUN**
(Main organizer)

- Virginia Tech

- CEA, CEN Saclay

- Paul Scherrer Institut

- National Institute for Laser, Plasma and Radiation
Physics, Magurele, Romania and Extreme Light
Infrastructure for Nuclear Physics

Monday, 18 September 2023

STRUCTURAL MATERIALS 1

D01

9:00	Structural nuclear materials for advanced high temperature gas-cooled reactor (HTGR) systems Jana KALIVODOVÁ	1710
9:30	Novel Refractory High Entropy Alloys and Oxide Dispersion Strengthened Alloys for Generation IV Nuclear Reactors Tomasz STASIAK	730
9:50	Low Activation High Entropy Alloys: A new class of radiation resistant materials? Ying ZHOU	1192
10:10	Optimization of the manufacturing process of high entropy alloys for potential nuclear applications Artur OLEJARZ	483
10:30	Coffee Break	

STRUCTURAL MATERIALS 1

D02

10:45	Defects, ordering, segregation, and radiation damage in refractory high-entropy alloys Jesper BYGGMÄSTAR	842
11:05	A Study of Radiation Damage in High Entropy Alloys Using TEM (Transmission Electron Microscopy) with In-Situ Ion Irradiation Shriyar TARIQ	1603
11:25	The importance of nano-characterization in the radiation induced segregation (RIS) phenomena in ferritic model alloys Olivier TISSOT	1703
11:45	The impact of self-ion irradiation and temperature on the plasticity effect in martensitic-ferritic steels as studied by nanoindentation technique Lukasz KURPASKA	978
12:30	Lunch	

MODELLING

D03

14:00	Endurance assessment via atomistic simulations of nanostructured tungsten in a nuclear fusion environment Roberto IGLESIAS	257
14:30	Monte Carlo Channeling Investigations of High-Temperature Implanted Ni-based Alloys Cyprian MIESZCZYNSKI	856
15:00	Modelling nanoindentation using crystal plasticity finite element method. Application to high entropy alloys and irradiation. Karol FRYDRYCH	1379
15:20	Atomistic Simulation of Radiation Damage in Single-Phase FCC NiFe Alloys Amin ESFANDIARPOUR	70
15:40	Coffee Break	

MODELLING

D04

15:55	Integrated DFT and Machine Learning for Defect Properties Predictions in High Entropy Alloys Aidhy DILPUNEET	1523
16:25	Thermodynamic calculations on thorium dioxide Alexander CHRONEOS	998
16:55	Multiscale aging simulations of Plasma Facing Materials Giorgio LO PRESTI	1640
17:15	A New Perspective on the Wobbling Motion for ^{135}Pr Robert POENARU	244

Tuesday, 19 September 2023

FUELS AND CLADDINGS

D05

9:00	Characterization of CRUD layer on irradiated nuclear fuel rod: a combined XRD and XRF analysis Cloé SCHNEIDER	885
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9:20	Internal coating for nuclear fuel cladding deposited by DLI-MOCVD: application to the mitigation of Pellet-Cladding Interaction (PCI) Kenza ZOUGAGH	889
9:40	Atomic level insights into nuclear fuels irradiated in light water reactor based on synchrotron light investigations Shaileyee BHATTACHARYA	1027
10:00	Influence of Irradiation Damage and Thermomechanical Treatments on the Hydride Distribution in Zirconium-Based Nuclear Fuel Claddings Okan YETIK	1147
10:30	Coffee Break	

FUELS AND CLADDINGS D06

10:35	Characterization of the mechanical properties of Zircaloy-2 alloy irradiated in STIP-? by the small punch technique Jingyi SHI	1563
10:55	Experimental and computational characterization of the anisotropic thermal conductivity of tubular SiCf/SiC Andrea CAVALIERE	1709
11:15	Phase separation in fluorite-related $U_{1-y}CeyO_{2+x}$. A re-examination by neutron diffraction David SIMEONE	1701

STRUCTURAL MATERIALS 2 D07

11:35	Unveiling mechanism of hardening in fcc-type $NixFe_{1-x}$ single crystals developed due to irradiation and high temperature Edyta WYSZKOWSKA	1393
12:30	Lunch	

STRUCTURAL MATERIALS 2 D08

14:00	Studies on Beryllium Based Plasma Facing Components for Nuclear Fusion Reactors Corneliu POROSNICU	1700
14:30	Operando tomography during Laser Based Additive Manufacturing of alumina Małgorzata MAKOWSKA	1708

14:50	Non-classical critical precipitates in a nucleation and growth regime Laurence LUNEVILLE	1702
15:10	Use of High-Speed Atomic Force Microscopy and Interferometry as Experimental Techniques for In-situ Aqueous Corrosion Monitoring Lewis JACKSON	442
15:30	Coffee Break	

STRUCTURAL MATERIALS 2 D09

15:45	A safe-zone approach to the bulk-equivalent hardness of ion-irradiated layers Jann-Erik BRANDENBURG	1256
16:05	Evaluation of NdYO3 fabrication process as a reaction preventing raw material Sang-Gyu PARK	217
16:25	The feasibility study on the microstructure and oxidation resistance of spent fuel canister welds using wire arc additive manufacturing process Youngho LEE	248
16:45	Effect of salt purity on the corrosion of SS-316L: Long-term studies in molten FLiNaK and ThF4 - LiF Nigel LUCAS	86

POSTER SESSION DP

17:35	Morphological observation of Galvanic Corroded Cold Spray Coating Layers Min Soo LEE	01_127
17:35	Exploring coating techniques to obtain novel thin films for sensing, shielding, and harvesting proton radiation in space Tanja LINK	02_177
17:35	Influence of 200 keV Ar+ ion irradiation on structure and mechanical properties of carbonitride TiAlCN coatings Stanislav KONSTANTINOV	03_362
17:35	Preliminary Evaluation of Microstructure and Physical Properties of Copper Welding Parts Using MIG (Metal Inert Gas) Welding Method for Copper Canister of Deep Geological Disposal June-Hyung KIM	04_474

- | | | |
|-------|---|---------|
| 17:35 | Understanding irradiation-induced defects within Zircaloy-4 for future nuclear applications
Katie HINCHCLIFFE | 05_949 |
| 17:35 | Development of a new composite materials with high x-ray attenuation factor
Valentin CRACIUN | 06_1228 |
| 17:35 | Radiation effects in high entropy alloy thin films
Valentin CRACIUN | 07_1260 |
| 17:35 | Study of the Kinetics of Accumulation of Radiation Damage Comparable to Neutron Irradiation in CeO ₂ - Y ₂ O ₃ Ceramics
Artem KOZLOVSKIY | 08_1335 |



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

Symposium E

Sessions: Room 144 | Main Building

Poster Session: Aula | Physics Building

ENERGY AND ENVIRONMENT:

ULTRA WIDE BANDGAP SEMICONDUCTORS FOR ENERGY AND ELECTRONICS (UWBS2E)

Symposium organizers:

Andrej **KUZNETSOV**

Daewoo **JEON**

Ekaterine **CHIKOIDZE**

Henryk **TEISSEYRE**

– University of Oslo

– Korea Institute of Ceramic Engineering Technology

– Univeristé Paris Saclay, CNRS

– Institute of Physics, Polish Academy of Sciences

Monday, 18 September 2023

8:55 Opening

TOWARDS NEW HIGH POWER AND OPTOELECTRONIC DEVICES 1

E01

- | | | |
|-------|---|-----|
| 9:00 | Pushing the breakdown voltage capabilities of GaN HEMTs by using UWBG Al-rich channel
Farid MEDJDOUB | 102 |
| 9:30 | UV-B laser diode fabricated on lattice-relaxed high-quality AlGaIn
Motoaki IWAYA | 153 |
| 10:00 | Fabrication and characterization of high-mobility fin channels for GaN power devices
Tobias CLAUS | 487 |
| 10:15 | Spectral Resonances Of Ga ₂ O ₃ :Cr Nanowire-Based Optical Microcavities And Its Temperature-Dependent Anisotropic Refractive Index
Daniel CARRASCO | 519 |
| 10:30 | Exploring gate leakage mechanisms in AlGaIn channel high electron mobility transistors as a function of Al composition, gate stack configuration, and temperature
Julien BASSALER | 861 |
| 10:45 | Coffee Break | |

TOWARDS NEW HIGH POWER AND OPTOELECTRONIC DEVICES 2

E02

- | | | |
|-------|--|------|
| 11:00 | Pulsed Laser Deposition for the Fabrication of Wide Bandgap Oxide Semiconductors
David ROGERS | 1053 |
| 11:30 | Defect-related photoluminescence in MOVPE sp ² - BN - influence of growth parameters
Aleksandra DABROWSKA | 557 |
| 11:45 | Temperature induced changes in morphology, thermal and electrical properties of polycrystalline ITO layers towards thermoelectric applications
Anna KAZMIERCZAK-BALATA | 189 |
| 12:30 | Lunch | |

TOWARDS NEW HIGH POWER AND OPTOELECTRONIC DEVICES 3

E03

14:00	Semiconductors, dielectrics and devices based on mixed main group metal oxides. Chemistry routes to ... Joerg SCHNEIDER	7
14:30	Heteroepitaxy of (010) β -Ga ₂ O ₃ on sapphire substrates using liquid-injection MOCVD Hemendra CHOUHAN	1054
14:45	Breakthroughs in Cost-Effective, Self-Powered Deep Ultraviolet Wide Bandgap Photodetectors for Emerging Applications Hocheon YOO	1196
15:00	Comparison of optical properties of polar GaN/AlN and AlGa _N /AlN multi-quantum wells Agata KAMINSKA	506
15:30	Coffee Break	

TOWARDS NEW HIGH POWER AND OPTOELECTRONIC DEVICES 4

E04

16:00	Ga ₂ O ₃ Based heterostructure and its applications Wan Sik HWANG	1661
16:30	Electrical characteristics of amorphous, a and e gallium oxide Hiromu SUSAMI	809
16:45	Fabrication of GeO ₂ thin films on 3C-SiC substrates. Yuri SHIMIZU	796
17:00	Introduction of step-graded a-(Al _x Ga _{1-x}) ₂ O ₃ buffer layers for defect density reduction Tatsuya YASUOKA	833

POSTER SESSION

EP01

17:30	Role of the Kirkendall effect in the process of thermal degradation of In _x Ga _(1-x) N/GaN MQWs - DFT studies Roman HRYTSAK	01_146
17:30	Improvement of DC Characteristic of E-mode AlGa _N /Ga _N HEMTs through Low-Damage Neutral Beam Etching and Post-Metallization Annealing Yi-Ho CHEN	02_245

17:30	Surface Studies of Van der Waals Crystals and GaN Hybridized Structures Dominika MAJCHRZAK	03_298
17:30	Probing sub-bandgap absorption in α -Ga ₂ O ₃ using the constant photocurrent method David NICOL	04_417
17:30	Ion implanted β -Gallium oxide with Ytterbium: Exploring the Phenomenon of Post-implantation Defect Accumulation in the Crystal Lattice Mahwish SARWAR	05_516
17:30	Study of in-situ Eu doped {Zn(Mg)O/ZnCdO} _m superlattices for optoelectronic devices Anastasiia LYSAK	06_529
17:30	The influence of a nucleation layer on the structure and grain size of α -Ga ₂ O ₃ films grown by MOCVD on C-plane sapphire substrates Kevon KADIWALA	07_6
17:30	Self-Driven Ultraviolet Photodetectors Based on β -Ga ₂ O ₃ /Si Heterostructures Rangeeta DHAKA	08_603
17:30	Optoelectronic properties of novel beta-phase nitrogen-based binary group V monolayer indirect semiconductors: Role of electron-phonon and exciton-phonon interactions Sitangshu BHATTACHARYA	09_636
17:30	α -Ga ₂ O ₃ based Schottky Barrier Diodes: Influence of Schottky-Contact Metal and Deposition Method Clemens PETERSEN	10_643
17:30	Advances in amorphous tin oxide for advanced electronics Christophe AVIS	12_682
17:30	Nanoflowers like GaSe/ β -Ga ₂ O ₃ heterostructure-based self-powered broadband photodetector with ultra-high responsivity Urvashi VARSHNEY	13_732
17:30	Improved Thermal Stability of Ohmic Contacts in AlGaIn/GaN HEMTs (high electron mobility transistors) Devices by CVD Carbon Films Kyeong-Keun CHOI	14_773
17:30	A growth of (Ge,Ti)O ₂ alloy thin films for p-type UWBG semiconductor. Tomoki OTSUKA	15_825
17:30	Fabrication of indium tin oxide thin films with conductivity and corrosion-resistant for metal separator of fuel cells Taisei HATTORI	16_840

17:30	Impact of extended defects in an Al _{0.60} Ga _{0.40} N channel high electron mobility transistor grown on a Si (111) substrate Julien BASSALER	17_867
17:30	β-Ga ₂ O ₃ -Chemical Mechanical Polishing (CMP) with Alumina and Silica Mixed Abrasive Slurry (MAS) Seoyeon AN	18_872
17:30	Fundamental study of ZnO grown on β- Ga ₂ O ₃ substrates Mieczyslaw PIETRZYK	19_874
17:30	Boron acceptor level measurement in a diamond Schottky barrier diode using a metallic doped layer for hole injection Philippe FERRANDIS	20_904

Tuesday, 19 September 2023

GROWTH AND NEW MATERIALS FUNCTIONALITIES 1 E05

9:00	Bulk β-Ga ₂ O ₃ and β-(Al _x Ga _{1-x}) ₂ O ₃ single crystals grown by the Czochralski method Zbigniew GAŁĄZKA	194
9:30	Two stage MOVPE growth of high-quality h-BN on the wafer-scale sapphire: the role of substrate off-cut Mateusz TOKARCZYK	331
9:45	Exploration of zirconium doping in pulsed laser deposited α-Ga ₂ O ₃ Sofie VOGT	361
10:00	Structural and optical characterization of Eu-implanted CdMgO and CdO/MgO superlattices Ewa PRZEŹDZIECKA	498
10:15	Effect of hydrogen in Si-doped β-Ga ₂ O ₃ grown by liquid-injection MOCVD Fridrich EGYENES	527
10:30	Coffee Break	

GROWTH AND NEW MATERIALS FUNCTIONALITIES 2 E06

11:00	Electrical properties and relative devices performance of in-situ n-type doped hetero-epitaxial β-Ga ₂ O ₃ grown by MOCVD Ray Hua HORNG	103
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11:30	Mapping of threading dislocation directions in aluminum nitride wafers using X-ray topography in reflection geometry Roland WEINGÄRTNER	534
11:45	Phase formation, catalysis and In incorporation in single-crystalline α -Ga ₂ O ₃ grown on α -Al ₂ O ₃ by metal-oxide catalyzed molecular beam epitaxy Manuel ALONSO-ORTS	566
12:30	Lunch	

GROWTH AND NEW MATERIALS FUNCTIONALITIES 3 E07

14:00	New material for power device : GeO ₂ Kaneko KENTARO	1001
14:30	Indium: A Surfactant for the growth of α -Ga ₂ O ₃ by plasma-assisted MBE Alexander KARG	571
14:45	Plasma-assisted molecular beam epitaxy of wurtzite AlN(0001) on beta-Ga ₂ O ₃ (-201) Eva MONROY	1106
15:00	Advances in MOCVD of β -Ga ₂ O ₃ epitaxial film growth, in-situ etch, and regrowth Andrei OSINSKY	1138
15:30	Coffee Break	

GROWTH AND NEW MATERIALS FUNCTIONALITIES 4 E08

16:00	Epitaxial hexagonal boron nitride for hydrogen applications and photonics Johannes BINDER	224
16:30	hBN epitaxial growth on patterned epigraphene by MOVPE Vishnu OTTAPILAKKAL	736
16:45	Growth kinetics and phase diagram of β -Ga ₂ O ₃ and α -Ga ₂ O ₃ on AlN(001) by molecular-beam epitaxy Sushma RAGHUVANSY	853
17:00	Growth and Ambient-driven Crystalline Phase Transition in Ga ₂ O ₃ Thin Films Amit KHARE	672

		POSTER SESSION	EP02
17:30	Suitability of α -GaO ₃ sensors for water-quality monitoring David NICOL		01_1065
17:30	Potential of Gallium Oxide for Radiation Hard Technologies Muhammad USMAN		02_1074
17:30	Solution-Based Synthesis of Metal Sulfides nanoinks for Energy-Related Application Georgia BASINA		03_1110
17:30	Performance improvement of broadband photodetectors based on light trapping management Faycal DJEFFAL		04_1119
17:30	Tantalum Contamination and Related Defects on 4H-Silicon Carbide Beatrice Maria CAGNI		05_1141
17:30	Transparent photovoltaics for energy ubiquity and applications Joondong KIM		06_1156
17:30	Thermal perspective of GaN membrane devices Lisa MITTERHUBER		07_1177
17:30	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 András BOJTOR		08_1238
17:30	Ultrahigh-Quality pi-Conjugated Polymer for Organic Solar Cells Changduk YANG		09_1239
17:30	Nano-engineering of sp ³ : sp ² to improve the contact-electrification and durability of energy harvesting devices Ammara EJAZ		10_1272
17:30	Comparison of two methods for one-dimensional Ga ₂ O ₃ -ZnGa ₂ O ₄ core-shell heterostructure synthesis Edgars BUTANOVŠ		11_1275
17:30	Study of in-situ Eu doped {Zn(Mg)O/ZnCdO} _m superlattices for optoelectronic devices Anastasiia LYSAK		12_1277

17:30	Tuning of physico-chemical and electrical properties of PEALD AlN and Al ₂ O ₃ thin films through substrate polarisation Franck BASSANI	13_1289
17:30	Strategic Patterning of ZnO using Femtosecond Laser for Optoelectronic Device Applications Ajinkya PALWE	14_1576
17:30	Correlation between a donor ionization process and small polaron relaxation in beta-gallium oxide Francis Chi-Chung LING	15_1726
17:30	Peculiarities of the formation of the (MgO) _x (ZnO) _{1-x} solid solutions Larysa KHOMENKOVA	16_1642
17:30	Growth mechanisms of As mediated dodecagonal III-nitride microrods Lukasz JANICKI	17_1678
17:30	Ga ₂ O ₃ Atomic Layer Deposition from water and ozone Lukasz WACHNICKI	18_905
17:30	HfO ₂ films grown by ALD using TDMAH and water or ammonia water Sylwia GIERALTOWSKA	19_911
17:30	Fabrication of high efficiency photocatalysts based on plasmonics doped semiconductors as an excellent candidate for renewable energy applications Chawki AWADA	20_960

Wednesday, 20 September 2023

		THEORY	E09
14:00	Complex Ga ₂ O ₃ polymorphs explored by accurate and general-purpose machine learning interatomic potentials Junlei ZHAO		5
14:30	Modeling Properties of Ga ₂ O ₃ -based quantum structures to achieve hole conductivity Tamar TCHELIDZE		1482
14:45	Computational study on polymorphs of Ga ₂ O ₃ on alloying and epitaxy Sung Beom CHO		261
15:30	Coffee Break		

THEORY AND PHASE TRANSITIONS

E10

16:00	Doping of aluminum gallium oxide alloys Darshana WICKRAMARATNE	136
16:30	Local Polymorph Conversion in Gallium Oxide via Focused Ion Beam Irradiation Umutcan BEKTAS	354
16:45	Implanted Pr ³⁺ ions in β -Ga ₂ O ₃ single crystals: detailed spectroscopic analysis Julia ZANONI	1498
17:00	High-resolution electron microscopy of phase transitions and structural segregations in β -Ga ₂ O ₃ irradiated at elevated temperatures Corneliu GHICA	561

Thursday, 21 September 2023

BASIC PROPERTIES AND CHARACTERIZATION 1

E11

9:00	Bandgap and band offset engineering in β -Ga ₂ O ₃ -based thin films. Ingvild Julie Thue JENSEN	301
9:30	ALD grown ZnMgO:Al on Si: structural and electrical properties of the films and heterostructures characteristics Ramon SCHIFANO	440
9:45	Ni-Cu-I alloy - A novel dilute magnetic semiconductor Christiane DETHLOFF	308
10:00	Boron nitride and its polytypism Bernard GIL	1486
10:30	Coffee Break	

BASIC PROPERTIES AND CHARACTERIZATION 2

E12

10:50	van der Waals epitaxy of AlGaN based heterostructures on h-BN for applications in the UV range Julien BRAULT	213
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11:20	Mobility of Native Defects in β -Ga ₂ O ₃ from Isochronal Annealing of Electron-Irradiated Crystals Marcin KONCZYKOWSKI	275
11:35	ScAlMgO ₄ as a promising substrate for future optoelectronic devices Tomasz STEFANIUK	476
12:30	Lunch	

BASIC PROPERTIES AND CHARACTERIZATION 3 E13

13:00	Nanostructure of gallium oxide polymorphs studied by electron microscopy Ildiko CORA	871
13:30	Hydrogen-related 3.8 eV luminescence in α -Ga ₂ O ₃ David NICOL	415
13:45	Characterisation of various dislocation types in HVPE-grown GaN and considerations on their formation and their influence on stress relations during growth Ulrich BLÄSS	1133
14:00	Strain and lattice vibration mechanisms in GaN-Al _x Ga _{1-x} N core-shell nanowire structures grown on Si substrate Eunika ZIELONY	1222

BASIC PROPERTIES AND CHARACTERIZATION 4 E14

14:35	Defect engineering and tuning the band gap of Ga ₂ O ₃ Farida A SELIM	1522
15:05	Implantation for polymorphic transformation in Ga ₂ O ₃ : thermal evolution and luminescence Snorre Braathen KJELDBY	424
15:20	Cathodoluminescence of epitaxy lateral overgrowth of α -Ga ₂ O ₃ Mugove MARUZANE	807



2023 Fall Meeting

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Symposium F

Sessions: Room 206 | Main Building

Poster Session: Aula | Physics Building

ENERGY AND ENVIRONMENT:

ADVANCED CERAMICS FOR ENVIRONMENTAL REMEDIATION

Symposium organizers:

Alberto **VOMIERO**

Elisa **MORETTI**

Federico **ROSEI**

Haiguang **ZHAO**

- Luleå University of Technology
- Ca' Foscari University of Venice
- INRS-EMT
- Qingdao University

Tuesday, 19 September 2023

MATERIALS SYNTHESIS 1
F01

14:00	Novel Materials Chemistry for Applications in Energy, Catalysis and Environmental Remediation Nicola PINNA	137
14:30	Graphene-based materials for environmental remediation: water nanofiltration, treatment and diagnostics Giovanni FANCHINI	1669
15:00	The heat storage characteristic of MgO-based pellet with high thermal storage density and outstanding cycle stability Soomin CHOI	501
15:15	A study on the characteristics of electrolyte-supported solid oxide electrochemical cells (SOCs) based on proton-conducting ceramic materials Gyeong Duk NAM	794
15:30	Reusable BiSI@PVDF composite membranes for effective Rhodamine B degradation from water effluents by a multifunctional adsorptive and piezocatalytic effect Amaia ZARANDONA-RODRÍGUEZ	844
15:45	Coffee Break	

MATERIALS SYNTHESIS 2
F02

16:00	Rational and sustainable low-temperature design of inorganic materials and ceramics for environmental applications Silvia GROSS	609
16:30	Theranostics with Light Fiorenzo VETRONE	1663
17:00	Synthesis and characterization of composite structure based on zinc and copper oxides for gas sensing applications Hakimeh PAKDEL	1056
17:15	Novel hybrid rare-earth metalorganic frameworks for water purification Francesca LO PRESTI	1332
17:30	Mixed ionic electronic dual-phase membrane reactors for CO ₂ separation Pedro SANCHEZ CAMACHO	545

17:45	Regulating Cu element in mesoporous Fe ₂ O ₃ photocatalysts for ultrafast mineralization of isopropyl alcohol via activation of peroxydisulfate under UV light Le THI THAO	339
18:00	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 Triyono BASUKI	899

POSTER SESSION

FP

17:30	Trace Detection of Ciprofloxacin in Milk by Label-free Raman Enhancement using Two-dimensional Magnesium-siochromite Anyesha CHAKRABORTY	01_322
17:30	Modeling of water pollutant degradation through ozone oxidation in a catalytic dual membrane reactor with a modified ceramic membrane Rans Miguel Nunag LINTAG	02_1063
17:30	Fabrication of nanoporous ceramic membranes for nanofiltration applications Seung-Eun NAM	03_799

Wednesday, 20 September 2023

OPTICAL MATERIALS 1

F03

14:00	Photonic and plasmonic multilayer metastructures with tunable properties based on alternative plasmonic nanomaterials Andrea LI BASSI	170
14:30	Lanthanide doped β -NaYF ₄ /TiO ₂ composite films: synthesis, characterization and photocatalytic properties Graziella MALANDRINO	1313
15:00	Integrated photocatalyst adsorbents based on silica/silicate-supported TiO ₂ for wastewater treatment Lorenzo VIGANÒ	503
15:15	Analysis of the electric bias induced degradation mechanism of yttria-stabilized zirconia Seong Kyun KIM	278
15:30	Coffee Break	

16:00	Ag-sensitized Eu ³⁺ -doped luminescent zeolites for environment and sensing Francesco ENRICHI	888
16:30	Plasmon-Assisted Operando Self-Healing of Cuprous Oxide Photocathodes Francesco LAMBERTI	611
17:00	Low-cost Structural Colour Surface Decoration with Antiviral Effect Darya BURAK	13
17:15	The electrochemical synthesis of ammonia using oxygen ion-conducting ceramic-based electrolysis cells Hye Ri KIM	385
17:30	Sr and Ge Doped-PBF as a Symmetrical Electrode of Solid Oxide Cell for Fuel Cell and CO ₂ Electrolysis Hyeonjin LEE	380
17:45	Selective enhancement of the piezocatalytic response of BiFeO ₃ nanoparticles via La-doping Wafa AMDOUNI	569



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Symposium G

Sessions: Room 101 | Mathematics Building

Poster Session: Aula | Physics Building

MANUFACTURING

ULTRA-DOPED SEMICONDUCTORS BY NON-EQUILIBRIUM PROCESSING FOR ELECTRONIC, PHOTONIC AND SPINTRONIC APPLICATIONS

Symposium organizers:

David **PASTOR**

- Universidad Complutense de Madrid

Enrico **NAPOLITANI**

- Dipartimento di Fisica e Astronomia, Università di Padova and CNR-IMM

Guo-En **CHANG**

- National Chung Cheng University

Shengqiang **ZHOU**

- Helmholtz-Zentrum Dresden-Rossendorf

Monday, 18 September 2023

FEMTO- AND NANOSECOND LASER DOPING

G01

14:00	Simulation challenges for hyperdoping by Pulsed Laser Melting Antonino LA MAGNA	1386
14:30	Effective carrier lifetime in ultrashort pulse laser hyperdoped silicon: dopant concentration dependence and practical upper limits Sören SCHÄFER	1045
14:45	Fabrication of nitrogen-hyperdoped silicon by high-pressure gas immersion excimer laser doping Josh BARKBY	348
15:00	Femtosecond laser processing of semiconductors: Strategies, structures and underlying mechanisms Jan SIEGEL	1477
15:30	Coffee Break	

ADVANCED CHARACTERIZATION METHODS

G02

16:00	Active Dopant Sites in Si Hyperdoped with Te Investigated by Photoemission Moritz HOESCH	702
16:30	Advanced characterization techniques for hyper-doped Ge-based alloys. Enrico DI RUSSO	1577
16:45	Evolution of structural defects in heavily doped GaAs Maciej Oskar LIEDKE	1144
17:00	TEM investigations and MD simulations of misfit dislocations in highly mismatched core/shell nanowires. Dorota JANASZKO	1527
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 Tomasz SLUPINSKI	312

Tuesday, 19 September 2023

		GE AND GeSn	G03
9:00	Heavily-doped Ge-on-Si: an all-semiconductor material platform for mid-infrared plasmonics. Jacopo FRIGERIO		1182
9:30	Performance analysis of GeSn based photodetectors operating in 2um band at low temperature. Radhika BANSAL		1174
9:45	Ex-situ incorporation of Sn in Ge by nanosecond pulsed laser melting Daris FONTANA		1526
10:00	Investigation of the interaction between hemin and human serum albumin in the THz range using ultra-high doped Ge-based Plasmonic Antenna Elena HARDT		943
10:30	Coffee Break		

DOPING FOR NANOELECTRONICS **G04**

11:00	Comparison of Conventional Impurity Doping with Modulation Doping of Silicon Nanostructures Daniel HILLER		226
11:30	Nanostructured Silicon Hyperdoped with Se by Ion Implantation and Flash Lamp Annealing Behrad RADFAR		600
11:45	Tailoring the properties of carbon nanotubes by means of doping Dawid JANAS		1136
12:00	Contact engineering for 2D materials through ion implantation and flash lamp annealing Kaiman LIN		1267
12:30	Lunch		

DOPING FOR NANOELECTRONICS **G05**

14:00	Doping challenges for future nanoelectronic devices Ray DUFFY		93
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14:30	Elastic backscattering during boron implantation in Si _{1-x} Ge _x Quan BAI	930
14:45	Stepped energy density strategy for solid-phase epitaxial regrowth of Si:P by nanosecond laser annealing Sebastien Kerdiles	485
15:00	Strain engineering in Si _{1-x-y} Ge _x Sn _y alloys by post growth thermal treatments Slawomir Prucnal	1380
15:15	Exploring strain relaxation limits on Ge: Sb and Sn heavy doping by pulsed laser melting Francesco Sgarbossa	1301
15:30	Coffee Break	

PHOTODETECTOR APPLICATION

G06

16:00	Hyperdoped Silicon Photodetectors Fabricated by Femtosecond Laser Qiang WU	27
16:30	On-chip planar Si:Te PIN photodiodes for room-temperature detection in the telecom optical wavelength bands Mohd Saif Shaikh	518
16:45	On-chip photodetection at telecom wavelengths: a silicon-on-insulator hyperdoping approach with tellurium. Daniel Caudevilla	937
17:00	Sub-bandgap absorption in GaAs hyperdoped with Chromium Sari Algaidy	1303
17:15	Lifetime and optoelectronic characteristics of Ti hyperdoped Si photodiodes Eric García-Hemme	1224

POSTER SESSION

GP

17:30	Native Ge oxide layer role when implanting at cryogenic temperatures for hyperdoped materials. Daniel Caudevilla	01_925
17:30	Structural and Magnetic Properties of Lu ³⁺ doped SmFeO ₃ Single Crystals Aravinthkumar Padmanaban	02_873

17:30	Band structure mapping of monolayer graphene via electrical resistance Yu-Hsien CHUANG	03_218
17:30	Front-illuminated interdigitated back-contacted Ti hyperdoped Si photodevice Eric GARCÍA-HEMME	04_1226

Wednesday, 20 September 2023

		IN-SITU DOPING	G07
14:00	Reduced Pressure - Chemical Vapor Deposition of heavily boron and phosphorous doped group-IV semiconductors Jean-Michel HARTMANN		119
14:30	Highly doped conductive n+ZnO polycrystalline layers fabricated by RF magnetron sputtering in methane working gas Alexei N. NAZAROV		580
14:45	High rate reactive deposition of ultrawide bandgap Ga ₂ O ₃ by liquid metal target sputtering Juris PURANS		605
15:00	Al-delta-doped ZnO films made by atomic layer deposition and flash lamp annealing for low emissivity coating Guoxiu ZHANG		1221
15:30	Coffee Break		

		SUPERCONDUCTIVITY	G08
16:00	Nanosecond laser doped silicon: effect of doping and strain on superconductivity Francesca CHIODI		267
16:30	Fabrication of superconducting Boron hyper-doped Germanium Yu CHENG		1225
16:45	Sputter deposition and pulsed laser crystallisation of MoS ₂ films Alessandro TONON		1532
17:00	Doping Gallium Oxidewith Silicon: the disorder and strain transformation after implantation to heated substrate Iraida DEMCHENKO		1685



2023 Fall Meeting

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Symposium H

Sessions: Room 437A | Main Building

Poster Session: Aula | Physics Building

MANUFACTURING

FERROELECTRIC HfO_2 AND ZrO_2 -BASED THIN FILMS

Symposium organizers:

Florencio **SÁNCHEZ** - Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC)

Gang **NIU** - Xi'han Jiaotong University

José **SILVA** - University of Minho

Suzanne **LANCASTER** - NaMLab gGmbH

Monday, 18 September 2023

		EPITAXIAL FILMS	H01
11:30	Impact of electric field on crystal structure and properties of HfO ₂ -based ferroelectric films Hiroshi FUNAKUBO		265
12:00	Tailoring diverse functional properties on epitaxial ferroelectric HfO ₂ by substrate selection Ignasi FINA		254
12:15	Electrode-free epitaxial Hf _{1-x} Zr _x O ₂ films José A. PARDO		260
12:30	Lunch		

		TAILORING FERROELECTRIC PROPERTIES: THEORY & EXPERIMENT	H02
14:00	Theoretical approach to ferroelectricity in hafnia and related materials Jorge IÑIGUEZ		304
14:30	Influence of the parasitic m-phase and La doping on the polarization switching dynamics of epitaxial HfO ₂ thin films Alexandre SILVA		893
14:45	Atomistic calculations of energy formation and polarization for orthorhombic Ge doped HfO ₂ Ovidiu COJOCARU		1517
15:00	Stabilizing polar structures in HfO ₂ -based oxide superlattices: A first principles study Binayak MUKHERJEE		396
15:15	Toward Highly Pure Ferroelectric Hf _{1-x} Zr _x O ₂ Thin Films by Tailoring Strain in Unstable Thermodynamic System and Beyond Yu-Cheng KAO		635
15:30	Coffee Break		

PROGRESS IN FILM PROCESSING I

H03

16:00	High-temperature operation of ferroelectric hafnium-zirconium oxide capacitors in the back-end-of-line Thomas KÄMPFE	1667
16:30	Ferroelectric epitaxial Hf _{0.5} Zr _{0.5} O ₂ /HfO ₂ nanolaminates Mehrdad GHIASABADI FARAHANI	284
16:45	Ferroelectricity in solution-processed La:HfO ₂ /ZrO ₂ multilayers Barnik MANDAL	290
17:00	Study of the pure ZrO ₂ phases deposited on a Nb:SrTiO ₃ substrate with different orientations using TEM/HRTEM techniques Marian Cosmin ISTRATE	723
17:15	Comparative study between undoped and doped ferroelectric HfO ₂ : Role of Gd-doping in stabilizing the ferroelectric phase and reducing the crystallization temperature Liliane ALRIFAI	507

POSTER SESSION

HP

17:30	Investigation of oxygen vacancy conductive filament formation and resistive switching stability in HfO ₂ -based RRAM Donglan ZHANG	01_1455
17:30	Negative Differential Resistance (NDR) phenomenon in antiferromagnetic NiOx / ferroelectric HfO ₂ heterostructures Srikanth ITAPU	02_1218
17:30	Thermostimulated luminescence analysis of oxygen vacancies in HfO ₂ nanoparticles Katrina LAGANOVSKA	03_1288
17:30	Growth orientation dependence on the stabilization of the polar orthorhombic phase of Hf _{1/2} Zr _{1/2} O ₂ thin films Arnab DE	04_1341
17:30	A Study on the Control of Oxygen Vacancy Concentration in Ferroelectric (Hf, Zr)O ₂ Thin Film by Using Oxidized W Electrodes Kun YANG	05_69
17:30	A Comprehensive Study of Ferroelectric Properties of Fluorite-Structured Hf _{1-x} Zr _x O ₂ Thin Films Grown on Mo Electrode with Various Thickness and Compositions Ju Yong PARK	06_473

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INSIGHTS ON RELIABILITY

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9:30	Reliability of Hf _{0.5} Zr _{0.5} O ₂ films obtained by pulsed laser deposition under low oxidation conditions Faizan ALI	270
9:45	Novel insights on HfO ₂ -based capacitors: How to improve device reliability by targeted band alignment Lutz BAUMGARTEN	311
10:00	Study of Imprint dynamics in CMOS compatible HZO ferroelectric capacitors Bertrand VILQUIN	1608
10:15	Investigation of Endurance, Retention, and Partial Switching in Hf _{0.5} Zr _{0.5} O ₂ Ferroelectric Crosspoint Memories for In-Memory Computing: A Damascene Process Approach Dorian COFFINEAU	1051
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11:00	Ferroelectric Hafnia Superlattices for Bio-Inspired Computing Laura BÉGON-LOURS	1283
11:30	Artificial Synapses made of ferroelectric epitaxial Hf _{0.5} Zr _{0.5} O ₂ / SrTiO ₃ -d on silicon Nikitas SIANNAS	1402
11:45	Accelerating Neural Network Training using HfxZr1-xO ₂ Based Ferroelectric Tunnel Junction Memristors Robin ATHLE	855
12:00	Advancements in HZO Layer Engineering for Ultimate 3D Vertical Transistors : Towards a Logic-In-Memory Application Konstantinos MOUSTAKAS	955
12:15	Robustly Stable Ferroelectric Polarization States Enable Long-Term Nonvolatile Storage against Radiation in HfO ₂ -Based Ferroelectric Field-Effect Transistors Jiajia LIAO	1374

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FERROELECTRIC SWITCHING AND PIEZOELECTRICITY

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14:00	Interplay between oxygen migration and ferroelectric polarization in epitaxial HfO ₂ /LaSrMnO ₃ heterostructures Beatriz NOHEDA	879
14:30	Interplay Between Ferroelectric and Filamentary-Type Resistive Switching in Epitaxial HfO ₂ /SrTiO ₂ Judith KNABE	71
14:45	In-operando optical tracking of oxygen vacancy migration and phase change in few-nm ferroelectric HZO memories Atif JAN	490
15:00	Unconventional Piezoelectricity of Hafnia-based Ferroelectrics Alexei GRUVERMAN	639
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16:00	Recent advances in HfO ₂ -based ferroelectric films and memories for their implementation at advanced technological nodes Laurent GRENOUILLET	703
16:30	Influence of dopants on the phase formation of ferroelectric HfO ₂ Shouzhao YANG	895
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17:00	Interfaces engineering to enhance ferroelectricity in ultra-thin HZO CMOS compatible FTJ Bertrand VILQUIN	1606
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17:00	Demonstration of a p-type Junctionless Silicon Nanowire Transistor with Ferroelectric Hafnium-Zirconium-Oxide Gate Jens TROMMER	363
17:15	Electrical Characteristics of FeFET with Atomic Layer Deposited HZO Thin Film and IGO Channel for Flash Memory Application Changhwan CHOI	1387



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

Symposium Sponsors



Symposium I

Sessions: Room 315 | Main Building
Poster Session: Aula | Physics Building

MANUFACTURING

SYNTHESIS AND CHARACTERIZATION OF FUNCTIONAL NANOCOMPOSITE MATERIALS

Symposium organizers:

Aurora **RIZZO**

Ermelinda M. S. **MACOAS**

Raghvendra Singh **YADAV**
(Main organizer)

Tayebeh **AMERI**

- University of Salento – CNR NANOTEC

- University of Lisbon

- Tomas Bata University in Zlin

- University of Edinburgh

Monday, 18 September 2023

HYBRID MATERIALS FOR BIOMEDICAL APPLICATIONS

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9:30	Nanocomposite magnetic hydrogels: the role of magnetic particles' surface functionalization Mariusz BARCZAK	617
9:45	Multifunctional stimuli-responsive bioengineered systems for cancer therapy: towards precision medicine Giuliana GRASSO	262
10:00	Scintillating heterostructure based on fast emitting nanocomposites for ToF-PET imaging Angelo MONIGUZZI	316
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I02

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11:30	Solvent-free, Printable Polyisoprene-graphene based on-mask breath sensing device for point-of-care diagnostics Simran SHARMA	804
11:45	Design and Application of pH-Sensing Hybrid Systems for Non-Invasive Metabolism Monitoring in 3D Tumour Models Helena IUELE	96
12:00	Long-range energy transfer between nanoparticles and its application for biosensing Deep Sekhar BISWAS	336

12:15 Molecularly Engineering (Multi-)Functional Inorganic Materials: From 2D Materials to Micromotors **1082**
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14:00 Smart hybrid silica nanocarriers **1213**
Jose Paulo FARINHA

14:30 Solution Combustion Synthesis: Towards a Sustainable Approach for Metal Oxides **300**
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14:45 A modified Brust - Schiffrin synthesis of gold and silver nanoparticles in batch and continuous flow **1036**
Monica DISTASO

15:00 Study of the interaction between glycosylated liposomes and nanoparticles functionalized with boronic acid for the preparation of Giant Vesicles **268**
Sara BATTISTA

15:15 Novel Nano-based Approaches for Hearing loss **715**
Daqing LI

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Lobat TAYEBI

16:30 Carbon Nanodots – Zinc Phthalocyanine hybrid system as an effective visible light-activated antimicrobial coating **148**
Agata BLACHA-GRZECHNIK

16:45 Novel antimicrobial baicalein capped Ag/Fe₃O₄ magnetic nanoparticles for water disinfection **1489**
Garima RATHEE

17:00 Photocatalytic dye degradation of biotemplated ZnO photonic nanoarchitectures based on butterfly wings **1397**
Gábor PISZTER

17:15	Biomimetics surfaces to induce the nucleation of the biological apatite precursors. Aleksandra SEWERYN	901
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17:30	Poly(lactic acid)/carbon nanotubes composites: elaboration, structure and thermoelectric properties Van-Hau VO LE	01_1007
17:30	Development of Thin Film NMC cathodes for the study of surface reactions Sameer RODRIGUES	02_1009
17:30	Inside Biopolymer-mediated Perovskite self-assembly: an effective approach towards the scalability Antonella GIURI	03_1029
17:30	Investigation of Opto-Electrical, Mechanical and Surface properties of AgNWs-PEDOT: PSS based Ultraflexible and Transparent Conductive Electrode for Sensing Applications Jostin DCOSTA	04_1032
17:30	Growth optimization of Td-WTe ₂ thin films by molecular beam epitaxy Alexandre LLOPEZ	05_1060
17:30	Addressing Printability Challenges in PbS Quantum Dot Solar Cells Electron Transport Layer through Dual Metal Doping and Solvent Engineering of ZnO Nano Inks Rico HOLFEUER	06_1073
17:30	Influence of TPS on the properties of PHBH-based polymeric blends Asanda MTIBE	08_1085
17:30	Tubular Glassy Carbon Microneedles with Fullerene-like Tips for Biomedical Applications Sharali MALIK	09_1099
17:30	Plasmon-Driven Growth of Germanium Nanostructures Robert O'MEARA	10_1107
17:30	Tuning of Volatile Molecular Thorium Precursors for the Chemical Vapor Deposition of Thorium Oxide Thin Films Andreas LICHTENBERG	11_1149
17:30	Molecular Uranium Single Source Precursors Designed for the Synthesis of Uranium Oxide Nanomaterials Andreas LICHTENBERG	12_1151

17:30	Study of the Structural, Optical, and Electrical Properties of Bilayer Chemiresistive Gas Sensors Fabiola BRAVO	13_1157
17:30	Functional unidirectional hybrid nanomaterials Amir FAHMI	14_1166
17:30	Morphology and structure of SnO ₂ -based nanomaterials obtained by different synthesis routes for gas sensing applications Catalina Gabriela MIHALCEA	15_1168
17:30	Optical properties of bismuth quantum dots Evelina DUDUTIENÉ	16_1175
17:30	Long-lasting Performance of High-flux La _x Ce _{1-x} CoO ₃ Perovskite Membrane Synthesis for the Treatment of POPs in Pesticides and Herbicides Containing Wastewater Arvind ARVIND KUMAR	17_1206
17:30	Developing Multifunctional Carbon Nanotube Bucky papers by Hybridizing Cellulose Nanocrystals for Enhanced Dispersion Quality Fulden KAYGINOK	18_1208
17:30	Understanding the effects of primary and secondary doping via post-treatment of p-type and n-type hybrid organic-inorganic thin film thermoelectric materials Rodrigo RUBIO-GOVEA	19_1209
17:30	Controlled Design of M@SCs Nano-Heterodimers by Laser Photodeposition: Growth Mechanism and Modeling (SC= Metal Oxide and QD Semiconductor) Eugenie PARIENTE	20_1248
17:30	Nanocomposites of Hexagonal Boron Nitride Nanosheet with Chlorin e ₆ as a Bimodal Nanosensitizer for Cancer Therapy Naoki KOMATSU	21_1253
17:30	Transparent wood-based multi-functional devices for smart windows application. Simone BRUNO	22_1280
17:30	Scaling-up 2D Transition Metal Dichalcogenides synthesis through Chemical Vapor Deposition Rem ELNAHAS	23_1286
17:30	Interphases in various types of nanocomposites filled with luminescent oxides Serhii NEDILKO	24_1318
17:30	Self-assembly of nanographene with nitrogen-doped zigzag edges on Au(111) and its electronic properties Takatsugu ONISHI	25_1326

17:30	Composite Fabrics Obtained through In Situ Chemical Reactions within Polymeric Microfibers Amit SITT	26_1334
17:30	Electrically conductive hot melt ethylene-vinyl acetate adhesives containing carbon nanotubes Michał MISIAK	27_1356
17:30	Investigating the role of particle shape in the network structure and conductivity of conductive particle composites Dominik PERIUS	28_1388
17:30	Upconversion Emission Studies on PEG coated KY3F10:Ho ³⁺ /Yb ³⁺ Phosphors for Optical Thermometry and Contrast Enhancement in Bio-imaging Kumar SHWETABH	29_1430
17:30	Synthesis and Characterization of Graphene Reinforced Aluminium Metal Matrix Nano-composite Through Liquid Melt Casting Route Sanjeev DAS	30_145
17:30	Synthesis and proton-conducting properties of UiO-66-type metal-organic frameworks encapsulating hydrogen-bonded phosphoric acid Keiichiro MAEGAWA	31_1493
17:30	Analysis of Heat Transfer performance for nanomaterial composite coating utilizing spray cooling technique Suparna BHATTACHARYYA	34_152
17:30	Tailoring the properties of Poly(vinyl alcohol) blends/cryogels via sebacic acid decoration Damiano BANDELLI	35_1567
17:30	Control the metal-cation cross-linking to synthesise high-quality graphene oxide membranes for water treatment Zheng CHEN	36_1620
17:30	Conjugation of tetrapyrrolic macrocycles with graphene quantum dots: Application and future challenges Ermelinda MACOAS	37_1693
17:30	2D-Nanomaterial Directed Molecular Aggregation and Energy Transfer Hongxiao XIANG	38_175
17:30	Cement Composites Based on Graphite / MnFe ₂ O ₄ Spinel Ferrite Nanoparticles for Electromagnetic Interference Shielding and Microwave Absorption Application Vanamoorthy MARIAPPAN	39_191
17:30	Broadband Electromagnetic Wave Absorption of MoS ₂ @CoFe ₂ O ₄ Hybrid Composites in Ku-band Burak KIVRAK	40_22

17:30	Preparation of DNA nanoflower-modified silica monolith for capillary electrochromatography chiral separation Tingting HONG	41_230
17:30	The Mechanical Behavior of Cellular Lattices Made From Two-dimensional Heterogenous Materials Kin LIAO	42_242
17:30	Bio-nanocomposites based on in-situ grown metallic particles on butterfly wings: preparation and characterization Krisztián KERTÉSZ	44_1214
17:30	Fundamental characterization of interaction between gas and polyaniline composites dedicated to ammonia detection Marius PASCAUD	45_409
17:30	Gold nanostars decorated with polyoxometalates for cancer therapy Juan Fernando RAMIREZ HENAO	46_510
17:30	Synthesis of Alginate/GO/Pd-AuAg Trimetallic Nanocomposite and Its Application in the Continuous Flow Catalytic Reduction of Hexavalent Chromium Astrini PRADYASTI	47_52
17:30	Integrating Metal-Organic Framework in Alginate Hydrogel for Protein Encapsulation Jonathan BACHIR	48_559
17:30	Simultaneous enhancement of electrical conductivity and magnetization in graphene using silver nanoparticles Prajwal CHETTRI	49_57
17:30	Incoherent and Coherent Random Lasing from a Carbon dot-TiO ₂ colloidal disordered system Ashim PRAMANIK	50_573
17:30	Transparent Conductive Films of PEDOT:PSS-Amino Acid Composite Ramesh ADHIKARI	51_620
17:30	Antibacterial studies of ZnO and silica capped manganese doped zinc sulphide nanostructures Suhaas GUPTA	52_66
17:30	Temperature-dependent study of the fabricated ZnS/p-Si heterojunction Suhaas GUPTA	53_67
17:30	Titanium dioxide-based nanocomposites fabrication and characterization Federico GIUFFRIDA	54_742

17:30	Cation insertion characteristics of mesoporous titania-silica composite layers Debargha CHAKRAVORTY	55_750
17:30	Development of rGO-AgNP Based Chemiresistive Sensor For ppb Level Pb(II) Detection Madhurima DEB	56_757
17:30	Synthesis of Epoxy-Functionalized Isosorbide-Siloxane Hybrid Materials as Interconnection Adhesives for Sustainable Flip-Chip Process Gwang-Mun CHOI	57_765
17:30	Interfacial Diatomic Pt Ring Boost the Electrochemical ORR and HER Performance of Ni-Hydroxide Supported Pd Nanoparticles Amisha BENIWAL	58_790
17:30	Fabrication of polyaniline (PANI) and functionalized graphene nanocomposite thin films using thermal evaporation Soumyasuravi THAKUR	59_817
17:30	Strengthening of equiatomic CoCrCuFeNi -based ODS high entropy alloys with measured amount of Y2O3 addition Sudip SINHA	60_82
17:30	Ligand Assisted Volatilization of Indium Complex for CVD of In2S3 Thin Films and its Photoelectrochemical Application Chijioke Kingsley AMADI	61_884
17:30	Luminescent zero dimensional inorganic perovskite -photocurable resin composites for scintillator application Mario CALORA	62_902
17:30	Ozonolysis of surface-bonded alkenes Naeem IQBAL	63_916
17:30	Impact of three amines interfering with ammonia response of polyaniline-based sensor Marius PASCAUD	64_917
17:30	Development of plasma-assisted methods in liquids for preparation of perovskite oxides nanomaterials Natalie TARASENKA	65_944
17:30	Development of novel high entropy alloys for energy intensive industries Deepak SHARMA	66_1506
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9:30	A new synthesis method of highly calibrated CsPbBr ₃ nanocrystals perovskites by soft chemistry for OLEDs devices. Cédric MAYER	756
9:45	A TiO ₂ sponge to prevent lead pollution in water Carlo SPAMPINATO	1105
10:00	Taming defects in halide perovskites: insights from atomistic and molecular modelling Shuxia TAO	169
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Kin LIAO

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14:00 Adaptive Down- and Up-Conversion **229**
Dirk GULDI

14:30 Thin film plasmonic broadband absorber based on Al₂O₃/Cu nanocomposites from vapor deposition **432**
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15:15 Nanographene-polystyrene nanocomposites as fluorescent unclonable microlabels for anti-counterfeiting applications **335**
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16:45 Nanocomposites of titanate nanotubes with S and N doped reduced graphite oxide: boosting biomass-derived HMF photocatalytic selective oxidation **1543**
Dimitrios GIANNAKOUKAKIS

17:00 Photo active graphene based materials for energy conversion application **1297**
Diptiman DINDA

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Anuja DATTA 186

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17:30 Cobalt-Iron bi-metallic catalyst for chirality-specific growth of single-walled carbon nanotube Qingmei HU		02_1040
17:30 Demonstration of synthesis of MXenes (Ti3C2) by using HF-etchant mixed in supercritical CO2 Jui-Yang FENG		03_1096
17:30 Solid-State Displacement Synthesis of Alkaline-Earth Selenide for White Emission Yanze WANG		04_1170
17:30 Enhanced Dispersibility, Antibody Immobilization, and Electrical Performance of Gold Nanostars for Biomedical Applications Yong-Sang KIM		05_120
17:30 Growth And Synthesis Of Graphene-based ZnO-nanorods For Strain Seung Mun BAEK		06_1200
17:30 Controlled Nanoscale Doping Effect on Metal-Polymer Nanocomposites Properties for Optoelectronics Applications Inshad JUM'H		07_125
17:30 Investigation of Properties of Protein Based Coating for Anti-Icing Virginija JANKAUSKAITE		08_1257
17:30 The effect of surfactants and precursors on the structure and properties of ZnS:Cu nanocrystalline particles Milena DILE		09_1328
17:30 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		10_1345
17:30 Composites based on microcrystalline cellulose and K3Tb(PO4)2 and K2Eu(PO4)(WO4) complex oxides phosphors Serhii NEDILKO		11_1352

17:30	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 Aline Beatriz DA SILVA SANTOS	12_1372
17:30	Graphene-polymer nanocomposite via float-stacked method Seung-II KIM	13_1375
17:30	Fundamental study of Niobium laser polishing processes Florian BROCKNER	14_1382
17:30	Binder Free Approach to Synthesize MoO ₂ Electrodes for Energy Storage Applications Pramod KUMAR	15_1384
17:30	Nanocomposite Synthesis using Colloidal reduced Graphene Oxide/Sodium Silicate Solution Yu Na LEE	16_1406
17:30	Investigations of the formation of thin MXene films with different chemistries and particle sizes for VOC microsensors Kamila ĆWIK	17_1417
17:30	Analysis of Rheological and Multifunctional Properties of CNT Reinforced Epoxy Nanocomposites Coating Merve YASACAN	18_1434
17:30	Environmental Effects on the Performance of Luminescence Solar Concentrators Based on Colloidal QDs in Polyacrylate Nanocomposites Meghna SIRIPURAPU	19_1437
17:30	The electronic structure of the carbon nanotubes modified with CdTe nanoparticles Nataliia KURGAN	20_1443
17:30	Combined laser-plasma assisted approach for the formation of metal oxides heterostructures Uladzislau KORNEU	21_1451
17:30	Correlative morphology of two-dimensional material MoS ₂ with sputtering deposition time Prachi GURAWAL	22_1462
17:30	Exploring the impact of irradiation on the structural and electrical properties of PEDOT:PSS nanocomposites Halyna KLYM	23_1463
17:30	Enhanced thermo-physical properties of epoxy resin with carbon nanotube reinforcements Halyna KLYM	24_1467

17:30	Synthesis and Characterization of IZO thin films obtained by Pulsed Laser Deposition for Surface Acoustic Wave sensors Izabela CONSTANTINOIU	25_1469
17:30	Synthesis of magnetic Fe ₃ O ₄ @Mn-MOFs core-shell composites with tunable shell thickness Saumaya KIRTI	27_1544
17:30	Investigation of Low-Concentration Phosphoric Acid-Doped PBI Membrane Yuki NAKAMURA	28_1566
17:30	High-Quality Bioethanol and Vinegar Production from Saudi Arabia Dates: Characterization and Evaluation of Their Value and Antioxidant Efficiency Fahad ALMINDEREJ	29_157
17:30	A novel process intensification tool in catalysis: Electromagnetic treatment of wate Dimitrios GIANNAKOUDAKIS	30_1570
17:30	Efficient removal of indigo carmine dye by zeolite imidazole framework-67 (ZIF-67) Duygu YANARDAĞ	31_1571
17:30	Synthesis of porous Ag-Ag ₂ S@Ag-Au hybrid nanostructures with broadband absorption properties and their photothermal conversion application Astrini PRADYASTI	32_183
17:30	Synthesis, Characterization, and Performance of Pyridomethene-BF ₂ Fluorescence Dye-Doped PVA Thin Film and PVP Nanofibers as Low γ -ray Dosimeters Fahad ALMINDEREJ	33_193
17:30	Impact of synthesis conditions on optical and electrochemical properties of SnO ₂ nanomaterials Reynald PONTE	34_201
17:30	Reduced graphene oxide - porous silicon hybrid structures for sensing application Igor OLENYCH	35_214
17:30	One-step electrodeposition of molybdenum nickel cobalt sulfides on Ni foam for high-performance asymmetric supercapacitors Evariste UWAMAHORO	36_252
17:30	Investigating the effect of the annealing parameters on the resistance of indium tin oxide nanocrystalline films Michele BELLINGERI	37_28
17:30	Optical absorption and electric conductivity of two-dimensional carbon nitride films prepared by thermal chemical vapor deposition Habuchi HITOE	38_332

17:30	Long term performance monitoring of hydrogen sensors based on size limited Pd nanoparticle deposited on SWCNT Fabio TODESCO	39_338
17:30	Low density polyethylene/clay nanohybrids' films with improved antioxidant, antimicrobial and barrier properties Athanasios LADAVOS	40_347
17:30	Synthesis and Characterisation of Asymmetric Perylene-based Supramolecular Polymers Helal ALHARBI	41_358
17:30	Multifunctional magnetic nanoparticles obtained through microfluidic techniques Adelina-Gabriela NICULESCU	43_391
17:30	Analysis of the electrical conductivity of a rGO/CNF composite using the four-point probe Valentina AEDO	44_43
17:30	Electrical Conductivity of silk fibroin/rGO hydrogels and the influence of concentration biopolymers on conductivity Valentina AEDO	45_44
17:30	Dye-sorption in liquid for surface area analysis Gaetana PETRONE	46_448
17:30	Topotactic reaction of lithium aluminum layered double hydroxide layers on aluminum metal substrates for lithium recovery Yongju LEE	47_472
17:30	Luminescence properties of o-toluidine based carbon dots Woo Tae HONG	48_478
17:30	Development of Epoxy-Boron Nitride Based High Thermal Conductive Films for Flip Chip Bonding Process Jin-Hyuk OH	49_486
17:30	Synthesis and Characterization of ZnO NiO nanocomposites for antibacterial activity Kanza KAYANI	50_533
17:30	Study on invar Fe-Ni alloy electroforming process to replace all-solid-state battery electrodes as collector Kyoung-Bo KIM	51_56
17:30	Investigation of during heating in vacuum of a double chromium-copper coating deposited on alumina ceramic Tatyana STETSYUK	52_594

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17:30	Aerogel-based composites obtained through microfluidic methods for water decontamination Alexandra Cătălina BÎRCĂ	54_653
17:30	Graphene-based quantum dots as promoters of the photocatalytic activity of anodic nanostructured TiO ₂ nanotube layer Ainārs KNOKS	55_739
17:30	Giant Magnetoelastic effect in Tb _{1-x} Cox amorphous thin films Mohamed Larbi SOLTANI	56_747
17:30	Photobleach effect of multi-color emitting carbon dots for UV-light sensing Jin Young PARK	57_774
17:30	Self-aligned 1D ZnO with NiO multi-nanosheets for high efficiency of photonic emitter Young-Hyeun KIM	58_787
17:30	NO ₂ gas sensor using ZnO hemitubes and nanotubes covered with TiO ₂ nanoparticles for room temperature operation by ultraviolet photoactivation Tae-Kyun MOON	59_800
17:30	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 Marta COLOMBO	60_827
17:30	Fabrication of optically transparent and highly hydrophobic GaN thin films by reactive magnetron sputtering Ananya BANSAL	61_875
17:30	Electrochemical Characterization alginate/rGO hydrogels as dressings for wound healing Valentina AEDO	62_88
17:30	Undirected C-H Bond Activation in Aluminium Hydrido Enaminonates Chijioke Kingsley AMADI	63_915
17:30	Magnetic Iron Oxide Nanoparticles Coated in Silica to Form a Protective Fe ₃ O ₄ @SiO ₂ Core/Shell Structure Patrycja Edyta ROSE	64_924
17:30	Synthesis of Cu and Sn co-doped NiO nanoparticles for electrochemical sensing of urea Alina MUSTAFA	65_927

17:30	Reactivity of functionalised surfaces with atmospheric radicals Amy WOLSTENHOLME-HOGG	66_929
17:30	Luminescence tuning of Polyvinyl Formal-based nanocomposite films Geraldo Cristian VÁSQUEZ	67_934
17:30	Se-Vacancy Healing with Substitutional Oxygen in WSe ₂ for High-Mobility p-Type Field-Effect Transistors Riya DUTTA	68_997
17:30	Printed graphene electrodes for textile embedded triboelectric nanogenerators for biomechanical sensing Ismael DUARTE DOMINGOS	69_574

Wednesday, 20 September 2023

PHOTOELECTROCHEMICAL PROPERTIES OF NANOCOMPOSITES 109

14:00	Design strategies for electrocatalysts with enhanced activity and selectivity Mohammadreza KARAMAD	1023
14:30	Photoelectrochemical properties of doped Au-TiO ₂ nanowires Massimo ZIMBONE	563
14:45	Wet-chemical Synthesis and Catalytic Properties of Metal Nanomaterials with Unconventional Crystal Phases Ye CHEN	691
15:00	MXene's photoactivity in service of the environment Agnieszka JASTRZEBSKA	1124
15:30	Coffee Break	

STORAGE APPLICATION OF NANOCOMPOSITES 110

16:00	Discovering new intercalation materials and intercalation mechanisms for emerging sodium-ion and potassium-ion batteries Yang XU	297
16:30	Optimization of Prussian blue-carbon hybrid materials for their use as electrodes in Zn-ion batteries Leandro Nicolás BENGGOA	1408

16:45	Flexible Zinc-Sulfur Battery with 2D-Ti ₃ C ₂ T _x Supported Sulfur Cathode for Augmented Aqueous Zn-S Conversion Kevalkumar Kishorbhai SONIGARA	558
17:00	3D SnO anode materials for thin film lithium-ion batteries Kim MEE-REE	837
17:15	Phosphorus Based Anode Materials for Fast-Charge Li-ion Batteries Hengxing JI	1241
17:30	Modulating the sulphide surface with ultrathin oxide atomic layer for high performance energy storage application Sangeeta ADHIKARI	1198
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. Dinesh BHALOTHIA	775

Thursday, 21 September 2023

CARBON BASED NANOCOMPOSITES 111

8:30	Carbon nanotube based melt-mixed polymer composites for thermoelectric applications Petra PÖTSCHKE	515
9:00	Solution for the metal oxide nanomaterials-based electrochromic device Kunyapat THUMMAVICHAI	77
9:15	Energy Level Control for Ambient Stable n-type Carbon Nanotube/Organic Small Molecules Thermoelectrics Tae-Hoon KIM	463
9:30	Voltammetric Measurement of Neuropeptides with Graphitic Carbon Nanomaterials Modified Microelectrode Biosensors Alexander ZESTOS	1158
9:45	Carbon Nanostructure – Metal Oxide Hybrid Structures for Field Electron Emission Application Indranil LAHIRI	484
10:00	Additive manufacturing of materials with embedded electrically conductive paths and their applications Bartosz GACKOWSKI	481

10:15	Tuned Assembly of MXene and rGO as an aerogel in ternary composites (MGA-Cu ₂ O) for non- enzymatic glucose sensor Abdullah ALODHAYB	121
10:30	Coffee Break	

OPTOELECTRONIC DEVICES 112

11:00	New device architectures and performance limiting factors of organic near-infrared detectors Koen VANDEWAL	349
11:30	Unveiling the Conduction Mechanism and Persistent Photoconductivity in WSe ₂ based Multifunctional Nanocomposite Thin Films Manjot KAUR	1534
11:45	Perovskite-Polymer nanocomposite for stable photovoltaic devices Nadir VANNI	957
12:00	All solution-processed organic phototransistor for NIR light detection at low voltage for integration into optical biosensors Giulia BARONI	401
12:15	Ag nanoaggregates as broadband sensitizers for RE ³⁺ -ions in sol-gel silica-soda glasses: a route to efficient and sustainable lighting Francesco ENRICHI	1126
12:30	Photo-thermoelectric devices based on plasmonic-coupled solution-processed vanadium dioxide (VO ₂) sensitive to short-wave infrared photons Fang ZHUOQUN	1320
12:45	Lunch	

ADVANCED STRUCTURAL AND MORPHOLOGICAL CHARACTERISATION OF NANOCOMPOSITES 113

14:00	Nanoscale morphology and composition of functional thin films studied by near-field optical microscopy Achim HARTSCHUH	928
14:30	Disentangling the structure of nanocrystalline materials for Energy by Crystallography Anna MOLITERNI	982

14:45	Highly tuneable plasmonic and interferencial response on gold implanted glasses by femtosecond laser irradiation Mario GARCIA-LECHUGA	1389
15:00	An optical probe for determining the domain size in organic bulk heterojunctions Ardalan ARMIN	987
15:30	Coffee Break	

STRUCTURAL AND OPTO-ELECTRONIC CHARACTERISATION OF NANOCOMPOSITES 114

16:00	Brownmillerite/Perovskite Oxide Nanocomposite Thin Films: Growth, Electronic Structure and Spectroscopic Studies Amit KHARE	610
16:30	Highly pure nanocomposites of monochiral SWCNTs and conjugated polymers Dawid JANAS	1178
16:45	Smart graphene-based cement composites: impedance spectroscopy study Małgorzata SAFUTA	1424
17:00	Multi-layered Thermoplastic Polyurethane Nanocomposites with Spinel Ferrite Nanoparticles and Graphite for Electromagnetic Interference Shielding Application Nithiya Hanna WILSON	918

Symposium Sponsors



Symposium J

Sessions: Room 134 | Main Building

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

MANUFACTURING

EXPLORING THE POTENTIAL OF BIDIMENSIONAL MATERIALS FOR ENERGY AND OPTOELECTRONICS

Symposium organizers:

Akimitsu **NARITA**

Hai **WANG**

Silvio **OSELLA**

Teresa **GATTI**

- Okinawa Institute of Science and Technology Graduate University
- Max Planck Institute for Polymer Research
- Centre of New Technologies, University of Warsaw
- Department of Applied Science and Technology, Politecnico di Torino

Monday, 18 September 2023

CATALYTIC ACTIVITY OF 2D MATERIALS

J01

9:15	High-density single-atom catalysts: preparation, characterization, and applications Yazhou ZHOU	1255
9:45	Triangular and hexagonal features with atomically sharp edges in multilayer MoS ₂ : fabrication and nanoelectrochemical assessment of hydrogen evolution activity Alexander POLYAKOV	687
10:00	Large area van der Waals MoS ₂ -WS ₂ heterostructures for visible-light photocatalysis and energy conversion Matteo GARDELLA	1242
10:15	Bismuth(III) oxyiodide nanoplatelets thin films as sustainable photoelectrodes for water oxidation Roberto ALTIERI	718
10:30	Coffee Break	

NANOGRAPHENES: SYNTHESIS AND OPTOELECTRONIC PROPERTIES

J02

11:00	Optical properties of single nanographenes Jean-Sébastien LAURET	505
11:30	Excited state dynamics of nanographenes: from cove-edge to triply fused porphyrin-nanographene systems Juan CABANILLAS GONZALEZ	1432
12:00	New Hybrid Charge Transfer Complexes for Opto-Electronics Applications Alexander KUKHTA	509
12:15	Bottom-up synthesis of oxygen-doped dibenzo[h _i ,st]ovalene N. Maximilian BOJANOWSKI	606
12:30	Lunch	

HYBRID INTERFACES

J03

14:00	Defect Engineering in 2D Semiconductors: Fabrication of Hybrid Multifunctional Devices Stefano IPPOLITO	465
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14:30	Temperature-dependent lattice expansion and phonon anharmonicity in 2H-MoS ₂ /graphene heterostructure - a first-principles study Konrad WILCZYNSKI	1558
14:45	Hybrid piezoresistive 2D MoS ₂ /PEGDA/PANI covalent hydrogels for wearable strain sensors Sara DOMENICI	196
15:00	Coupling of OD-2D materials for highly sensitive broad-band photodetector Mukesh Kumar THAKUR	167
15:15	Nanomaterials for High Responsivity Photodetectors: A Focus on Gold Nanorods, UCNPs, MoS ₂ , and Graphene-based Systems Surojit CHATTOPADHYAY	138
15:30	Coffee Break	

BATTERIES AND SUPERCAPACITORS I **J04**

16:00	Investigating the dual reaction pathways of electrochemical potassium storage in molybdenum disulfide Yang XU	292
16:30	Harnessing the Potential of Ultrathin 2D Nanosheets (A ₂ FeSiO ₄ , A= Li, Na, K) for Next Generation Alkali-Ion Batteries Lalit Kumar SINGH	1394
16:45	The reversibility of fluorinated graphite in solvent-free lithium battery Marie COLIN	568
17:00	Tunable Electron-Deficient 2D Polyarylene-Vinylenes Stabilize Sulfur for Battery applications Albrecht L. WAENTIG	992
17:15	Porous organic frameworks materials as multifunctional carriers for biomedical applications: Coupling light driven propulsion and actuation to drug delivery and cancer therapy Filip PODJASKI	1035

Tuesday, 19 September 2023

NANOGRAPHENES: OPTICAL PROPERTIES **J05**

9:00	Synthesis and Optical Properties of „Bottom-up” Graphene Quantum Dots Stephane CAMPIDELLI	187
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9:30	The influence of functionalization on graphene flakes Dominik SUWALA	604
9:45	Theoretical insight into optoelectronic properties of carbon dots, organic molecules and graphene derivatives Michal LANGER	296
10:00	Graphene-encapsulated hybrid perovskite photodetectors Damien VOIRY	1025
10:30	Coffee Break	

PEROVSKITES J06

11:00	Physical properties of 2D multilayered perovskites and 2D/3D bilayers for photovoltaics Jacky EVEN	403
11:30	Enhancing Stability and Band Alignment in Cs ₂ AgBiBr ₆ -based HTM Free Solar Cells by Applying a 2D Surface Modification Fabian SCHMITZ	132
11:45	Flexible and Efficient Semi-Empirical DFTB methods for Electronic Structure Prediction of 3D, 2D and 3D/2D Halide Perovskites Junke JIANG	1431
12:00	Gaining a sounded understanding of excitons in 2D halide perovskites: contributions from atomistic modeling Claudio QUARTI	333
12:30	Lunch	

TRANSPORT PROPERTIES IN CONFINED MATERIALS J07

14:15	Quantitative scanning thermal microscopy studies of the influence of interfaces and heat transport anisotropy in 2D materials Sergio GONZALEZ-MUNOZ	73
14:30	On-Water Surface Synthesis of Two-Dimensional Polymer Films toward Optoelectronic and Energy Devices Zhiyong WANG	325
14:45	Exceptionally High Charge Carrier Mobility in Phthalocyanine-Based Ladder-Type 2D Conjugated Polymers Mingchao WANG	74

15:00	Antidoping behavior in two-dimensional materials: when doping moves band in opposite direction Asha YADAV	877
15:15	Symmetry Reduction Strategy Towards Semiconducting Conjugated Coordination Polymers with High Mobility Xing HUANG	863
15:30	Coffee Break	

2D MATERIALS BEYOND GRAPHENE

J08

16:00	Opto-electronic properties of 2D/layered materials by DFT and post-DFT methods: from TMDs to halide perovskites Maurizia PALUMMO	471
16:30	Cathodic deposition voltage-dependent properties of electrodeposited CdSe thin films from cadmium nitrate source for solar energy application Francis DEJENE	3
16:45	Sputter deposition and pulsed laser crystallisation of MoS ₂ films Alessandro TONON	1484
17:00	Strain-doping tailoring of MoS ₂ on Au substrate under controlled environment conditions Emanuele SANGIORGI	1062
17:15	Exploring the optical properties of In _x Ga _{1-x} Se Rodolfo CANET-ALBIACH	726

POSTER SESSION

JP

17:30	Impact of Graphene Oxide Addition on Photovoltaic Properties of Non-Fullerene Bulk Heterojunction Solar Cells Maria Luiza STINGESCU	01_1611
17:30	Photoresponse of Graphene Channel in Graphene-Oxide-Silicon Photodetectors Kuo-Chih LEE	02_188
17:30	Facile synthesis of 2D MoS ₂ /BiOI heterojunctions as photoanodes Micaela POZZATI	03_207

17:30	Synthesis of atomically thin yellow pearl: An impetus for non-linear optical effects assisted light scattering applications Nabarun MANDAL	04_264
17:30	Investigating and Modulating Interfacial Charge Flow across Graphene/WS ₂ Heterostructure Guanzhao WEN	05_266
17:30	Manipulation of thermal conductivity in twisted bilayer MoSe ₂ Manab MANDAL	06_591
17:30	Probing phonon anharmonicity induced thermal conductivity in Multilayer MXene Ti ₃ C ₂ T _x Kaushalya KUMARI	07_597
17:30	Ligand Decomposition Governs the Inter-Nanoplatelet Distance and Coupling Strength by Thermal Annealing Shuai CHEN	08_994
17:30	Strongly Hydrogen-bonded Water Molecules Confined in Nb ₄ C ₃ T _x MXenes Min LIU	09_1319
17:30	Harnessing the Potential of Two-Dimensional Heavy Pnictogen Chalcogenides for Solar Energy Harvesting Device Applications Yong Chan CHOI	10_1396
17:30	Fabrication of MoS ₂ using mist chemical vapor deposition Masahiko KOMASTU	11_1425
17:30	Copper tin oxide: An amorphous ternary oxide system with tunable optical and electrical properties Arne JÖRNS	12_1481

Wednesday, 20 September 2023

BATTERIES AND SUPERCAPACITORS II

J09

14:00	Fluorographene derived graphenes for energy storage Michal OTYEPKA	731
14:30	2D Porous Frameworks for next-generation energy storage devices Minghao YU	456
15:00	Synthesis of polymer/MoS ₂ nanocomposites for the preparation of electrodes of sodium-ion batteries Laurence COURTHÉOUX	598

15:15 Construction of supercapacitors by assembling sputter-grown nanostructured thin film electrodes **581**
Ravikant ADALATI

15:30 Coffee Break

MXENES FOR ENERGY STORAGE J10

16:00 4D Printing of MXene Hydrogels for High-Efficiency Pseudocapacitive Energy Storage **761**
Ke LI

16:15 Band transport by large Fröhlich polarons in MXenes **587**
Wenhao ZHENG

16:30 Comparison of ex-situ and in-situ addition of base on the electrochemical performance of Ti3C2Tx MXene supercapacitor electrode **662**
Arackal Sukumaran ASHA

16:45 Charge Storage Mechanism in V2CTX MXene for Aqueous Zinc-Ion Battery Studied by in situ X-ray Absorption Spectroscopy **1542**
Andreas WEISSER

17:00 Composite 2D nanostructures for hydrogen production **19**
Alberto VOMIERO



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

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BEILSTEIN JOURNAL
OF NANOTECHNOLOGY

Symposium K

Sessions: Room 309 | Main Building
Poster Session: Aula | Physics Building

MANUFACTURING

SMART MATERIALS FOR NANOELECTRONICS AND NANOPHOTONICS

Symposium organizers:

Dawid **JANAS**

Rosaria **PUGLISI**

Teresa **MONTEIRO**

Yogendra Kumar **MISHRA**
(Main organizer)

- Silesian University of Technology,
- CNR-IMM
- University of Aveiro, Department of Physics & I3N
- Mads Clausen Institute, University of Southern Denmark

Monday, 18 September 2023

		NANOELETRONICS	K01
8:00	Molecular Building Blocks for Brain-Inspired Computing Sreetosh GOSWAMI		1665
8:30	Study and electric characterization platform of ferroelectric PZT Emmanuel Armando GARCIA RAMIREZ		1114
9:00	Neuromorphic Nanoparticle Networks: Complex Brain-like Dynamics and Current Pathway Visualization Blessing ADEJUBE		263
9:15	Illustrating excited state dynamics in Donor - Acceptor conjugated polymer Tejasvini SHARMA		795
9:30	Temperature Coefficient of Resistivity of W-doped VO ₂ Thin Films by Atomic Layer Deposition for High Efficiency Microbolometers Callum WHEELER		98
9:45	Investigation of operational characteristics in the multilayer electrochromic system. Janusz RYBAK		968
10:00	Metal-chlorides as surface modifiers for high-performance OLEDs: A comprehensive analysis of charge transfer and interface engineering strategies Shabnam AHADZADEH		215
10:15	Electrically conductive composite fibers of Polyamide and Poly(pyrrole) for smart textiles Kiran RANA		652
10:30	Coffee Break		

		ENERGY MATERIALS	K02
11:00	Functionalised nanocomposites of polyaniline for smart windows and display applications Amarjeet KAUR		1704
11:30	Biocompatible Energy Harvesters for Pacemaker Applications: A Simulation to Fabrication Approach Sunny SHARMA		1330

11:45	A biocompatible PVDF-CaTiO ₃ composite for self-powered activity tracking and energy harvesting Swati PANDA	203
12:00	FeS ₂ as a Photothermal Material: Effects of Synthesis Parameters on Photothermal Activity Gulcihan GUZEL KAYA	823
12:30	High performance MXene/ZnO composite for supercapacitor electrode materials Manjeet Singh GOYAT	1666
12:30	Lunch	

METAMATERIALS AND PLASMONICS K03

14:00	Self-assembled designer monocrystalline metasurfaces Beniamino SCIACCA	1585
14:30	Gap-plasmon crystallography Peeranuch POUNGRIPONG	1344
14:45	Benchmarks of flat Terahertz optics for nonparaxial single-pixel imaging and material inspection Sergej ORLOV	1015
15:00	Waveguided Random Lasers: A comparison of SiO ₂ and Ag based Lasing Devices Arindam DEY	813
15:15	Broadband plasmonic absorption of silver films deposited by chemical vapor phase deposition Renaud LETURCQ	489
15:30	Coffee Break	

NANOSTRUCTURE PATTERNING K04

16:00	Generating Hierarchical Micro- and Nanostructures: An Approach via Substrate Conformal Imprint Lithography Eireen KÄKEL	1562
16:30	Maskless metal patterning on polymer surfaces at room temperature and pressure. Ivan B. DIMOV	4

17:00	Photo-induced reshaping of nanoimprinted guest-host systems and development of a tunable nanoimprint stamp based on azo dyes Burhan KABAN	1559
17:15	Reusable SERS Substrate Fabrication via Two-Photon Induced Reduction of Silver Salt in Polymer Matrix Haritha JOSEPH	1447
17:30	Nanoengineered Surfaces for Functional Applications: Self-Cleaning/Wetting Control /SERS-PIERS Oral Cenk AKTAS	1687

Tuesday, 19 September 2023

PHOTONICS AND OPTOELECTRONICS 1

K05

8:00	Synthesis and photoluminescence properties of rare-earth-doped ternary oxide based phosphors for solid-state lighting applications Vijay KUMAR	1254
8:30	Photoluminescence and Judd-Ofelt estimations of red-emitting Eu ³⁺ doped BaLa ₂ ZnO ₅ phosphor Irfan AYOUB	1697
8:45	Exploring the Optical Properties and Thermal Stability of Eu ³⁺ -Doped Ba ₂ Tb ₈ (SiO ₄) ₆ O ₂ Red Phosphor: A Study on Structure, Photoluminescence, and Judd-Ofelt Analysis Nisar HUSSAIN	1695
9:00	Color-tunable luminescence and Judd-Ofelt analysis of Dy ³⁺ doped zinc gallate phosphor Umer MUSHTAQ	1696
9:15	Micro- and nano- Zn ₂ GeO ₄ as new nanomaterial for optoelectronic applications. Pedro HIDALGO	1193
9:30	The Study of LLZO Thin Film Electrolyte using Pulsed Light Treatment Ahrom RYU	788
9:45	To study the nanostructured particles as sorbents for water purification application Paulina PIETRZYK	1671
10:00	Quasi-static puncture resistance and yarn pull-out performance of novel shear thickening fluid impregnated jute fabric Manjeet Singh GOYAT	1672
10:15	Tetrapods based Smart Materials for Advanced Technologies Yogendra Kumar MISHRA	1628

10:30 Coffee Break

PHOTONICS AND OPTOELECTRONICS 2

K06

11:00	Phase-Change Materials for Tunable Photonic: A holistic approach to modulate the photonic properties Vibhu SRIVASTAVA	1675
11:30	Wide optical range microcavities in luminescent beta-Ga ₂ O ₃ nanowires and applications in wide temperature range sensors Emilio NOGALES	520
11:45	Crystal field analysis of Tb ³⁺ ions doped indium tin oxide thin films Erick SERQUEN	1561
12:00	Rare earth doped ZnO-ZnWO ₄ eutectic composite Monika TOMCZYK	1459
12:15	Exploring luminescence properties of beta-and gamma-Ga ₂ O ₃ nanoparticles Bianchi MÉNDEZ	517
12:30	Bright and stable yellow light-emitting electrochemical cells using BN-doped contorted nanoribbons Luca Maria CAVINATO	360
12:45	AlIIBV eutectic material - manufacturing, properties and applications Katarzyna SADECKA	572
13:00	Lunch	

2D MATERIALS I

K07

14:30	Exciting optoelectronic behavior of Antimonene/hexagonal Boron Nitride van-der Waals heterostructure for Sensor and Photonic applications: An Ab-Initio Analysis Anup SHRIVASTAVA	1674
14:45	Layered Nanostripes of Transition Metal Dichalcogenides Obtained using the Surface Rubbing Method Gagik SHMAVONYAN	1358
15:00	Effects of gamma on the switching performance of MoS ₂ based Resistive Random Access Memory (RRAM) devices Arun NIMMALA	1433

15:15 Fabrication of 2D Materials-based Memristive Artificial Synapses 665
Anjala JAYARAJ

15:30 Coffee Break

2D MATERIALS II **K08**

16:00 Pressure- and temperature-dependent photocurrent in 2D materials 663
Antonio DI BARTOLOMEO

16:30 Solution approach for smart Janus 2D heterostructures 1311
Natalia VASSILYEVA

16:45 Architectural design of flexible and transparent photodetector via layer transfer technique based on MBE grown MoTe₂ nanosheets 1278
Nahid CHAUDHARY

17:00 Low-dimensional Mo and W oxide materials synthesized by resistive Joule heating 554
Beatriz RODRÍGUEZ FERNÁNDEZ

17:15 Fabrication of nanostructured lanthanum disulfide as an efficient field emitter 678
Anima MAHAJAN

POSTER SESSION **KP**

17:30 Carbon ink printed flexible aptasensor for rapid and point of care detection of Chikungunya virus 01_25
Pradakshina SHARMA

17:30 DFT study of electronic and magnetic properties of small bimetallic Cu_NIn (n=1-14) materials 02_87
Ilham OULKHIARI

17:30 Preparation of Ultra-long Doped Titanium Dioxide Nanowires for Artificial Intelligence Sensor Array 03_156
Kefan ZHANG

17:30 Electrical and photoelectrical properties of ZnO nanorods and ZnO-F8BT-PEDOT:PSS-Ag heterojunction 04_206
Keshav NAGPAL

17:30 Photo-response properties of Au/SiC/Si multilayer structure in Infra-Red region 05_273
Alisha ARORA

17:30	<p>MXene-based impedimetric electronic tongue for neurotransmitters detection Murilo Henrique Moreira FACURE</p>	06_431
17:30	<p>Indium nanostructures growth mechanisms on A3B6 layered templates Taras MAKAR</p>	07_449
17:30	<p>Brazing of Al2O3-ceramic to metal for high-temperature application Tatyana STETSYUK</p>	08_595
17:30	<p>Low dimensional nanometere-thin amorphous oxide semiconductor deposited by solution process for high performance transistors Jun-Hyeong PARK</p>	09_658
17:30	<p>Inexpensive synthesis of borophene for sensing application Juan CASANOVA-CHAFER</p>	10_752
17:30	<p>A cutting-edge approach for advancing Raman nanoscopy using photonic nanojet Gour Mohan DAS</p>	11_759
17:30	<p>Self-arrayed GaN nanorod photonic emitters by the electric field assist for display pixels Sohyeon KIM</p>	12_377
17:30	<p>Characteristics of low-scale photonic emitters with oxide passivation Yoojin KIM</p>	13_803
17:30	<p>Optically active defects in 4H-SiC Teresa DUARTE</p>	14_1003
17:30	<p>Heat-induced Fragmentation of Gold Nanowires for Surface Enhanced Raman Scattering Substrates Annamarija TRAUSA</p>	15_849
17:30	<p>Efficient design strategy of nanoscale Tunnel-FET using optimized channel binary alloys Faycal DJEFFAL</p>	16_1237
17:30	<p>Ultra Broad Supercontinuum Generation with Elliptical Core Chalcogenide Fiber Protik ROY</p>	18_1474
17:30	<p>High performance electric field sensing using BiFe0.9Co0.1O3 hosted in fiber-optic Fabry-Perot configuration Isha SHARMA</p>	19_1475

17:30	Light trapping in arrays composed of sub-wavelength for Photovoltaic application Ankit KUMAR	20_1496
17:30	Morphological variations of ITO nanorods by controlling growth conditions through the thermal chemical vapor deposition Hong Tak KIM	21_1440
17:30	ZnO Bimetallic Complexes for Chemiresistive Detection of Ethanol Vapours Soumi MUKHERJEE	22_1520
17:30	Optical Properties of Free-standing laser-induced graphene Lina QADDAH DUKHAN	23_1590

Wednesday, 20 September 2023

SENSORS I K09

14:00	2-D nanostructures of regularly arranged nanoparticles for sensor applications Sigitas TAMULEVICIUS	1026
14:30	Wearable Sensors for Healthcare Applications: Recent Advancements and Future Ajay BENIWAL	1676
14:45	PdAg alloy thin film-based hydrogen sensor at room temperature Avantika CHAUHAN	913
15:30	Coffee Break	

SENSORS II K10

16:00	Piezoelectric Nano Sensors and Energy Devices Hoe Joon KIM	1204
16:30	Robust q-BIC all-dielectric metasurface for refractive index sensing Jack DOBIE	430
16:45	In-situ synchrotron XRD study on hydrogen interaction with PdAg alloy thin film at different temperatures Avantika CHAUHAN	1715

17:00	Electroanalytical method for the estimation of Liothyronine using Molecularly Imprinted Polymer Annu MISHRA	846
17:15	Plasmonic resonances observed at high resolution in silicon nanostructures Rizwan RAFIQUE	1682

Thursday, 21 September 2023

NANOMATERIALS SYNTHESIS 1 K11

8:30	Utilization of spark discharge deposition in ultrafast thermal characterization suitable for nanoscale materials Vilko MANDIĆ	551
9:00	Thin Film based highly efficient flexible asymmetric Supercapacitor for advanced electronic applications Ramesh CHANDRA	1724
9:30	GaAs nanowires with (Pb,Sn)Te crystalline topological insulator shells grown by molecular beam epitaxy Janusz SADOWSKI	1538
9:45	Comparison of optical and luminescence properties of as prepared and annealed ZnO nanoparticles prepared using sol-gel method Francis DEJENE	310
10:00	Toward a virtual DoE of laser annealing for silicon-germanium patterned nanostructures Damiano RICCIARELLI	1509
10:15	Nanocube Assembly _ la carte Muhammad Luthfi FAJRI	1365
10:30	Coffee Break	

NANOMATERIALS SYNTHESIS 2 K12

11:00	Cu-based nanostructures in Transparent electrodes for light harvesting in solar cell. Stefano BOSCARINO	932
11:30	Micro- and nanostructures based on combined Ni and Mn oxides fabricated by a vapor-solid method David MAESTRE	577

11:45	Formation of self-organized nano-dimensional structures on indium phosphide surfaces using ion irradiation and their wettability Indra SULANIA	1673
12:15	One pot synthesis of Cu@M (M=Ni, Sn) bimetallic core-shell nanowires for a new generation of transparent electrodes Andela KRIZAN	1290
12:30	Optimizing device parameters affecting polycaprolactone nanofiber electrospinning using BBD method Elham CHAMANEHPOUR	1457
12:45	Lunch	

ELECTRONIC APPLICATIONS 1 K13

14:00	Role of Nanomaterials in point of care diagnostics Ashish MATHUR	373
14:30	Scanning Spreading Resistance Microscopy and Scanning Capacitance Microscopy for two dimensional carrier profiles of 4H-SiC M. ZIGNALE	1681
14:45	The molecules aggregation kinetics in the Molecular Doping and their effect on the electrical efficiency. Rosaria PUGLISI	1438
15:15	Ferromagnetism and Ferroelectricity in a Superlattice of Antiferromagnetic Perovskite Oxides Without Ferroelectric Polarization Avijet RAY	9
15:30	Coffee Break	

ELECTRONIC APPLICATIONS 2 K14

16:00	Development of surface modified carbon material electrode for EDLC application Amrita JAIN	1670
16:30	Resistive switching in RRAM structures based on hydrothermally grown CuO thin films Monika OZGA	886

16:45	Piezo/photo-electricity of SbSI nanowire heterostructure Bartłomiej NOWACKI	1564
17:00	Subfield Addressing of Ring-Shaped MEMS Shutter Arrays with Polygonal Structures Roland DONATIELLO	1530
17:15	Redox-based Resistive Switching in Polyoxometalate Memory Devices Emilie GEROUVILLE	1008



2023 Fall Meeting

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Symposium L

Sessions: Room 219 | Main Building
Poster Session: Aula | Physics Building

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Symposium organizers:

- | | | |
|----------------------------------|---|---|
| Hyacinthe RANDRIAMAHAZAKA | - | Université Paris Cité - CNRS |
| Nianjun YANG | - | Hasselt University, Institute of Materials Research |
| Paula COLAVITA | - | Trinity College Dublin, School of Chemistry |
| Quan-Hong YANG | - | Tianjin University |

Monday, 18 September 2023

		PLENARY SESSION	L01
9:00	One-Dimensional vdW Heterostructures Based on Single-Walled Carbon Nanotubes Shigeo MARUYAMA		450
9:30	Functionalized diamond nanomaterials for applications in energy storage, biomedicine and catalysis Anke KRUEGER		826
10:00	Preparation of Macromaterials from Nanocarbons by Interface Charge Injection Yanwu ZHU		32
10:30	Coffee Break		
		II	L02
11:00	Phase Engineering of Nanomaterials (PEN) Hua ZHANG		225
11:30	Measurement of the morphology of graphene-related 2D materials as flakes Giovanni CHEMELLO		1064
11:45	Nanoporous Carbon-Based Thin Films Synthesized by Magnetron Plasma Enhanced Chemical Vapor Deposition Technique Alexei N. NAZAROV		585
12:30	Lunch		
		DIAMOND I	L03
14:00	Elastic properties of undoped and P-doped thin diamond films Ken HAENEN		1137
14:30	Vector magnetometry using Nitrogen-Vacancy color centers in nanodiamonds Saravanan SENGOTTUVEL		1262
14:45	High open circuit voltage diamond radiation voltaic battery achieved by introducing oxide dielectric layer Wenchao ZHANG		90

15:00 CVD diamond and it is devices 92
Jiaqi ZHU

15:30 Coffee Break

Tuesday, 19 September 2023

CNTs L05

9:00 Transport Properties of Carbon Nanotubes Under High Magnetic Fields 1601
Teresa KULKA

9:15 Selective differentiation of polydisperse mixtures of single-walled carbon nanotubes 1139
Dawid JANAS

9:30 Elemental Amorphous Carbon versus Binary Amorphous Boron Nitride Monolayers 51
Yuyang ZHANG

9:45 Field Emission Performance of VACNTs Synthesized by Vacuum Decomposition 1615
Erhan GURPINAR

10:00 Carbon-based Functional Inks for Printed Electronics 1552
Nicolas BATTAGLINI

10:30 Coffee Break

SENSING L06

11:00 Nanodiamond based non-local deformation sensing—towards live cell applications 1181
Quan LI

11:30 Quantum sensing of free radicals in primary human granulosa cells with nanoscale resolution 276
Nuan LIN

11:45 Preparation, Regulation and Application Technology of Nitrogen-Vacancy Centers in diamond 172
Sen ZHANG

12:00 Single Cell Level Raman Analysis Based on Graphene-TiO₂ Nanocomposites 931
Tingting ZHENG

12:30 Lunch

APPLICATIONS -BATTERY L07

14:00	Carbon Anodes for Sodium-Ion Batteries: In situ Characterization of the Solid/Electrolyte Interface Sven DABOSS	1579
14:30	Revealing the Factors of Broadening Potential Windows of Diamond Electrodes by Redox-active Additives Tianxiao GUO	526
14:45	New Structure Materials Design for Electrochemical Energy Storage Junye CHENG	935
15:00	Shrunk graphene network toughening micro-silicon anodes towards 1000 Wh/L Li-ion batteries Debin KONG	1446
15:30	Coffee Break	

MECHANISMS L08

16:00	Mechanism and Applications of Multicolor Carbon Dots with Improved Fluorescence Quantum Yield Yang TIAN	216
16:30	Luminescence phenomena of citric acid-derived carbon dots – a molecular insight Wiktor KASPRZYK	1337

POSTER SESSION LP

17:30	Engineering bifunctional PtCo@NC electrocatalyst for efficient hydrogen evolution and methanol electrooxidation Yanxi QIN	01_1033
17:30	Research on Biomass-Derived Hard Carbon Materials and Application in Sodium-Ion Batteries Hua WANG	02_1043
17:30	Electrochemical Reduction of CO ₂ using Boron-Doped Diamond Electrodes: The Influence of Deposition Times Huiqiang LIU	03_1041

17:30	Air Plasma to Fabricate N-doped Carbon Host for High Reversible Sodium Metal Anode Hua WANG	04_1049
17:30	Ultra-fast hard carbon-based sodium ion battery at -40? Hua WANG	05_1052
17:30	Machine Learning-Powered Raman Histopathology for PD-L1 Expression Visualization in Glioblastoma Immune Microenvironment Jingxing GUO	06_1067
17:30	Biohybrids Nanocarbons Functionality: DNA-templated fullerene C60 molecular photonics Eugenia BUZANEVA	07_1069
17:30	pH-regulated electrochemical exfoliated graphene for highly sensitive sensing of biomolecules Xiaoyu LI	08_1077
17:30	Construction of MAPbBr ₃ @carbon nanospheres@Bi ₂ O ₃ ternary heterojunctions for high-efficient photo-electrochemical deoxyribose immunosensing Miao-Miao CHEN	09_1084
17:30	Low Emissivity Sheets and Coatings using Carbon Nanotubes and Cellulose for Infra-Red Shielding Juveiriah M. ASHRAF	10_1244
17:30	Nanocomposites of Hexagonal Boron Nitride Nanosheet with Chlorin e ₆ as a Bimodal Nanosensitizer for Cancer Therapy Naoki KOMATSU	11_1281
17:30	Enrichment of Semiconducting SWNTs through the Extraction with Phenanthroline-based Nanocalipers Naoki KOMATSU	12_1282
17:30	Optical Resolution of SWNTs with Small Chiral Molecules Tethered by Dipyrin Nanobrackets through Metal Complexation Naoki KOMATSU	13_1284
17:30	Investigating the energetic band diagrams of oxygen-terminated CVD grown e ₆ electronic grade diamond Kang LIU	14_1295
17:30	Ni-based Catalysts for Energy-Saving CO ₂ Electroreduction to CO by Coupling Hydrazine Oxidation Zhenhai WEN	15_1315
17:30	Laser Induced Ti ₃ C ₂ T _x MXene Reinforced Carbon Nanofibers for Flexible Solid-State Supercapacitor Bihui HU	16_1322

17:30	Biocompatibility : intermediate water concept in design biomedical materials future Eugenia BUZANEVA	17_1333
17:30	All-printed flexible quasi-solid hybrid supercapacitors Hyacinthe RANDRIAMAHAZAKA	18_1338
17:30	Electrochemical Sensor of Furan Antibiotics Based on Laser Induced Graphene Electrode Modified by Single Atom Cu-N-C Catalyst Like CHEN	19_1342
17:30	Controlled generation and quantification of multiple reactive oxygen species in the living brain: a therapeutic integrated nanoprobe Da YIFAN	20_1348
17:30	MPCVD grown diamond for quantum devices: Effect of nitrogen in the growth chamber Rahul RAJ	21_1354
17:30	Ultra-nanocrystalline boron-doped diamond to achieve higher kinetic inductance Jayanta JANA	22_1364
17:30	Carboxylic group Intercalation into NiFe-LDH for High-Performance and Durable Large-Current Seawater Electrooxidation Yilong LI	23_1376
17:30	Nanometer-sized Diamond for Bioimaging and Medical Applications Chia-Liang CHENG	24_1410
17:30	Precise control of carbon crystal structure Yanwu ZHU	25_1420
17:30	Microfluidic Oxidation of Graphite Yanwu ZHU	27_1426
17:30	A novel electrochemical sensor based on CoFe@NC nanocubes for ultrasensitive analysis of nitrite Nianjun YANG	28_1428
17:30	Biocompatibility : intermediate water concept in design biomedical materials future Eugenia BUZANEVA	30_1485
17:30	Biocompatibility : intermediate water concept in design biomedical materials future Masaru TANAKA	31_1504

17:30	Discrete graphitic crystallites promise high-rate ion intercalation for KC8 formation in potassium ion batteries Yibo ZHANG	32_1508
17:30	The effect of N-doping on porous carbon scaffolds for improving the charge transfer kinetics of vanadium redox couples Maida Aysla COSTA DE OLIVEIRA	34_1549
17:30	Construction of Crystalline Nitrone-Linked Covalent Organic Frameworks via Krohnke Oxidation Fangyuan KANG	36_1654
17:30	Comparison of optical and luminescence properties of as prepared and annealed ZnO nanoparticles prepared using sol-gel method Francis DEJENE	37_2
17:30	Kinetic modeling of transient electroluminescence and transient photoluminescence of doped blue TADF in host-guest matrix Dinesh Kumar S	38_228
17:30	Activated carbons derived from zeolitic imidazolate framework for CO2 adsorption Nwabisa KHETHULA	39_306
17:30	Gold Extraction by Graphene and Its Reuse Exploration Hui-Ming CHENG	40_371
17:30	Structural Transformation of Pyrolyzed Quinacridones and Utilization as Anodes for High-performance Sodium-ion Batteries Seongwook CHAE	42_46
17:30	X-ray Micro-Computed Tomography (XMCT) for Quantitative Morphometry of Topological Graphene-based Aerogels and Carbon Foams Sanju GUPTA	43_466
17:30	Organic Dye Derived Carbonaceous Nanocomposites as Anode Materials for Lithium Ion Batteries Taewoong LEE	44_47
17:30	Nitrogen/Oxygen Dual-doped Porous Carbon Hosts derived from Pigments for Lithium Sulfur Batteries Woo Sub HEO	45_48
17:30	Photosensitive-Stamp-Inspired Scalable Fabrication Strategy of Wearable Sensing Arrays for Noninvasive Real-Time Sweat Analysis Hao JUNXING	46_488
17:30	Laser-induced integrated graphene-based array for the determination of trimetazidine Kangbing WU	47_589

17:30	Confined Electrical double-layers in expanded graphite nanosheets Bin CHEN	48_615
17:30	Fabrication of Diamond Nanoneedle Arrays Containing High-Brightness Silicon-Vacancy Centers Bing YANG	49_619
17:30	Metal-organic frameworks meet Uni-MOF: a transformer-based gas adsorption detector Jiapeng LIU	50_621
17:30	Effects of temperature and number of coatings of carbon nanotubes formed on paper substrates Moojin KIM	51_647
17:30	A highly sensitive nonenzymatic electrochemical sensor for glucose based on the synergistic effect of graphene and HKUST-1 Chen XUERONG	52_686
17:30	Role of Reabsorption in the Photoluminescence Quenching of Carbon dots Devan CHERUMUKK	53_698
17:30	Bimetallic MOFs derived CoFe-alloy@C composites-based electrochemical sensor for quantification of acetaminophen Hongfei GU	54_820
17:30	Sulfuration of Layered Nickel-Cobalt-Manganese Hydroxides Towards Novel Supercapacitor Electrode with Enhanced Performance Weikang HE	55_876
17:30	Bamboo-like Fe/Fe ₃ C@N-doped carbon heterostructure-based electrochemical sensor for highly sensitive detection of caffeic acid Shu ZHANG	56_890
17:30	Two-dimensional diamond formation drivers in chemical vapor deposition: planar defects and graphite Nan HUANG	57_914
17:30	Osmanthus fragrans-derived porous carbon: Tunable electrochemistry and sensing application Liudi JI	58_971
17:30	Enhanced electrochemical supercapacitor performance with transition metal phosphides/boron-doped diamond composite film Jing XU	59_993

Wednesday, 20 September 2023

		DIAMOND II	L09
14:00	On-chip Diamond MEMS: concept and sensing applications Meiyong LIAO		24
14:30	Investigating the energetic band diagrams of oxygen-terminated CVD grown e6 electronic grade diamond Kang LIU		1294
14:45	Cu based-Diamond Electrodes for Highly Selective Production of Ammonia from Electrochemical Nitrate Reduction Reaction Xinyue CHEN		1369
15:00	Enhanced Magnetic Sensing Performance of Single-crystal Diamond Resonators through Various Interlayers Zilong ZHANG		1323
15:15	Tin (II) chloride salt melts as non-innocent solvents for the synthesis of low-temperature nanoporous oxo-carbons Xinyue ZHENG		1199
15:30	Coffee Break		

		ENERGY APPLICATIONS II	L10
16:00	Interfacial Design for Advanced Composite Nanomaterials with Enhanced Electrochemical Performances Wei ZHOU		35
16:30	The local role of active sites on carbon model electrodes and nanomaterials for the improved kinetics of vanadium redox couples Maida Aysla COSTA DE OLIVEIRA		1507
16:45	Engineered Graphene-based Porous Nanostructures Ahmad ALLAHBAKHS		1212
17:00	Cesium-Mediated High Specific-Surface-Area Porous Carbons for High-Efficiency Energy Storage Li JIAXIN		1021
17:15	Boosting rGO-based Zn hybrid supercapacitors performance by thiol functionalization Cataldo VALENTINI		1413

Thursday, 21 September 2023

BIOMEDICINE APPLICATIONS

L11

9:00	Tumor eradication by boron neutron capture therapy using 10-boron enriched nanoparticles Naoki KOMATSU	1249
9:30	Catalytic Growth of Single-Walled Carbon Nanotubes with Specified Structure Yan LI	1494
9:45	Covalent Organic Frameworks as Promising Platforms for Diverse Applications Qichun HONG	241
10:30	Coffee Break	

APPLICATIONS IV

L12

11:00	Bacterial detection and antibacterial research in environmental water based on transition metal carbide-gold nanocomposites Jiang LI	816
11:30	Metal@Carbon porous electrode materials for electrocatalytic applications in biomass valorisation Filippo POTA	951
11:45	Optical evaluation of the dispersant ability of amphiphilic active molecules against carbonaceous particles in oil phases Giovanni FERRARO	1299
12:00	Nanowire Energy Storage Materials and Devices Mai LIQIANG	18



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

Symposium Sponsor



**Nano Research
Energy**

Symposium M

Sessions: Room 105 | Mathematics Building

Poster Session: Aula | Physics Building

MANUFACTURING

IN-DEVICE MATERIALS FOR ON-CHIP AND FLEXIBLE ENERGY STORAGE: TECHNOLOGIES, DESIGNS AND INTEGRATIONS

Symposium organizers:

Chunyi **ZHI**

Lin **ZHANG**

Minshen **ZHU**

- City University of Hong Kong

- Leibniz Universität Hannover

- Technische Universität Chemnitz

Monday, 19 September 2023

		ENERGY FOR DEVICES	M01
9:00	Battery2030+ initiative can be the driver of the European research on batteries? The European landscape for the future of electrochemical storage systems. Silvia BODOARDO		446
9:30	A Platform of 3D Printed Devices to Power Wearable Sensors Cecilia MATTEVI		1692
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 Filip PODJASKI		1028
10:15	3D carbon microsupercapacitors based on a multi-photons polymerization approach Nicolas BATISSE		1621
10:30	Coffee Break		

		NON-LITHIUM BATTERIES	M02
11:00	Mechanistic investigation and high-throughput screening of aqueous Li-ion batteries with dilute electrolytes Leiting ZHANG		1725
11:30	Swiss-roll micro-batteries in fluids Hongmei TANG		1016
11:45	Unique electrochemical mechanism of hybrid sodium-ion batteries Yang XU		496
12:00	Understanding Ion Charging Dynamics in Nanoporous Carbons for Electrochemical Double Layer Capacitor Applications Kangkang GE		553
12:15	Harnessing the Potential of Papermaking Techniques to Develop Flexible Paper Electrodes for energy storage devices Haiwei WU		618
12:30	Lunch		

Monday, 18 September 2023

SOLID-STATE ELECTROLYTES M03

14:00	Quality control of solid-state battery material components through standardization and automation of the ionic conductivity measurements of solid electrolytes Fariza KALYK	387
14:30	Construction of Dendrite-Free Metallic Lithium Anodes: From Lithiophilic Designs to Dynamic Electrochemical Diffusion Kinetics Modulations Jian WANG	751
14:45	Highly Stable Lithium Metal Anode with Synergistic Effect of Amine and Phenyl Functional Groups Zhihua LIN	834
15:00	Sputter-grown high voltage (>3V) on-chip microsupercapacitor for miniaturized energy storage application Sheetal ISSAR	797
15:30	Coffee Break	

AQUEOUS ENERGY STORAGE SYSTEMS M04

16:00	Electrolyte engineering in aqueous Zn-ion batteries Guanjie HE	763
16:30	High-Energy and High-safety Zn batteries Longtao MA	1004
16:45	Design and Performance Electrode and Electrolyte Materials for Aqueous Batteries Yan HUANG	690
17:00	Microbatteries: Powering the Future with Miniaturized Energy Storage Wenlan ZHANG	323
17:15	Cesium-Mediated High Specific-Surface-Area Porous Carbons for High-Efficiency Energy Storage Jiaxin LI	1012

	POSTER SESSION	MP
17:30	State-of-Health Estimation of Lithium-Ion Batteries based on machine learning Kang BYEONGSU	01_910
17:30	On-chip micro-supercapacitors based on dielectrophoretic assembly of porous microwires electrodes Seungdeok SEO	02_785
17:30	Current collector-free printed three-dimensional MXene-based anodes for lithium-ion batteries Arailym NURPEISSOVA	03_883
17:30	Zn-rejuvenated and SEI-regulated Additive in Zinc Metal Battery via the Iodine Post-functionalized Zeolitic Imidazolate Framework-90 Yuwei ZHAO	04_697
17:30	Synthesis and structural properties of piezoelectric-magnetostrictive hybrid nanowires for nano magneto-electro- mechanical systems (NMEMS) Wiktoria ZAJKOWSKA	05_1465
17:30	Porous anode materials and solid polymer electrolyte for improving the performances of SSBs Andrei RADU DORIN	06_680
17:30	Enhancing the performance of NiO-based transparent planar Micro-Supercapacitors by introducing defects and increasing strain with Phosphorus doping. Shumile SIDDIQUI	07_200
17:30	Electrochemical characteristics of nickel-rich single crystal cathode materials for lithium ion batteries according to lithium composition Son JONG-TAE	08_30
17:30	A flexible and biocompatible nanostructured NbN@Ni foam supercapacitor towards implantable energy storage applications Siddharth SHARMA	09_1445
17:30	Laser-based microstructuring of Nickel ferrite (NiFe ₂ O ₄) thin film based on-chip spiral inductors Srikanth ITAPU	10_1235

Tuesday, 19 September 2023

ADVANCED MATERIALS FOR ENERGY STORAGE

M05

9:00	High-Kinetics Energy Storage by 2D Layered Materials. Minghao YU	315
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9:30	Transparent Lithium-Ion Thin-Film Battery Fabricated by Stack Configuration of Transparent Materials Ji-Won CHOI	279
9:45	Atomic Layer Deposition of Multivalent Vanadium Oxide on Laser Induced Graphene Fibers for Flexible Supercapacitor Sujit DESHMUKH	724
10:00	Advanced storage materials for the IoT Alexander CHRONEOS	986
10:15	Intergrated Flexible Self-powered Energy Storage Systems with Long-term Stability for Wearable and Implantable Electronics Ming XU	522
10:30	Coffee Break	

MORE THAN BATTERIES

M06

11:00	Multivalent metal anode-organic cathode batteries: Promise and challenges Jan BITENC	543
11:30	Solution-Processed Non-Crystalline Solid Electrolytes for Advanced Energy Storage Alex RETTIE	126
12:00	On-chip power sources for printed thin film transistors and circuits Sushree PRIYADARSINI	683
12:15	Hybrid piezoresistive 2D MoS ₂ /PEGDA/PANI covalent hydrogels for wearable strain sensors Sara DOMENICI	197
12:30	Advancing Data Processing Efficiency: Multivalued Logic Circuits and Vertically-Integrated Heterojunction Transistors Hocheon YOO	1197



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

Symposium N

Sessions: Room 306 | Main Building

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

MANUFACTURING

SUSTAINABLE ADVANCED AND MULTIFUNCTIONAL POLYMER BASED MATERIALS FOR SENSOR AND ACTUATORS, ENERGY AND ENVIRONMENTAL APPLICATIONS

Symposium organizers:

Bruno **AMEDURI**

- Institut Charles Gerhardt (CNRS)

Carlos **M. COSTA**

- University of Minho

Gerardo **HERNANDEZ-SOSA**

- Karlsruhe Institute of Technology

Senentxu **LANCEROS-MENDEZ**

- BCMaterials, Basque Center for Materials,
Applications and Nanostructures

Monday, 18 September 2023

SENSORS/ACTUATORS I

N01

9:00	Multifunctional materials for sensors, actuator and environmental applications: improving performance and sustainability Senentxu LANCEROS MENDEZ	1050
9:30	Self-powered Electronic Paper for IoT based Security Applications Suman NANDY	350
9:45	Recyclable Thermoplastic Polyurethane-Carbon Material Based Strain and Pressure Sensor for Monitoring Human Motions Ajay HARIDAS CP	801
10:00	Fabrication of Multifunctional Adhesive Sensors for Human Healthcare Monitoring Muthamilselvan T	996
10:15	Augmenting automation in stretchable and printed electronics technology for smart patch and wearable sensors Monika RAI	1634
10:30	Coffee Break	

SENSORS/ACTUATORS II

N02

11:00	High sensitivity pressure sensor with ultra-wide linear range by laser-induced gradient micro-pyramids Naveen TIWARI	1191
11:30	Ionic Liquid Based Fully Printed Functional Devices: Advances in Sensing and Actuator Applications Liliana Correia FERNANDES	1473
11:45	A green-compatible printed circuit board sourced from renewable materials Amirsoheil HONARBARI	37
12:00	Multilayer Strategy for Metallized Polypropylene Thin-Film Capacitors Odysseas GKIONIS-KONSTANTATOS	689
12:15	Stretchable Conductive Inks with Carbon-Based Fillers for Conformable Printed Electronics Lia CAMPOS ARIAS	832

12:30 Lunch

SENSORS/ACTUATORS III

N03

14:00	Ferroelectric & relaxor Polymers for sustainable applications Fabrice DOMINGUES DOS SANTOS	1270
14:30	Fully-printed flexible ultrasound transducer for medical applications Kirill KELLER	359
14:45	Environmentally friendly and biocompatible graphene based inks for printed electronics Miguel FRANCO	459
15:00	Mechanically Robust and Bio-disintegrable Substrate for Transient Wearable Electronics Gargi GHOSH	1390
15:15	Additive manufacturing for multifunctional polymer composite sensors and harvesting materials based on stretchable matrices Pedro COSTA	1584
15:30	Coffee Break	

SUSTAINABLE MATERIALS

N04

16:00	Auxetic Composite Materials from Textile Composites Reza JAFARI NEDOUSHAN	779
16:30	Nettle (<i>Girardinia diversifolia</i>) yarn-preform reinforced PLA green-composites for automotive structural application Parna NANDI	1502
16:45	Ion Transport through Stimuli-Responsive Hydrogels for the Development of Advanced Ionic Energy Harvesters Merreta Noorenza BIUTTY	282
17:00	Sequential growth of conducting polymers directed by the substrate Petr KOVARICEK	192
17:15	High-Performance Supercapacitors based on Activated Carbon Electrodes Prepared from the Biomass Amarjeet KAUR	493

Tuesday, 19 September 2023

BIOMATERIALS AND SENSORS FOR APPLICATIONS

N05

9:00	Bio-based polymers from lignocellulosic biomass: from structural characterization to application as advanced materials Alessandra OPERAMOLLA	1190
9:30	Tunable surface properties of polypropylene using direct fluorination under various conditions and stabilization by esterification Nicolas SUCHET	734
9:45	Hydrogen and Photocurrent Generation By Conductive Biopolymer/Cyanobacteria Based Biological Photovoltaics Via Photosynthesis and Respiratory System Huseyin Bekir YILDIZ	641
10:00	Impact of the solvent on the performance of polyaniline-based sensors devoted to ammonia detection Caroline DUC	353
10:15	Fluorescent Yeonokjam Silk as a Smart Textile Chemo-Sensor Rakesh Kumar JHA	105
10:30	Coffee Break	

PHOTOVOLTAIC DEVICES AND TRANSISTORS APPLICATIONS

N06

11:00	Advancing Towards 20% Efficiency in Industrial Green Organic Photovoltaics Anass KHODR	878
11:30	Optical and Electrical Properties of Type II Ge/GeSi Clathrate Film for Photovoltaic Application Rahul KUMAR	205
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 Anatolii MAKHINIA	1125
12:00	Improved Performance of P-Type Organic Field Effect Transistors Using Phosphonic Acid Based Self Assembled Monolayer. Nikkila CHENNAI GUNASEKARAN	771
12:15	Bio-phosphors with natural and artificial fluorescent proteins for deep-red light-emitting diodes Sara FERRARA	324

12:30 Lunch

ADVANCED PROCESSING MATERIALS AND TECHNIQUES

N07

- | | | |
|-------|---|------|
| 14:00 | Advances of block co-polymer-based lithography and potential impact on the semiconductor industry
Eleanor MULLEN | 1592 |
| 14:30 | Single-Step Fabrication of Emissive Polymeric Whispering Gallery Mode Resonators via Two-photon Lithography
Gaurav Pratap SINGH | 1503 |
| 14:45 | Comparisons of linear and branched polymers made from cyanoacrylate adhesives
Alexander Perez ROXAS | 1325 |
| 15:00 | Advancements and Applications of Lightweight Biopolymer Foams Processed with Supercritical Carbon Dioxide
Guilherme DE MACEDO ROOWEDER LIMA | 171 |
| 15:15 | A novel ultra-thin conformal coating for applications in harsh weather conditions
Theodoros DIMITRIADIS | 1487 |
| 15:30 | Coffee Break | |

BIOMEDICAL APPLICATIONS

N08

- | | | |
|-------|--|------|
| 16:00 | Osmotic pressure: a tool to stiffen structured hydrogels
Ran ZHAO | 231 |
| 16:30 | Thermal determination of perfluorooctanoic acid in environmental samples employing a molecularly imprinted polyacrylamide as a receptor layer
Fatemeh AHMADI TABAR | 1353 |
| 16:45 | A reversible water-based electrostatic adhesive
Adriana SIERRA-ROMERO | 223 |
| 17:00 | Porous microgels and their impact on the stiffness of double network granular hydrogels
Alexandra THOMA | 436 |
| 17:15 | Bioreceptor-functionalized soft interfaces toward wireless and battery-free biosensing
Tatsuro GODA | 75 |

	POSTER SESSION	NP
17:30	Novel cellulose-blends/graphene composites to be used as electrodes and conductive pastes Elena PALMIERI	01_1079
17:30	Unveiling the Potential of Novel Poly(vinylidene fluoride-co-hexafluoropropylene) Polymers for Enhanced Industrial Applications Carlos Miguel COSTA	02_1140
17:30	Optimization of the electrocaloric film for an electrostatic cooling device Nouh ZEGGAI	03_1153
17:30	Visible light and temperature responsive untethered soft actuators for dry and wet environments. Anas SAIFI	04_1210
17:30	The effect of molybdenum oxide on thermo-physical and morphology of HDPE composites Mohammed ALSUHYBANI	05_210
17:30	Electrospun polymethylmethacrylate fibers blended with a quaternary ammonium compound for air filtration and bacterial inactivation Rans Miguel Nunag LINTAG	06_249
17:30	Paper-based foldable radio frequency energy harvesting system for remote charging of energy storage devices Inhyeok OH	07_277
17:30	Surface functionalization of poly(3,4-ethylenedioxythiophene) with heavy metals, adhesives, and nutrients improved biomass and viability of <i>Shewanella oneidensis</i> MR-1 Abdullah ABDULLAH	08_321
17:30	Investigation of Light Fastness Enhancer Additives on Recycled PET for Automotive Applications Woo Sub HEO	10_49
17:30	Stretchable Bi ₂ Te ₃ Thermoelectric Fabric for Lateral Strain, Normal Pressure and Temperature Sensing Chaebeen KWON	11_661
17:30	Multi-vapour responsive and directional controlled actuation of biopolymer-based soft actuators Vipin KUMAR	12_710
17:30	Ultra-high power factor of flexible thermoelectric films for powering wearable electronics Santosh KUMAR	13_711

17:30	Paper-based solid-state micro-supercapacitors produced by hydrophobic wax barrier printing. Nayeon KIM	14_778
17:30	Vertically stacked multi-electrodes inside a single sheet of paper for a high energy density supercapacitor Junghyeon JIN	15_784
17:30	Dual-doping as a strategy to modulate the electrochemical properties of the Ni-rich cathode materials for Li-ion batteries Hubert RONDUDA	17_869
17:30	3D Printed Thermolectret with Giant Piezoelectric Coefficient as Self-Powered Wearable Pressure Sensor and Futuristic Implementation for On-spot Bone Injury Dalip SAINI	18_923
17:30	Digital Colorimetric Sensing for Real-time Gas Monitoring for Smart Green Energy System Riya DUTTA	19_969
17:30	Printed electronics on flexible substrates and IME process for user interface applications Isabel PEREIRA	20_1706
17:30	Lignin biorefinery optimization using machine learning Joakim LÖFGREN	22_1089
17:30	Iron oxide-based composites with shape-memory behavior activated by induction heating Antonio VÁZQUEZ-LÓPEZ	23_1116
17:30	Molecular Engineering to develop 3d and 3d-4f metal based Molecular Ferroelectric complexes and their potential applications in Energy Harvesting Rajashi HALDAR	24_1316
17:30	Mimicking plant defense systems Ralph VAN ZWIETEN	25_1510
17:30	Gas sensing behavioral analysis of ZnO films Muthuraja SOUNDRAPANDIAN	26_1582
17:30	Flexible, Light Weight and High-Performance Metal-Organic Framework Based Poly (vinylidene fluoride) Piezoelectric Nanogenerators Akanksha ADAVAL	27_1662
17:30	CapPiz Book: An Interactive Hybrid Book with Polymer-Based Capacitive, Piezoelectric, and Piezoresistive Technologies by Additive Manufacturing Sérgio Abílio Pereira GONÇALVES	29_367

17:30 High curvature sensors based on flexoelectric effect in soft semi-conducting polymer films
Julien LE SCORNEC

30_80

Wednesday, 20 September 2023

ENVIRONMENTAL APPLICATIONS I

N09

- | | | |
|-------|--|------|
| 14:00 | On the Overall situation of Poly- or perfluoroalkyl substances (PFASs) and Recycling of Fluoropolymers
Bruno AMEDURI | 1075 |
| 14:30 | Study on the Adsorption Properties of Hydrochloric Acid Doped Microporous Conjugated Polyaniline for Hg(?)
Yubing WANG | 443 |
| 14:45 | Eco-friendly, automatic platform based on titanium dioxide photocatalysts, for the removal of coliform bacteria from waters samples
Gianni PEZZOTTI ESCOBAR | 1072 |
| 15:00 | Superior piezo-photo-catalytic performance with model multiferroic BiFeO3
Wafa AMDOUNI | 441 |
| 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
Javier REGUERA | 824 |
| 15:30 | Coffee Break | |

ENERGY HARVESTING APPLICATIONS I

N10

- | | | |
|-------|---|------|
| 16:00 | Poly(vinylidene fluoride) a versatile material for advanced applications
Sabine BEUERMANN | 1266 |
| 16:30 | Impact of MAX Phase doping in PDMS-based self-powered flexible Triboelectric sensor for Energy harvesting and Tactile Sensing Applications
Shailendra KUMAR | 329 |
| 16:45 | Piezo-phototronic Aided Photodetector and Piezoelectric Nanogenerator Based on Perovskite Interfaced Polymer
Bidya MONDAL | 185 |
| 17:00 | Flexoelectric energy harvester based on soft semi-conducting polymer films
Julien LE SCORNEC | 8 |

17:15	Surface potential modulation of 3D printed thermoelectret via corona discharge: An approach towards high piezoelectric coefficient and improved mechanical energy harvesting performances Dalip SAINI	370
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Thursday, 21 September 2023

ENERGY HARVESTING APPLICATIONS II N11

9:00	Multifunctional Triboelectric Nanogenerators for Future Wearable Applications Randunu Devage Ishara Gihan DHARMASENA	1104
9:30	Self-polarized piezoelectric fluoropolymer films developed into an energy harvester for self-powered sensor Vaibhav KHURANA	1461
9:45	Investigation of Lignin-based Environmental Resistant Triboelectric Nanogenerator for Self-Powered Sensors Rajesh Kumar JHA	328
10:00	Metal-organic framework-based triboelectric fibrous scaffolds towards the high-performance biomechanical energy harvesters Bhaskar DUDEM	707
10:15	Tailoring polymer chain morphology to enhance piezoelectric response of bio-based and biodegradable poly(L-lactide) films for energy harvesting Richard SCHÖNLEIN	140
10:30	Coffee Break	

ENERGY STORAGE APPLICATIONS I N12

11:00	Implementation of SiO ₂ Extracted From Algae Exoskeletons as Sustainable Feedstock for Li-ion Battery Anodes Maria Valeria BLANCO	640
11:30	A Novel Aqueous Zinc-Ion Batteries with a Spin Coated P2VP Layer with Suppressed Dendrite Formation Dana KURMANGALIYEVA	1412
11:45	Wool based battery separator for energy storage applications Joao SERRA	429
12:00	Micro and Nano structured Parylene C layers for energy based devices Joana PINTO	660

12:15 Water processable Iota-carrageenan as sustainable polymer binder for Lithium-Ion Batteries 749
Renato GONÇALVES

12:30 Lunch

ENERGY STORAGE APPLICATIONS II N13

14:00 Unveiling the potential of silk fibroin and sericin as novel polymer binders for cathode electrodes 952
Rafael PINTO

14:15 The contributions of printed sensors for battery thermal management systems 1707
Duarte DIAS

14:30 Stretchable Strain Sensor for Lithium-ion Battery Expansion monitoring 1120
Pariya NAZARI

14:45 Dynamically crosslinked self-healable solid-state polymer electrolyte for lithium metal batteries 89
Yu-Te CHEN

15:00 Solid State Electrolytes Reimagined: Unraveling the Potential of High Dielectric Constant Polymers in Ionic Liquid-Based Solid Polymer Electrolytes 364
João BARBOSA

15:15 High-performance three-component solid-state electrolyte combining NASICON-type $\text{Li}_{1.5}\text{Al}_{0.5}\text{Ti}_{1.5}(\text{PO}_4)_3$ with ionic liquid and polymeric binders 313
Hugo SALAZAR

15:30 Coffee Break

ADVANCED APPLICATIONS N14

16:00 Microwave Microfluidics for Biotechnology 1368
Angela STELSON

16:30	Smart and Sustainable Bio-Composite Facesheets for Aerospace Interiors Mohammed KHALIFA	1575
17:00	Development of hydrophobic-chitosan aerogel for oil spill remediation Rodrigo S. VIEIRA	1730
17:15	Development of biodegradable glucose sensors utilizing printed nanocellulose-based composites David BATET	394

Symposium Sponsor



Symposium O

Sessions: Room 105 | Mathematics Building

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

HEALTH

PROGRESS IN FUNDAMENTAL, FUNCTIONAL MATERIAL AND HEALTH ASPECTS OF MELANINS AND RELATED MATERIALS

Symposium organizers:

Bernard **MOSTERT**

- Swansea University

Carlos **F.O. GRAEFF**

- Universidade Estadual Paulista
"Julio de Mesquita Filho"

Pooi See **LEE**

- Nanyang Technological University

Tuesday, 19 September 2023

**ADVANCES IN ELECTROCHEMICAL APPLICATIONS
 AND THEORETICAL MODELLING OF MELANIN SYSTEMS**

O01

14:00	Eumelanin as Novel (Bio)Material for Energy Applications ? Alessandro PEZZELLA	575
14:30	Molecular modeling of eumelanin aggregation and drug binding Mikko KARTTUNEN	810
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 Marianna AMBRICO	131
15:15	Inkjet-Printed Melanin-Salt Humidity Sensors Peter KREBSBACH	95
15:30	Coffee Break	

PROGRESS IN MELANIN SYNTHESIS AND DERIVATIZATION

O02

16:00	Exploring the two-component and colloidal behavior of melanin materials Koen VERCRUYSE	83
16:30	Another piece of the eumelanin charge transport puzzle João Vitor PAULIN	65
16:45	Nature-Inspired Eumelanin Derivatives for Energy Storage Applications Using Aqueous and Ionic Liquid Electrolytes Noah AL-SHAMERY	717

POSTER SESSION

OP

17:30	MelaGel – Using Eumelanin and Polypyrrole in Nanocellulose Hydrogel Networks as Hybrid Sensor/Energy Storage Material Noah AL-SHAMERY	01_712
17:30	Influence of Functional Groups on the Properties of Melanin-Based Energy storage Systems – a Computational Study Florian HEPPNER	02_1057

17:30	Theorizing simple and versatile functionalization routes of eumelanin derivatives: Influencing redox chemistry and chelating properties Simon MORGENSCHWEIS	03_368
17:30	Living multifunctionality responding materials of the future, botanic pigments Elena GOGOTSI	04_1565
17:30	Self-assembly of epicuticular waxes: one step biomimetic approach for multi-functional coatings Anuja DAS	05_714
17:30	Catalysis by Hydroxybenzenes Derivatives Omer AGAZANI	06_667
17:30	Microsphere embedded hydroxyapatite coating on metallic implant for sustained drug release in orthopedic applications Rajesh KANIKE	07_688
17:30	Biofunctionalized Nanopores for the Study of the Dynamics of Coiled Coil Protein Assembly Guillaume LE SAUX	08_444

Wednesday, 20 September 2023

BREAKTHROUGHS IN NATURAL MELANIN AND OTHER BIO-BASED MATERIALS

O03

14:00	Nanocellulose Biohybrid Materials – Deriving Functionalities from Melanin and Proteins Gustav NYSTRÖM	227
14:30	Water-soluble Eumelanin from the Black Soldier Fly (<i>Hermetia illucens</i>) Jun Wei PHUA	64
15:00	Sustainable melanin and keratin waste for green electronics Sara MATTIELLO	570
15:15	Natural melanin from <i>Hermetia illucens</i> pupal exuviae: H ₂ O vs D ₂ O exposure effect on DC conducting properties Marianna AMBRICO	79
15:30	Coffee Break	

**DEVELOPMENTS IN SPECTROSCOPY AND TECHNOLOGICAL APPLICATIONS
OF EUMELANIN AND ALLOMELANIN**

O04

- | | | |
|-------|--|------|
| 16:00 | Operando Spetroelectrochemical Characterization of Melanin
Greg PAYNE | 78 |
| 16:30 | Revealing couplings among chromophores in melanin through femtosecond laser spectroscopy
Bern KOHLER | 1108 |

Symposium Sponsors



Symposium P

Sessions: Room 213 | Main Building

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

HEALTH

NEW DIRECTIONS IN 2D AND 3D BIONANOMATERIALS: IMMUNOLOGY, MECHANOBIOLOGY, CANCER

Symposium organizers:

Judith **GUASCH**

- Institute of Materials Science of Barcelona (ICMAB-CSIC)

Kheya **SENGUPTA**

- Centre Interdisciplinaire de Nanoscience de Marseille (CINaM)

Mark **SCHVARTZMAN**

- Ben-Gurion University of the Negev

Saba **GHASSEMI**

- University of Pennsylvania

Monday, 18 September 2023

3D MICRO-/NANO- STRUCTURES FOR EX-VIVO MANIPULATION ON CELLS - 1

P01

9:00	Nanostructures For Probing And Transfecting Living Cells Christelle PRINZ	423
9:30	Nanoneedles Enable Minimally Invasive Spatial Lipidomics for Glioma Diagnostics Ciro CHIAPPINI	857
10:00	Tumor eradication by boron neutron capture therapy using 10-boron enriched nanoparticles Naoki KOMATSU	1250
10:15	Design of biocompatible soft-biomaterials for medical devices Eugenia BUZANEVA	1423
10:30	Coffee Break	

MATERIALS BASED APPROACHES FOR MECHANOBIOLOGY RESEARCH - 1

P02

11:00	Receptor and membrane biomechanics in immune cell activity Ana Suncana SMITH	1714
11:30	Dynamics of red blood cells in biomimetics splenic slits Anne CHARRIER	433
11:55	Micropatterning human induced pluripotent stem cell cardiomyocytes for cryo-electron tomography studies Leeya ENGEL	1109
12:30	Lunch	

2D AND 3D ENGINEERED MICROENVIRONMENT FOR THE GUIDANCE OF CELLS - 1

P03

14:00	Matter to Life: Bottom-Up Assembly of Synthetic Cells and Skin Joachim SPATZ	460
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14:45	Exploiting the Two-Dimensional Nature of MXenes in Cancer Therapy: Drug Delivery and Photothermal Properties for Enhanced Treatment Efficacy Lobat TAYEBI	1101
15:15	Synergistic effects of piezoelectric materials for implant applications: enhancing osseointegration and anti-bacterial properties Estela CARVALHO	291
15:30	Coffee Break	

MATERIALS BASED APPROACHES FOR MECHANOBIOLOGY RESEARCH - 2

P04

16:00	Enzymatic regulation of fibronectin fibrillogenesis and ECM remodeling Haguy WOLFENSON	819
16:30	Exploring the effects of mechanical stimuli on organotypic cell culture using 3D microstructures fabricated through 2-Photon Polymerization (2PP) Federico COLOMBO	418
16:50	Mechanophores for everyday force sensors Joshua GROLMAN	154
17:15	Femtosecond Laser Assisted Fabrication of biopolymeric Micro/Nanostructures to study cellular behaviour Tejas SURYAWANSHI	1398

Tuesday, 19 September 2023

3D MICRO-/NANO- STRUCTURES FOR EX-VIVO MANIPULATION ON CELLS - 2

P05

9:00	Engineering programmable nanoscale tools to manipulate cells Nicolas VOELCKER	182
9:30	Two-photon polymerization of 3D engineered cell microenvironments for brain cancer mechanobiology and treatment Angelo ACCARDO	54
10:00	Catalytic Bioswitch of Platinum Nanozymes: Mechanistic Insights of Reactive Oxygen Species Scavenging in the Neurovascular Unit Giulia TARRICONE	1415
10:15	Ice-templated Hierarchically Porous 3D Silica Nanoparticle Assemblies for Controlling Drug Release Sandeep Kumar PALVAI	1180

10:30 Coffee Break

MATERIALS BASED APPROACHES FOR MECHANOBIOLOGY RESEARCH - 3

P06

- | | | |
|-------|---|------|
| 11:00 | Single and collective cellular responses to substrate stiffness
Benoit LADOUX | 1713 |
| 11:45 | Fibrous environments in long-range cellular mechanical interaction
Ayeleth LESMAN | 1131 |
| 12:15 | Mechanisms of stiffness induced contact guidance
Carlos URE_A MARTÍN | 728 |
| 12:30 | Lunch | |

NANOSCALE MATERIALS AND METHODS FOR THE STUDY OF THE IMMUNE SYSTEM -1

P07

- | | | |
|-------|--|------|
| 14:00 | Engineering Artificial Antigen Presenting Complexes for Cancer Immunotherapy: From Bench to Bedside
Jonathan SCHNECK | 1728 |
| 14:45 | Spatial requirements for T-cell receptor triggering probed via a DNA origami-based biointerface
Eva SEVCSIK | 735 |
| 15:15 | Molecular Scale Spatio-Chemical Control of the Activating-Inhibitory Signal Integration in NK Cells
Esti TOLEDO | 139 |
| 15:30 | Coffee Break | |

NANOSCALE MATERIALS FOR THE IMMUNODULATION

P08

- | | | |
|-------|--|-----|
| 16:00 | Lymphocyte mechano-stimulation for adoptive immunotherapies
Enrico KLOTZSCH | 907 |
| 16:30 | Bottom-up assembly of synthetic cell-based tissues and their application for immunotherapy
Oskar STAUFER | 945 |

16:55	Nanobiologic-based therapies for modulating the innate immune system Judit MORLA-FOLCH	320
17:15	Tuning cytotoxic lymphocyte activity on antigen functionalized nanowires Guillaume LE SAUX	305
		PP
		POSTER SESSION
17:30	A real-time, specific, and label-free immunosensor for the diagnostic of Ferritin elevated cancers using a surface-biofunctionalized Meta-Nano-Channel (MNC) bioFET Vijay KUMAR GARIKA	01_1037
17:30	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 Babbar SHUBHAM	02_1038
17:30	GelMA-Chitosan-Polyethylene oxide composite enhances proliferation of fibroblast cells in vitro Komal AGARWAL	03_1055
17:30	Protein nano-dot arrays for cell biology Zakaria MARMRI	04_1723
17:30	Morphology of nanostructured surfaces Jens NEUROHR	05_1189
17:30	Elastic microbrushes platform combining topographical and stiffness parameters for the activation of CAR T cells Carlos UREÑA MARTÍN	06_1355
17:30	Advancing Boron Neutron Capture Therapy with Tailored Boron-Based Nanomaterials: Synthesis, Characterization, and Promising Anti-Tumor Effects Akshay KUMAR	07_1501
17:30	Polarization-resolved third harmonic generation (P-THG) of myelin inside optic nerves Maria KEFALOGIANNI	08_1633
17:30	The Immune Response of Natural Killer (NK) Cells to the Environmental Mechanical Heterogeneity Idan NUSBAUM	09_179
17:30	Hierarchical micro- and nano-interfaces as fracture propagation traps in natural layered composites H. Daniel WAGNER	10_280

17:30	Modifications of <i>Ganoderma lucidum</i> spores into digestive tissue-highly-adherent porous carriers with selective affinity to hydrophilic or hydrophobic drugs by iturin A and alkali/acid treatments Ning LIAO	11_40
17:30	Field-controlled magnetoelectric core-shell CoFe ₂ O ₄ @BaTiO ₃ nanoparticles as effective drug carriers and drug release in vitro Muhammad RIZWAN	12_538
17:30	Lithographic platform for reference-free traction force microscopy Brit MAMAN	13_656
17:30	Improved osseointegration of bone implants by ferroelectric BaTiO ₃ coating: Dynamic in vitro culture and in vivo study Marina MALIĆ	14_713
17:30	Effect of heterogenous stiffness surface on the activation of primary T cells Jatin Jawhir PANDIT	15_966
17:30	Norbornene-decorated spiropyran as a conjugation strategy for force-sensitive biomaterials Yifan LIAO	16_1712
17:30	Advanced pancreas cancer models based on biohybrid hydrogels Adrián R. RODRÍGUEZ	17_1720
17:30	Artificial extracellular matrices based on synthetic hydrogels for T cell culture Francesca MERLINA	18_1721
17:30	PEG-heparin biohybrid hydrogels for haematological tumoroid culture Miquel CASTELLOTE BORRELL	19_1722

Wednesday, 20 September 2023

2D AND 3D ENGINEERED MICROENVIRONMENT FOR THE GUIDANCE OF CELLS - 2

P09

14:00	Mechanical regulation of receptor-mediated adhesion E. Ada CAVALCANTI-ADAM	704
14:30	2D and 3D biomaterials to guide hematopoietic stem cell behavior Cornelia LEE-THE DIECK	1078

15:00	Bioengineering the tumor extracellular matrix for cancer modeling Barbara BLANCO FERNANDEZ	720
15:20	Unleashing the Potential of Laser-Induced Graphene for Cell Stimulation Henrique VAZ_O DE ALMEIDA	461
15:30	Coffee Break	

ORAL SESSION

P10

16:00	Roles of ligand multivalency on membrane receptor activation using self-assembled nano materials Ana TEIXEIRA	845
16:30	DNA optical probes for investigating antigen discrimination in the B cell immune synapse Katelyn SPILLANE	1076
16:55	T cell mechanotransduction across scales Pierre-Henri PUECH	1172
17:20	Detection of Programmed Death Ligand 1 Protein as a Breast Cancer Biomarker by Quartz Tuning Forks Hamad ALBRITHEN	147

Symposium Q

Sessions: Room 107 | Mathematics Building

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

FUNDAMENTALS

Functional materials for energy and health solutions: modeling and characterization

Symposium organizers:

Biplab **SANYAL**

- Uppsala University, Department of Physics & Astronomy,

Graziella **MALANDRINO**

- Università degli Studi di Catania

Jost **ADAM**
(Main Organizer)

- Mads Clausen Institute, Computational Materials Group, Photonics Engineering

Pooja **GODDARD**

- School of Science, Loughborough University

Monday, 18 September 2023

2-D MATERIALS I

Q01

9:00	Transdimensional Materials: Reconfigurable Combinations with Dynamic Properties Maria LOSURDO	733
9:30	Optoelectronic and Transport Properties of Atomically Thin Ge ₂ Se ₂ Layers for Photovoltaic Applications: Combined DFT and Device Modeling Approach Anup SHRIVASTAVA	852
9:45	What We Can Learn About Excitons, Electronic, and Optical Properties From Many-Body Methods: The Case of Semiconducting MXenes Frantisek KARLICKY	1146
10:00	Inkjet printing graphene: from transport nature to photodetectors and multifunctional sensors Feiran WANG	1635
10:15	Review on thermoelectric properties of MXene-based structures and other 2D materials Subrahmanyam BANDARU	1373
10:30	Coffee Break	

ENERGY MATERIALS I

Q02

11:00	2-Dimensional Materials for Energy Storage and Conversion: Computational Investigations Abhishek MISHRA	655
11:30	Development of Retrofitted Thermoelectric, Triboelectric, and Piezoelectric Devices for Energy Harvesting Applications in Autonomous Platforms for Remote Sensing João MAGALHÃES	1148
11:45	Development of a Thermoelectric Harvesting Unit to Retrofit a Vortex Tube for Remote Monitoring Applications Mariana RAMOS	1024
12:00	Computational investigation of multiferroic double perovskite materials for photovoltaic applications Anjali KUMARI	953
12:15	Mg based Lightweight High Entropy Alloys for Hydrogen Storage Anshul GUPTA	100

12:30 Composite dielectric capacitors with chemically functionalized BaTiO₃ nanoparticles **Bartosz GACKOWSKI** 480

12:45 Lunch

SYNTHESIS & CHARACTERIZATION I Q03

14:00 Open-air deposition of functional materials for energy applications **David MUÑOZ-ROJAS** 1421

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 **Mohamed Yassine ZAKI** 741

14:45 Green synthesis of All Inorganic Halide Perovskites using novel lead precursors **Lorenzo SIRNA** 1273

15:00 High-temperature and high-pressure mechanical synthesis of magnesium-based hydrides **Agata BARAN** 1512

15:15 Simulating multi-component target ablation: A new combinatorial pulsed laser deposition technique **Arne JÖRNS** 1478

15:30 Coffee Break

PHOTONICS & OPTOELECTRONICS Q04

16:00 Functional MEMS smart glass in buildings for personalized light steering, energy savings and positive impact on health **Hartmut HILLMER** 1548

16:30 On the Fundamental Absorption of Excitonic and Non-excitonic Semiconductors: An Optoelectronic and Thermal Approach **Kevin LIZARRAGA** 1201

16:45 Investigation on the luminescence of lanthanide activated alkaline-earth fluoride nanomaterials on varying the synthetic conditions **Emil MILAN** 211

17:00 Optical Properties and Electronic Structures of Intrinsic Gapped Metals: Inverse Materials Design Principles for Transparent Conductors **Muhammad Rizwan KHAN** 843

17:15 Impact of electron-phonon coupling and temperature dependent scattering time on power factor for the efficient thermoelectric energy estimation. 1232
Neelesh GUPTA

Tuesday, 19 September 2023

2-D MATERIALS II **Q05**

9:00 Theoretical Investigations of Group-IV Janus Monolayers: Prospective Materials for Green Energy Solutions 860
Sanjai SINGH

9:30 MOF-MXene heterostructure for promising detection of asthma through H₂S biomarkers 1550
Sakshi KAPOOR

9:45 Characterization of Functionalized Graphene Structures for H₂ Separation from Syngas Mixtures 1574
Eden MAMUT

10:00 Non- HF low Temperature Synthesis Approach for MXene and optimization for Hydrogen Evolution Activity and Stability 379
Ranjit MOHILI

10:15 First Principle Investigation of Strain-Induced Structural, Electronic, and Transport Properties of Janus MoSe-Te Monolayer 806
Shivani SAINI

10:30 Coffee Break

COMPLEX ELECTRONIC STRUCTURES & CORRELATED MATERIALS **Q06**

11:00 Altermagnetism, symmetries and dimensionality 317
Carmine AUTIERI

11:30 Energy levels of Eu³⁺ ions in BaF₂ defective sites obtained from multireference quantum mechanical calculations 1400
Eros RADICCHI

12:00 Investigation of topology in Eu-based compounds by means of ab-initio calculations 337
Giuseppe CUONO

12:15 Gapped metals as new type of quantum materials: Inverse materials design 745
Harshan Reddy GOPIDI

12:30 Lunch

BATTERY MATERIALS I

Q07

14:00	Degradation in Li ion battery cathodes: A strong correlations perspective Hrishit BANERJEE	638
14:30	On the Origin of the Non-Arrhenius Ionic Conductivity Behaviour in Sodium Antiperovskite Solid Electrolytes Brigita DARMINTO	17
14:45	Novel Organic Molecule Enabling a Highly-stable and Reversible Sodium Metal anode for Room-temperature Sodium-Metal Batteries Chhail Bihari SONI	528
15:00	Solid-state battery: Empower your understanding of competitive and technology landscape thanks to patent analysis Fleur THISSANDIER	389
15:15	Beyond the Bulk: Modelling Interfaces and Ion Transport in Solid Electrolytes for Batteries James DAWSON	1252
15:30	Coffee Break	

DYNAMICAL PROPERTIES

Q08

16:00	Dynamical materials: From rotational disordered layered materials to soft modes in perovskites Paul ERHART	1679
16:30	Quantum Dynamics of Exciton Transport and Dissociation in Organic Opto-electronic Materials Jochen BLUMBERGER	1680
17:00	Coherent vibrational dynamics in TiN films: real-time detection and analysis Andrea IUDICA	1449
17:15	Tuning the electron injection mechanism by changing the adsorption mode: the case study of Alizarin on TiO ₂ Chiara DALDOSSI	1187
17:30	Mysterious Casimir forces lead the way to novel 3D self-assembly in Yin-Yang structures Basma ELSAKA	1525

17:45 Kinetics of Single Polarons in Transition Metal Oxides
Pavel KOCAN

508

	POSTER SESSION	QP
18:00	CO ₂ capture on pristine and Cu decorated graphene based materials Kamal KUMAR	01_972
18:00	Structural reconstruction induced peculiar magnetism in two-dimensional Fe ₅ GeTe ₂ Ershadrad SOHEIL	02_1103
18:00	Dy-doped BiFeO ₃ films grown by MOCVD: multiferroic materials for hybrid energy harvesters Graziella MALANDRINO	03_1312
18:00	Lanthanum nickelates film fabrication through various MOCVD routes including the use of a novel La-Ni single-source precursor Matteo BOMBACI	04_1343
18:00	Performance improvement of broadband photodetectors based on light trapping management Faycal DJEFFAL	05_1123
18:00	Enhancing Extraordinary Magnetoresistance in Epitaxial Thin Film Devices via Topology Optimization Thierry DÉSIÉ POMAR	06_1258
18:00	Design of Experiments: Quantitative Comparison of Bayesian Optimization with Response Surface Methodology Hân LE	07_1317
18:00	Two-Dimensional Lepidocrocite-type Titanium Dioxide Based Heterojunctions for Multi-Functional Applications Kati ASIKAINEN	08_1017
18:00	Advancements in Atomistic Simulations of High-Entropy Materials for Lithium-ion Batteries Piotr KOWALSKI	09_1112
18:00	Characterization of Metal Hydride for Metal Hydride Compressor Design via FEM Thomas F. J. KAUFMANN	10_970
18:00	Ultrasensitive green synthesized ZnO nanosponge/MXene (Ti ₃ C ₂)/TiO ₂ nanocomposite-based electrochemical sensor for dopamine and acetaminophen detection Arghya CHAKRAVORTY	11_1597

18:00	Probing positive trion in a-MoO ₃ /MoS ₂ van der Waals heterostructure Ravindra KUMAR	12_708
18:00	Boosting thermoelectric performance in Ti doped Yb _{0.4} Co ₄ Sb ₁₂ via carrier engineering Akshara DADHICH	13_173
18:00	Electrochemical Evaluation of Zn-based Metal-Organic Frameworks as Anode Materials for Rechargeable Batteries Satoshi CHUBACHI	14_1650
18:00	Heterogeneous catalysis resulting from surface changes on oxygen-free Cu plates Kazuma NIWA	15_221
18:00	Proposal of functional capsules containing Cu microparticles Hayate KINOSHITA	16_220
18:00	Physical method for fabricating Au microparticles Tatsuhiko NORO	17_219
18:00	Computer modelling of Co(OH) ₂ /CdS nanocomposite for water splitting applications Sergei PISKUNOV	18_830
18:00	A multi-scale approach to simulate the thermochemical energy storage characteristics of ZIF-90 Michael VAN WIGGEN	19_176
18:00	Interplay Between Temperature and Distribution of Local Motifs in YNiO ₃ Himanshu JOSHI	20_1002
18:00	Bivalent metal-organic batteries: Roadmap for next-generation electrolyte additives Natalia IZDEBSKA	21_657
18:00	Enhanced electrochemical performance of NMC811/Graphite lithium-ion cells by adding tris(trimethylsilyl) borate as electrolyte additive Adnana SPINU ZAULET	22_1090
18:00	Silica Nanospheres as Sensing Layer in Non-faradaic Detection of Chronic Diseases Abdulaziz ASSAIFAN	23_1350
18:00	APT's contribution on the study of high performance martensitic stainless steel for the development of computational framework Sonia GUEHAIRIA	24_1651

18:00	Mechanical properties and thermal conductivity of Ti3C2 freestanding layer using molecular dynamics Te-Hua FANG	25_1377
18:00	An atomistic interpretation of the oxygen K edge x-ray absorption spectra of layered Li-ion battery cathode materials Namrata RAMESH	26_399
18:00	Effect of the Electrode on the Electrical Properties of Zr-substituted BaTiO3 Thin Film Capacitors Fabricated by CSD Martina ANGERMANN	27_975
18:00	A comparative study of low Tg monomers to develop a bio-based pressure-sensitive adhesives Manjinder SINGH	29_897
18:00	YSrFeCrO6 as a Robust Ferromagnetic Semiconductor with Large Photovoltaic Efficiency Avijeet RAY	30_10
18:00	Enhanced Thermoelectric Efficiency in p-Type Mg3Sb2: Role of Monovalent Atoms Codoping at Mg sites Minati TIADI	31_828
18:00	Predictions of stability and band-gaps for double perovskite oxides (DPOs) using high throughput Machine-Learning Algorithms Deepak GUPTA	32_882
18:00	Anisotropic thermal conductivity in a layered GeS microwire Peng XIAO	33_1291
18:00	Conformational analysis and vibrational study of Drugs and drug delivery systems Soni MISHRA	34_1383
18:00	Magnesium based Multi-Metallic Hybrids with Soot for Hydrogen Storage Anshul GUPTA	35_101
18:00	Targeted Chemical Modification for Controlled Supramolecular Assembly Maximilian HAGEMANN	36_439
18:00	Cr implantation of copper oxides thin films – simulation and measurements comparison Katarzyna UNGEHEUER	37_922
18:00	Dynamics of Sliding Friction between Laser-Induced Periodic Surface Structures (LIPSS) on Stainless Steel and PMMA Microspheres Ebru CIHAN	38_596

18:00	Optical tools for rapid screening of donor/acceptor photovoltaic systems for high performances on indoor conditions Anass KHODR	39_894
18:00	Bayesian Machine: Optimizing the Hubbard U Parameter in DFT+U With Machine Learning Ritwik DAS	40_939
18:00	An optimized Model of a Functional Bone Scaffold for Critical-Sized Defects: Modeling and Experimental Characterization Lobat TAYEBI	41_782

Wednesday, 20 September 2023

BIOMATERIALS AND POLYMERS FOR BIOMEDICAL APPLICATIONS I Q09

14:00	Bioconjugated Nanocarriers for Precision Drug Delivery Sanjay MATHUR	599
14:30	Controlling Mesenchymal Stem Cell Differentiation Using Oxide Thin Films Wilfrid PRELLIER	1231
15:00	Interpretation of protein adsorption on HA-Mg composites for bone tissue engineering Anshu DUBEY	302
15:15	polyBERT: a Large Language Model to Make Ultrafast Predictions of Polymers Christopher KUENNETH	504
15:30	Coffee Break	

ENERGY MATERIALS II Q10

16:00	Interdisciplinary Approach to Characterization of Electrochemical Materials Piotr KOWALSKI	921
16:30	A combined investigation using machine learning and atomistic simulation approaches to screen the spinel compounds for energy storage applications Shivraj KAREWAR	977
16:45	Improving the performance of hydrogen storing metal alloys: Up-Scaling of wash coating techniques Jan WARFSMANN	107

17:00	Multiscale Simulation Framework for Functional Polymers Steffen KAMPMANN	445
17:15	Diffusion and insertion kinetics of lithium in a graphite particle using a multi-layer Cahn-Hilliard model Antoine CORDOBA	851
17:30	Energy storage properties of barium zirconium titanate thin films derived by aqueous chemical solution deposition Ivana PANZIC	378
17:45	Theory of Triboelectric Nanogenerators: A Universal Model for Optimising Practical Applications Randunu Devage Ishara Gihan DHARMASENA	764
18:00	Characterization of Oxygen Nonstoichiometry and Associated Chemical Expansion in Thin-Film Praseodymia Ceria Solid Solutions Hendrik WULFMEIER	762

Thursday, 21 September 2023

		NANOMATERIALS	Q11
8:30	Multiscale modelling and simulations for the fabrication and functionalization of nanomaterials Antonino LA MAGNA		1499
9:00	Novel nanometric phases of the monochalcogenides: Theory meets experiment Guy MAKOV		729
9:30	Novel hybrid nano-phages for nanotechnology applications Hazem AHMED		1645
9:45	Water intrusion mechanism into ZIF-8: on the trail of water percolation through nanocages Eder AMAYUELAS		946
10:00	Nucleation Dynamics of Self-assembled Cobalt Nanoparticles from Solution: Core-Surface Self-restructuring and Formation of Photoactive States. Carlos TRIANA		685
10:15	Water soluble MoS ₂ QDs as a fluorescent probe for Fe ³⁺ ion detection Asha A S		1070
10:30	Coffee Break		

SYNTHESIS & CHARACTERIZATION II

Q12

11:00	Materials-by-design for water remediation: a critical perspective Isabella CONCINA	831
11:30	Modulating Functional Properties of Organic Films and Crystals through Modelling-guided Supramolecular Co-Assembly Damien THOMPSON	38
11:45	Eu-doped barium fluoride thin films: an in-depth study of the MOCVD approach and energy conversion properties Francesca LO PRESTI	1331
12:00	Isolation of monochiral single-walled carbon nanotubes using conjugated polymers in organic solvents Dawid JANAS	1142
12:15	A correlative microscopy study of phase transition variations in plastic crystals for barocaloric applications Fred RENDELL-BHATTI	72
12:30	Subgap States in Aluminium- and Hydrogen- Doped Zinc-Oxide Thin-Film Transistors Yoon MINHO	468
12:45	A unique approach to control nitrogen doping in microporous carbon at ambient conditions for a stable reversible room-temperature sodium-sulfur battery Sungjemmenla .	523
13:00	Lunch	

BATTERY MATERIALS II

Q13

14:00	New Insights on the role of Li vacancies and Manganese cation substitution in LNO cathodes Saleem YOUSUF	513
14:15	Mapping of Diffusion Pathways in a Novel Composite Electrode From Images And Lattice Boltzmann Modeling Smruti Ranjan SETHI	1460
14:30	A quasi-solid state polymer electrolyte for high-rate and long-life sodium-metal batteries Vineeth S. K.	525
14:45	Lithium Storage in Titania Films: Unification of Intercalation Electrode and Supercapacitor Concepts Chuanlian XIAO	1648

15:00	Electrochemistry of vanadium hexacyanoferrate in aqueous zinc-ion batteries Yauhen ANISKEVICH	649
15:15	Sodium Ions Pre-Intercalated Vanadium Oxide Cathodes for Aqueous Zn-Ion Batteries Yinan LU	1194
15:30	Coffee Break	

BIOMATERIALS & POLYMERS FOR BIOMEDICAL APPLICATIONS

Q14

16:00	The Last Frontier: Biomaterials that Help Human Health and Save the Environment Thomas WEBSTER	59
16:30	Surface Modified Drug Eluting Magnesium Based Biodegradable Porous Scaffold for Treating Bone Defects Debrupa LAHIRI	319
17:00	Antibacterial and Cytotoxicity Potentials of Metformin and Ciprofloxacin Based Nano-Sized Cu(II) Complexes: Experimental and Computational Study Mamaru ALEM	1305
17:15	Electrochemical analysis and numerical modeling of wearable electrodes for iontophoretic transdermal drug delivery Mehrsa RAFIE JIRDEHI	165



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

Symposium R

Sessions: Room 327 | Main Building

Poster Session: Aula | Physics Building

FUNDAMENTALS

NEUTRON AND SYNCHROTRON X-RAY METHODS AND APPLICATIONS IN ENGINEERING MATERIALS AND PROCESSES

Symposium organizers:

Anatoli **POPOV**

Denise **McCLUSKEY**

Luc **SALVO**

Peter **HEDSTRÖM**

Wei **CAO**

- University of Latvia, Institute of Solid State Physics

- KTH and CeXS

- Grenoble INP University

- KTH Royal Institute of Technology

- University of Oulu

Monday, 18 September 2023

X-RAY INSTRUMENTATION

R01

9:00	MAXPEEM: A New Spectromicroscopy Beamline at MAXIV Laboratory for High-Resolution Surface Analysis and Case Studies in Engineering Materials Alexei ZAKHAROV	382
9:30	Laboratory-based high energy resolution X-ray spectroscopy Yves KAYSER	1694
10:00	DanMAX - materials science beamline at MAX IV Innokenty KANTOR	754
10:15	A multi-capillary reactor for operando catalysis experiments at Diamond Light Source, UK. Nitya RAMANAN	110
10:30	Coffee Break	

NEUTRON INSTRUMENTATION AND APPLICATIONS

R02

11:00	Neutron instrumentation in Sweden Max WOLFF	1572
11:35	Investigation of fusion breeder materials under neutron irradiation at WWR-K reactor Inesh KENZHINA	1560
12:10	Autonomous experiment in neutron scattering Martin BOEHM	1698
12:30	Lunch	

APPLIED X-RAY SPECTROMICROSCOPY

R03

14:00	Ultrafine Ti-Fe-based eutectics for additive manufacturing Federico SKET	1308
14:30	Scanning transmission soft X-ray spectromicroscopy of inorganic and organic materials and their hybrids Minna PATANEN	1689

15:00	Comparison of synchrotron methods for study of Co(OH) ₂ -based photocatalytic materials Viktorija PANKRATOVA	1128
15:15	A synchrotron radiation based Scanning Transmission X-ray Microscopic study on the formation of hydrated magnesium carbonate cement Md THASFIQUZZAMAN	1547
15:30	Coffee Break	

X-RAY IMAGING AT NANOSCALE R03

16:00	X-ray nano-analysis from 2D to 4D Julie VILLANOVA	1310
16:30	Diffraction microstructure imaging using synchrotron techniques at ID11 of ESRF and lab-based X-rays for materials science Haixing FANG	1690
17:00	Crystal Orientation Mapping Using X-ray Linear Dichroism Andreas APSEOS	716

POSTER SESSION RP

17:30	Photoluminescence of single and dimer F-type centers in fast neutron irradiated corundum crystals Aleksandr LUSHCHIK	01_1439
17:30	Comparative luminescence study of Al ₂ O ₃ :Ce, MgO:Ce, ZrO ₂ :Ce ceramics using VUV synchrotron radiation Kuat KUMARBEKOV	02_1551
17:30	Effects of Accumulation of Radiation-Induced Damage in Dispersed Nuclear Fuel Based on Oxide Ceramics Inesh KENZHINA	03_1553
17:30	Computer modeling of radiation-induced defects in LiF: Vacancies and color centers Inta ISAKOVICA	04_1557
17:30	Swift heavy ion induced Radiation Effects in ZnWO ₄ Single Crystals Alma DAULETBEKOVA	05_1581
17:30	Luminescence Properties of Eu, Cr, and Er Activated YAG Synthesized via Electron-Beam Assisted Method Anatoli POPOV	06_1587

17:30	Luminescence study of virgin and swift heavy ion irradiated pure and doped Ga ₂ O ₃ single crystals under VUV synchrotron radiation Anatoli POPOV	07_1598
17:30	Thermostimulated luminescence properties of neutron, electron and thermochemically-reduced Y ₃ Al ₅ O ₁₂ Anatoli POPOV	08_1607
17:30	Excitonic luminescence in (Lu,Y) ₂ SiO ₅ :Ce ³⁺ single crystals under synchrotron radiation Vladimir PANKRATOV	09_1614
17:30	Modeling of F-type centers thermal annealing in neutron irradiated and thermochemically reduced BeO. Anatoli POPOV	10_1617
17:30	Vacuum Ultraviolet Spectroscopy of the Electronic Excitation in transparent PLZT Ceramics Anatoli POPOV	11_1630
17:30	Synchrotron study of luminescence spectra of Eu-doped BaGa ₂ O ₄ ceramics Halya KLYM	12_1637
17:30	Luminescence of LYSO:Ce crystals under synchrotron radiation excitation Vladimir PANKRATOV	13_1362
17:30	Micro probe system for in-situ x-ray scattering Yunhyeong JANG	14_112

Tuesday, 19 September 2023

X-RAY TECHNIQUES FOR ASSESSING PROCESSES

R05

9:00	X-ray tomography for engineering processes Francisco GARCIA-MORENO	1454
9:30	Electric-Field Control of Magnetic Anisotropy in Magnetoelectric Fe/PMN-PT Heterostructures Michelle RODRIGUES	60
10:00	The investigation of the deformation in nitrocarborized coating of steels by X-ray nanodiffraction combined with nanoindentation Shun YU	1483
10:15	In-situ time-resolved evolution of intrinsic stresses and microstructure during cathodic arc deposition of TiAlN thin films Sanjay NAYAK	1450

10:30 Coffee Break

IN SITU AND OPERANDO STUDIES

R06

- | | | |
|-------|---|------|
| 11:00 | Understanding the Dynamic Structure of Working Electrocatalysts Using Operando QXAFS
Janis TIMOSHENKO | 1488 |
| 11:30 | X-ray absorption studies of local structure with femtometer accuracy under extrem conditions
Juris PURANS | 614 |
| 12:00 | In situ measurements on battery cells with synchrotron X-ray nano-tomography
Olga STAMATI | 829 |
| 12:15 | Solid nanoparticles and liquid droplets on the path to crystallization in solution: some fundamental questions addressed by synchrotron X-ray methods.
David CARRIERE | 420 |
| 12:30 | Lunch | |

X-RAY DIFFRACTION

R07

- | | | |
|-------|---|------|
| 14:00 | Correlative characterization of nanocrystals by hard X-ray nanoprobe: local chemical composition, environment and optical relaxation
Valentina BONINO | 180 |
| 14:30 | An electrochemical cell for in operando small angle X-ray scattering and X-ray absorption spectroscopy analyses for proton exchange membrane fuel cells and electrolyzers
Marco BOGAR | 434 |
| 15:00 | Microstructural quantification of steels via synchrotron X-ray diffraction: clarifications of phase transformations and yield strength predictions
Wei CAO | 1429 |
| 15:30 | Coffee Break | |

SYNCHROTRON LUMINESCENT CHARACTERIZATIONS OF MATERIALS

R08

16:00	Time-resolved VUV luminescence spectroscopy of wide bandgap materials at P66 beamline at DESY Yevheniia SMORTSOVA	1495
16:30	Study of Swift Heavy Ion Induced Radiation Defects in Scintillators by VUV Excitation of Synchrotron Radiation Vladimir PANKRATOV	1705
17:00	Comparative FTIR and Raman spectroscopic study of non-irradiated and neutron-irradiated CVD diamond Alise PODELINSKA	1626
17:15	Luminescent characterization with synchrotron excitation of ZnO nanoparticles synthesized in polymer media Oksana CHUKOVA	1541

E-MRS 2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

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Symposium S

Sessions: Room 103 | Mathematics Building

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

FUNDAMENTALS

METAL HALIDE PEROVSKITES FOR PHOTONIC APPLICATIONS: FROM FUNDAMENTALS TO DEVICES

Symposium organizers:

Barbara PIETKA

- University of Warsaw

Claudine KATAN

- ISCR - Institut des Sciences Chimiques

Gabriele RAINO

- ETH Zurich

Thilo STÖFERLE

- IBM Research Europe - Zurich

Tuesday, 19 September 2023

8:50 Welcome address

2D PEROVSKITES FOR LIGHT EMITTING APPLICATIONS

S01

- | | | |
|-------|---|------|
| 9:00 | Luminescence in 2D Perovskites – The Complex Interplay of Excitons, Traps, and the Lattice
Simon KAHMANN | 961 |
| 9:30 | 2D Metal Halide Perovskites: Energy Gap and Exciton Binding Energy vs. Octahedral Twist and Quantum and Dielectric Confinement
Antoine KAHN | 547 |
| 9:45 | A theoretical perspective on tuning the excitonic properties of layered halide perovskites and vacancy-ordered double perovskites
Mikael KEPENEKIAN | 1276 |
| 10:00 | Novel fabrication method of a low dimensional perovskite halide photodetector with enhanced stability via 3D printing
Anna IOANNOU | 1349 |
| 10:15 | The impact of anisotropy and anharmonicity on the magneto-optical properties of bulk 3D and 2D lead halide perovskite
Efrat LIFSHITZ | 42 |
| 10:30 | Coffee Break | |

PELEDs AND PELETs

S02

- | | | |
|-------|---|------|
| 11:00 | Increasing Performance and Reproducibility of in Pb and Sn based Perovskite LEDs
Iván MORA-SERO | 906 |
| 11:30 | A versatile device platform enabling all-solution-processed perovskite light-emitting transistors
Francesco REGINATO | 402 |
| 11:45 | Unleashing the Potential of CsPbBr ₃ Nanocrystals Embedded in Polymer Matrices for Quantum-Dot Perovskite Light-Emitting Diodes
Quang-Huy DO | 295 |
| 12:00 | Tin-based perovskites for photonic devices
Juan P. MARTINEZ-PASTOR | 1649 |
| 12:15 | Presentation of Nextron Micro PProbe system | |
| 12:30 | Lunch | |

PEROVSKITES FOR ASE AND LASING

S03

14:00	Amplified Spontaneous Emission in Lead Halide Perovskite Nanocrystals Grigorios ITSKOS	582
14:30	Temperature-Dependence of Cooperative Photon Emission from Giant Cesium Lead Halide Perovskite Nanocrystals Etuski KOBIYAMA	406
14:45	Low-Loss Perovskite LEDs for Continuous-Wave Optical Amplified Spontaneous Emission and High-Current-Density Operation Iakov GOLDBERG	539
15:00	Distributed Feedback Cavity Optimization of Thin Film Lasers Using Deep-UV Lithography Defined High-Quality Gratings Nirav ANNAVARAPU	1095
15:15	Colloidal Perovskite Nanocrystal Lasers: On-chip with Low-threshold and Room-temperature Operation Federico FABRIZI	1414
15:30	Coffee Break	

SYNTHESIS, SURFACE CHEMISTRY AND CRYSTAL GROWTH

S04

16:00	Structural and Compositional Engineering of Superlattices Comprising Halide Perovskite Nanocubes Maryna BODNARCHUK	692
16:30	Deciphering the Role of Water in Promoting the Optoelectronic Performance of Surface-Engineered Lead Halide Perovskite Nanocrystals Harshita BHATIA	208
16:45	Contactless passivation on MAPbBr ₃ Single Crystal: photoluminescence enhancement by in situ formation of PbBr ₂ Ismael FERNANDEZ	1497
17:00	The Molten Core Method - fabrication and properties of CsPbBr ₃ perovskite core optical fiber Paweł SOCHA	451

POSTER SESSION

SP

17:30	New mixed-metal chalcogenides A ₂ BCh ₂ X ₃ compounds for photovoltaic applications Pascal HENKEL	01_870
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17:30	On the mechanism of solvents catalyzed structural transformation in metal halide perovskites Jun XI	02_352
17:30	Optical Switching of Hole Transfer in Graphene-perovskite Heterostructures Lei GAO	04_356
17:30	Superlinear Power Law Leads to Vacancy-Assisted Ion Conduction in FAPbBr ₂ I Perovskite Single Crystal. Manoj SINGH	05_309
17:30	Effect of Oxygen Exposure during High-Temperature Processing on PbI ₂ Formation and Long-Term Stability of Black-Phase CsPbI ₃ Perovskite Thin Films Rafikul Ali SAHA	06_283
17:30	Investigating the Vibrational and Optical Properties of Perovskite Nanoplatelets: A Raman Spectroscopy Approach Mustafa Mahmoud ABOULSAAD	07_556
17:30	Effect of Zn alloying on the structural, optical, electrical and morphological properties of the cesium lead iodide perovskite thin films Abdul Mannan MAJEED	08_1416
17:30	Precise Assembly of Perovskite Thin Film Heterostructures Alexander SZOŁA	10_397

Wednesday, 20 September 2023

ELECTRONIC AND STRUCTURAL DISORDER

S05

14:00	Electron-phonon coupling in halide perovskites from first principles Feliciano GIUSTINO	567
14:30	Unusual anharmonicity and hierarchy of relaxational dynamics in 3D hybrid halide perovskites Jacky EVEN	1230
14:45	Effect of disorder and anharmonicity in the phonon dynamics and electron-phonon coupling of halide perovskites Marios ZACHARIAS	560
15:00	Mixed halide perovskites for light emission: inhomogeneous materials with small electronic disorder Claudio QUARTI	258
15:30	Coffee Break	

PHOTOPHYSICS AND HOW TO TAILOR IT

S06

16:00	Photoluminescence to probe charge carrier and defect dynamics in perovskites Ivan SCHEBLYKIN	1186
16:30	Effect of Doping on Ion Migration, Defects, Performance And Stability Of Perovskite Single Crystal-Based Photodetector Apurba MAHAPATRA	1616
16:45	Predicting Optoelectronic Performance: A First-Principles Analysis of Carrier Recombination in Metal Halide Perovskites Utkarsh SINGH	1468
17:00	Photonic processes in metal halide perovskite nanostructures, from 0D to 2D. Tõnu PULLERITS	1102

Thursday, 21 September 2023

POLARITONS

S07

9:00	Exciton-polaritons in two-dimensional metal halide perovskites Dario BALLARINI	1195
9:30	Towards perovskite based all-optical polariton logic circuitry Rainer MAHRT	1271
9:45	Electrical switching of a chiral lasing from perovskite polariton condensate in a Rashba-Dresselhaus regime Karolina ŁEMPICKA-MIREK	881
10:00	Excitonic and polaritonic nonlinearities in perovskites Ivan SHELYKH	555
10:30	Coffee Break	

PEROVSKITE NANOCRYSTALS FOR SINGLE-PHOTON EMITTERS

S08

11:00	Individual perovskite nanocrystals as quantum light emitters Carole DIEDERICHS	836
11:30	Ultra-narrow room-temperature emission from single CsPbBr ₃ perovskite quantum dots Simon C. BOEHME	1115
11:45	Band-edge exciton fine structure and charge-carrier interactions in lead-halide perovskite nanocrystals Philippe TAMARAT	1163
12:15	Awards and closing	



2023 Fall Meeting

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Faculty of *Mechanical Engineering*



Symposium T

Sessions: Room 210 | Mathematics Building

Poster Session: Aula | Physics Building

FUNDAMENTALS

NON-LINEAR AND DYNAMIC THERMAL TRANSPORT: MODELING, THERMO-MATERIALS, DEVICES AND APPLICATIONS

Symposium organizers:

Andrej **KITANOVSKI**

Francesc Xavier

ALVAREZ CALAFELL

Karl **JOULAIN**

Miguel **MUNOZ ROJO**

- University of Ljubljana

- Universitat Autònoma de Barcelona,

- Université de Poitiers

- Institute of Micro and Nanotechnology of Madrid

Monday, 18 September 2023

PHONONICS AND THERMAL CONTROL DEVICES

T01

9:00	Nanoscale phononic thermal transport: from basic research to applications Baowen LI	766
9:30	Thermal diode based on telescopic nanowires Yashpreet KAUR	1287
9:45	A VO ₂ based conductive thermal diode under transient conditions Younes EZZAHRI	936
10:00	Elaboration of perovskite thin films with metal-insulator transition for infrared optical modulation Arthur TAUSCH	1404
10:15	Numerical Analysis of the Impact of Combining Different Effects on the Performance of Solid-State Thermal Diodes Katja VOZEL	232
10:30	Coffee Break	

HEAT TRANSPORT CONTROL

T02

11:00	Nanoscale Si Fishbone Structures for Manipulating Heat Transport Using Phononic Resonators for Thermo-electric Applications Sarah M THOMPSON	400
11:30	Thermal information processing using phase change materials Swayam SAHOO	542
11:45	Measuring Ettingshausen effect in the magnetic Weyl semimetal Co ₂ MnGa Jean SPIECE	1411
12:00	Thermal resistance in flip-chip assemblies at cryogenic temperatures Alberto RONZANI	1472
12:15	A Novel Four-Terminal Suspended Device for non-local temperature measurements Giulio DE VITO	1540

12:30 Conductive heat transport modeling in fibrous media 1296
Clémence GAUNAND

12:45 Lunch

FLUIDIC THERMAL DEVICES T03

14:00 Fluidic thermal switches 141
Katja KLINAR

14:30 Optimization of heat transfer in electrocaloric regenerator based on multilayer capacitors 1453
Junning LI

14:45 Fluidic thermal switch based on electrowetting effect in magnetocaloric cooling 1452
Urban TOMC

15:00 Dielectric thick films for use in fluidic thermal switches 286
Blaž VELKAVRH

15:15 Fast-response ferrofluidic thermal switch 535
Katja KLINAR

15:30 Coffee Break

THERMOELECTRICS AND HEAT TRANSFER ANALYSIS T04

16:00 Recent advances in low dimensionality Si-based for thermoelectric applications 289
Llibertat ABAD

16:30 Investigation of Thermoelectric Properties of Tungsten Carbide using Ab-initio Calculations 1339
Rekha VERMA

16:45 Thermoelectric properties of stressed p-doped polycrystalline hollow nanotubes 414
Jose Manuel SOJO GORDILLO

17:00 Modelling of Interdiffusion of Al/Cu system under varying temperatures 948
Mohammed H. ALDOSARY

17:15 Developing Equivalent Electrochemical Modeling Framework for Prescribed Experiment
Asghar ARYANFAR

1020

POSTER SESSION

TP

17:45 Heat transfer behavior analysis of UAlx-Al compound using molecular dynamics simulation and finite element method
Eui-Hyun KONG

01_84

17:45 Analysis of sample thermal conductance uncertainty using four-probe thermal conductivity method under AC measurement approach
Sara MÍGUEZ-GONZÁLEZ

02_1646



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

Symposium U

Sessions: Room 102 | Mathematics Building

Poster Session: Aula | Physics Building

FUNDAMENTALS

DEFECT-INDUCED EFFECTS IN LOW-DIMENSIONAL AND NOVEL MATERIALS

Symposium organizers:

Agata **KAMINSKA**

- Cardinal Stefan Wyszyński University

Mikhail **BRIK**

- University of Tartu

Nikolai A. **SOBOLEV**

- Universidade de Aveiro

Vladimir **PANKRATOV**

- University of Latvia

Monday, 18 September 2023

OS 1 U01

9:00	Identifying the ground state structures of point defects in solids David SCANLON	1129
9:30	Experimental and theoretical studies of native deep-level defects in transition metal dichalcogenides and their effect on carrier dynamics Robert KUDRAWIEC	700
10:00	An Intuitive Understanding of the Spin Excitations of a 1D Antiferromagnet Teresa KULKA	1591
10:15	DFT study of effects of both strain and surface on the electronic structure and acceptor grouping in ZnO:N-Hx and ZnOHx Oksana VOLNIANSKA	999
10:30	Coffee Break	

OS 2 U02

11:00	Quantum sensing with spin defects hosted in a van der Waals material Vincent JACQUES	1653
11:30	Influence of local environment of emission center ions on the luminescence property of phosphor materials Tomoyuki YAMAMOTO	161
12:00	Noble gas functional defect with unusual relaxation pattern in solids Lovelesh LOVELESH	725
12:15	Halogen Element Doping-Induced Enhancement of Thermoelectric Properties in Layered SnSe2 Anh Tuan PHAM	798
12:30	Lunch	

OS 3 U03

14:00	Metastable defects and the fill factor of solar cells Susanne SIEBENTRITT	1664
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14:30	The role of metal vacancies in thermal degradation of InGaN Julita SMALC-KOZIOROWSKA	1546
15:00	Exploring defect Spectroscopy in metal halide perovskites: First-principles insight Chong-Geng MA	1717
15:15	ODMR and magneto-optical spectroscopy studies of spin dependent charge transfer in GaN:Fe single crystals Vitalii IVANOV	1081
15:30	Coffee Break	

OS 4 U04

16:00	Accumulation and Thermal Annealing of Radiation Defects in Corundum and Mineral Spinel Crystals Aleksandr LUSHCHIK	1385
16:30	Defect engineering for oxide thin films by ion irradiation Shengqiang ZHOU	1240
17:00	Vulnerability of epitaxial layers and substrates of 4H-SiC to ionizing radiation and thermal treatments Francesca MIGLIORE	919
17:15	Testing and tailoring material through electron irradiation at Sirius Antonino ALESSI	818

POSTER SESSION UP

17:30	The effect of hole localization on the magnetophotoluminescence of modulation-doped CdTe/CdMgTe quantum wells Wiktorja SOLARSKA	01_1304
17:30	Positron annihilation study of free-volume defects in doped BaTiO ₃ ceramics Halyna KLYM	02_1399
17:30	Defect-related effects in functional Cu _{0.1} Ni _{0.8} Co _{0.2} Mn _{1.9} O ₄ ceramics Halyna KLYM	03_1407
17:30	Analytical 3D picture of the arbitrary metal surface response to a molecular adsorbate Tomasz BEDNAREK	04_1419

17:30	Material engineering research with time-resolved VUV spectroscopy facilities at DESY PETRA III synchrotron Aleksei KOTLOV	05_1518
17:30	Radiation Defectss in Scintillator Materials Induced by Swift Heavy Ions Vladimir PANKRATOV	06_1583
17:30	Study of yttria stabilized zirconia by VUV excitation spectroscopy Viktorija PANKRATOVA	07_1609
17:30	Surface defects in TiO ₂ doped with rare earth elements: effect on photocatalytic activity and up-conversion luminescence Dmitry BOCHAROV	08_1612
17:30	Predicting crystal properties of chalcopyrites from chemical descriptors Dmitry BOCHAROV	09_1622
17:30	Current status of the diffusion-controlled radiation defects annealing in heavily irradiated binary and complex oxides – disordering effects. Anatoli POPOV	10_1625
17:30	Photocatalysis and beyond: the antibacterial properties of titanium dioxide Alise PODELINSKA	11_1631
17:30	Effect of ion-induced nuclear reactions on structure modification and radiolysis in LiF irradiated by 410 MeV ³⁶ S ions Anatoli POPOV	12_1636
17:30	Calculation of physicochemical properties of alkali metal oxide nanotubes Assel ISTLYAUP	13_514
17:30	Defects in photojunction - exchange interaction with free minority carriers Bronislaw ORLOWSKI	14_550
17:30	Color centers in BaFBr crystals: experimental study and theoretical modeling Abdirash AKILBEKOV	15_651
17:30	Noble gas functional defect with unusual relaxation pattern in solids Lovelesh LOVELESH	16_699
17:30	Micromechanical properties of ZnWO ₄ crystals irradiated with 28 MeV Oxygen Ions Abdirash AKILBEKOV	17_776

17:30	Multitarget reactive magnetron sputtering towards the production of strontium molybdate thin films Nikolai SOBOLEV	18_920
17:30	Electron irradiation effects on Si/SiO ₂ /CaF ₂ structures studied by photoelectron emission technique Marina ROMANOVA	19_962
17:30	Multilayer epitaxial heterostructures with multi-component III-V:Fe magnetic semiconductors Nikolai SOBOLEV	20_1727

Tuesday, 19 September 2023

OS 5 U05

9:00	Volumetric defect analysis in functional ceramic materials with positron annihilation lifetime spectroscopy Halyna KLYM	1458
9:30	5D0??7F2 red emission of Eu ³⁺ in ZnO and ZnMgO single layers and ZnMgO-based quantum structures doped during growth by MBE Adrian KOZANECKI	909
9:45	Effect of strain on acceptor states in ZnO and ZnO:N films Elzbieta GUZIEWICZ	1088
10:00	Defectivity and Electrical Properties of Al:ZnO Thin Films with Different Crystalline Order Grown by RF Magnetron Sputtering Riccardo MAGRIN MAFFEI	392
10:15	Electrospinning of epoxy micro- and nano-fibers H. Daniel WAGNER	281
10:30	Coffee Break	

OS 6 U06

11:00	Reconstruction of extended defects in antimony sulfoselenides: atomic structure and electronic properties Keith MCKENNA	39
11:30	The influence of the Eu ³⁺ to Eu ²⁺ charge transformation on the charge trapping processes in Y ₃ Al ₅ O ₁₂ micropowder Maksym BURYI	1367

12:00	Extrinsic Doping in Hexagonal-Diamond Type Crystals Michele AMATO	411
12:15	Studies on carrier transport mechanisms in thermal strained p-type transparent off-stoichiometric Cu-Cr-O delafossite thin films Petru LUNCA-POPA	166
12:30	Lunch	

OS 7 U07

14:00	Unraveling the local atomic structure with X-ray absorption spectroscopy Alexei KUZMIN	1588
14:30	Revealing the role of phase segregation in the optical response of Zn ₂ GeO ₄ /SnO ₂ nanowire architecture Bianchi MÉNDEZ	811
14:45	Correlated KPFM and TERS Imaging to Elucidate Defect-induced Inhomogeneities in Oxygen Plasma Treated 2D-MoS ₂ Layers Sanju GUPTA	469
15:00	Exciton engineering in single-walled carbon nanotubes by precise introduction of defects Dawid JANAS	1176
15:30	Coffee Break	

Wednesday, 20 September 2023

OS 8 U08

14:00	Role of defects and interfaces on 2D Ising superconductors Darshana WICKRAMARATNE	457
14:30	Synthesis and experimental- theoretical investigation of a new type of heterostructures Alma DAULETBKOVA	676
15:00	Luminescence of BaFBr crystals irradiated with 147 MeV ⁸⁴ Kr ions Abdirash AKILBEKOV	780

15:15 Investigation of HfO₂ nanoislands grown on HOPG and Au(111) surfaces: scalability and nucleation driven in-gap states. 841
Luisa BAYER

OS 9 U09

16:00 Electrospun metal oxide nanostructures: synthesis, structure, optical properties and photochemical applications. 1046
Roman VITER

16:30 Ultra-low energy ion implantation into two-dimensional materials 1719
Beata KARDYNAL

17:00 Thermal-Induced Defects in Monolayer MoS₂ Flakes 1080
Antonino MADONIA

17:15 Self-Healing Phenomenon in Antimony Trichalcogenides and Chalcogenides: Insights into Photoinduced Damage Recovery and Solid-State Reactions 129
Eran EDRI

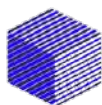


2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

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FOR5044



Periodic low-dimensional
defect structures in polar oxides

Research unit funded by German Research Foundation

Symposium V

Sessions: Room 210 | Mathematics Building

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

FUNDAMENTALS

PIEZOELECTRIC POLAR OXIDES

Symposium organizers:

Eva Ilona **TICHY-RACS**

Marco **BAZZAN**

Simone **SANNA**

Yuriy **SUHAK**

- Wigner Research Centre for Physics, I

- University of Padua

- Justus Liebig University Giessen

- Clausthal University of Technology

Tuesday, 19 September 2023

PIEZOELECTRIC POLAR OXIDES - 1

V01

9:00	Solid solutions of LiNbO ₃ and LiTaO ₃ – phase diagram and growth of single crystals Steffen GANSCHOW	438
9:30	Phase Transformation in Lithium Niobate-Lithium Tantalate (LiNb _{1-x} Ta _x O ₃) Solid Solutions Fatima Ezzahrae EL AZZOUZI	965
9:45	Acoustic Loss in Li(Nb,Ta)O ₃ at Temperatures up to 900°C Uliana YAKHNEVYCH	1047
10:00	Vibrational and optical properties of LiNbO ₃ and LiTaO ₃ under uniaxial stress Mike PIONTECK	985
10:15	Small polaron hopping in iron-doped lithium niobate: from microscopic hopping processes to macroscopic observables Marco BAZZAN	1589
10:30	Coffee Break	

PIEZOELECTRIC POLAR OXIDES - 2

V02

11:00	Growth and properties of LiNbO ₃ films for high-frequency BAW devices Ausrine BARTASYTE	1340
11:30	Ferroelectric polarization distribution of periodically poled and single-domain LiNbO ₃ crystals determined on graphene covered samples by Raman spectroscopy Pawel CIEPIELEWSKI	1545
11:45	Comparing the solvothermal synthesis and high energy ball milling methods for preparing nanoscaled LiNbO ₃ doped with different RE ions Gabriella DRAVECZ	933
12:00	Rare-earth ions in LiNbO ₃ nanocrystals from the view of spectroscopic and force-field calculation Krisztián LENGYEL	531
12:15	Influence of lithium stoichiometry on electrical and acoustic properties of Li(Nb, Ta)O ₃ single crystals Eva TICHY-RACS	118

12:30 Lunch

PIEZOELECTRIC POLAR OXIDES - 3

V03

14:00	Manipulation of piezoelectric domain formation and surface acoustic wave propagation in (K,Na)NbO ₃ thin films by strain and defect engineering Jutta SCHWARZKOPF	549
14:30	Tuning leakage current in high-temperature piezoelectric bismuth ferrite by doping Torsten GRANZOW	1011
14:45	Probing the behavior of surface water on ferroelectrics as a function of relative humidity and temperature Loïc MUSY	654
15:00	Flexoelectricity and surface ferroelectricity in natural ice Xin WEN	398
15:30	Coffee Break	

POSTER SESSION

VP

17:30	Polaronic structures in LiNbO ₃ and LiTaO ₃ modelled from first principles Nils Andre SCHÄFER	01_106
17:30	Excellent piezoelectricity of [001]-textured (K, Na)Nb-based piezoceramics and their application to panel loudspeakers Sahn NAHM	03_343
17:30	A high-temperature optical spectroscopy study of Li(Nb _{1-x} Tax)O ₃ Yuriy SUHAK	04_477
17:30	Ab initio investigation of the ferroelectric phase transition in LiNbO ₃ and LiTaO ₃ Alexander KAPP	05_675
17:30	Composition dependent optical properties of LiNb _{1-x} TaxO ₃ solid solutions Felix BERNHARDT	06_865
17:30	Investigation of hydrogen diffusion in LiNbO ₃ from density-functional theory Christa FINK	07_900

- | | | |
|-------|---|----------------|
| 17:30 | Structural and electronic properties of $\text{LiNb}_{1-x}\text{Ta}_x\text{O}_3$ solid solutions modelled from first principles
Felix SCHUG | 08_1188 |
| 17:30 | Enhanced piezoelectric properties of [001]-textured (Na, K)NbO ₃ -based piezoceramics for piezoelectric energy harvesters
Seok-June CHAE | 09_342 |
| 17:30 | Growth of crystalline NKN thin films at low temperature using SNO seed layers for artificial synaptic devices
In-Su KIM | 10_341 |



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Symposium Sponsors



Symposium W

Sessions: Room 308 | Main Building

FUNDAMENTALS

SPIN-DEPENDENT PHENOMENA IN SEMICONDUCTORS, TOPOLOGICAL AND TWO-DIMENSIONAL MATERIALS

Symposium organizers:

Alberta **BONANNI**

Fabio **PEZZOLI**

Igor **ZUTIC**

Maciej **SAWICKI**

- Johannes Kepler University, Linz

- Università di Milano-Bicocca

- University of Buffalo

- Institute of Physics, Polish Academy of Sciences

Monday, 18 September 2023

		OPENING	W00
14:00	Opening		
14:10	Topological excitonic states: fingerprint on bandstructure renormalization and condensation Alessandra LANZARA		1691
14:40	Quantum anomalies in topological materials Ewelina HANKIEWICZ		1327
15:10	Spintronic implementations of quantum information engines to harvest ambient thermal energy: experiment and theory Martin BOWEN		1556
15:30	Coffee Break		

2D MATERIALS I W01

16:00	Spin/Valley Dynamics and Transport in Atomically Thin Transition Metal Dichalcogenides Xavier MARIE		564
16:30	Graphene/1T-TaS ₂ van der Waals heterostructure: proximity effects controlled with charge density wave and electric field Karol SZALOWSKI		1300
16:50	Recent advances in tuning magnetism in MPX ₃ vdW layered crystals Magdalena BIROWSKA		1351
17:10	Spin-dependent transport properties through Fe ₄ GeTe ₂ /GaTe/Fe ₄ GeTe ₂ van der Waals heterostructures Masoumeh DAVOUDINIYA		334

Tuesday, 19 September 2023

		SPIN-DEPENDENT TRANSPORT	W02
9:00	Topological Spin Transport in Quantum Materials and Entanglement José Hugo GARCIA		631
9:30	Topological insulator Bi(x)Sb(1-x) films on GaAs substrates as current-induced Spin-Orbit Torques generators Mohamed Ali KHALED		738

9:50	Observation of the Orbital Inverse Rashba-Edelstein effect Michel VIRET	422
10:10	Inverse spin Hall effect and interface structure in topological insulator Sb ₂ Te ₃ /Ferromagnets Misako MOROTA	838
10:30	Coffee Break	

MOLECULAR SPINTRONICS

W03

11:00	Integration of Molecular Spin Qubits into Planar Superconducting Microwave Resonators Claudio BONIZZONI	458
11:30	Enhancement of charge-transfer mediated cooperativity in a hybrid spin crossover composed of Fe-Triazole/ MoS ₂ core shell nanostructures Shatabda BHATTACHARYA	327
11:50	Voltage driven fluorine motion for novel organic spintronic memristor Chen TONGXIN	1145
12:10	Combining Molecular Qubits with Semiconductors Joris VAN SLAGEREN	1233
12:30	Lunch	

2D MATERIALS II

W04

14:00	Spintronics with 2D materials Jaroslav FABIAN	926
14:30	Seebeck measurements on the 2D ferromagnet CrSBr Pascal GEHRING	426
14:50	Magnetic skyrmions of Ti ₂ C MXenes doped with Cr, Mn, and Fe Teresa KULKA	1600
15:30	Coffee Break	

ADVANCED SPINTRONICS

W05

16:00	Semiclassical kinetic theory for systems with non-trivial quantum geometry Roberto RAIMONDI	511
16:30	Photovoltage Detection of Spin Excitation of Nanomagnetic materials with 2DEG System Najla ALMULHEM	632
16:50	Investigation of the structure of In-Bi layers on Si(111) prepared by molecular beam epitaxy Petr NOVÁK	880

Wednesday, 20 September 2023

SPIN-OPTRONICS AND QUANTUM INFORMATION

W06

14:00	Controlling spin and light at room temperature in Chiral Metal-Halide Hybrid Semiconductors Matthew BEARD	1490
14:30	Spin injection and relaxation in p-doped InGaAs/GaAs quantum-dot spin light emitting diodes at zero magnetic field Pambiang Abel DAIWNONE	627
14:50	All-optical investigation of spin polarization in Si Jacopo PEDRINI	1479
15:10	Spintronic encoding of quantum information onto individual atoms within solid-state junctions Martin BOWEN	1593
15:30	Coffee Break	

QUANTUM PHASES

W07

16:00	Quantum Geometry in Electron-Phonon Coupling: CDW in Kagome materials and a Famous superconductor B. Andrei BERNEVIG	1718
16:30	$\nu=5/2$ phases in the fractional quantum Hall effect Ankur DAS	1234

16:50 Observation of the Weyl semimetal phase in bulk (Pb,Sn)Te:Cr
Aleksandra KRÓLICKA

1061

CLOSING REMARKS

W08

17:10 Closing Remarks



2023 Fall Meeting

18- 21 September - Warsaw University of Technology - Poland

Symposium Sponsor



Symposium X

Sessions: Room 329 | Mathematics Building

FUNDAMENTALS

TOPOLOGICAL TEXTURES IN ANTIFERROIC AND FERROIC MATERIALS

Symposium organizers:

Céline **LICHTENSTEIGER**

Jean-Yves **CHAULEAU**

Marta **GIBERT**

Vincent **GARCIA**

- Université de Genève

- SPEC, CEA Saclay

- TU Wien

- Unité Mixte de Physique, CNRS/Thales

Monday, 18 September 2023

ENTANGLED FERROIC TOPOLOGIES

X01

9:00	Topology in ferroelectrics vs topology in magnetism, critical overview Igor LUKYANCHUK	50
9:30	Skyrmionic textures in ferroelectric materials Jiri HLINKA	740
9:45	Emergent chiral textures in single-layer ferroelectric and ferromagnetic oxides Wei PENG	1227
10:15	Transfer of topological defects across phase transitions in ferroic materials Mads C. WEBER	1152
10:30	Coffee Break	

FERROELECTRIC DOMAIN WALLS

X02

11:00	Anti-polar order at domain walls in uniaxial ferroics Dennis MEIER	454
11:45	Complex polarisation textures and emergent functionalities at ferroelectric twins Patrycja PARUCH	1688
12:15	Ferroelectric/ferroelastic nanodomains and intersections in epitaxial GeTe thin films Frédéric LEROY	386
12:30	Lunch	

MAGNETIC SKYRMIONS

X03

14:00	Topological Spin Texture Dynamics - from ns dynamics for memory to slow diffusion for unconventional computing Mathias KLAEUI	159
14:30	Interaction between topological defects in Cu ₂ OSeO ₃ : skyrmion lattice annihilation by 3D point defects Houssam SABRI	973

14:45	Chirality and topology of metallic multilayers hosting skyrmions and cocoons Nicolas REYREN	109
15:15	Investigating Skyrmion stability and core polarity reversal in NdMn ₂ Ge ₂ Samuel TREVES	76
15:30	Coffee Break	

TOPOLOGY IN FERROELECTRICS X04

16:00	Topological phase transitions in PbTiO ₃ /SrTiO ₃ superlattices as a function of strain and temperature. A second-principles approach. Javier JUNQUERA	104
16:30	Polar chirality emerging from periodic domain walls in BiFeO ₃ thin films Stephane FUSIL	1173
16:45	Ferroelectric incommensurate spin crystals Dorin RUSU	626
17:15	Ferroelectric polarisation rotation probed using X-ray diffraction Marios HADJIMICHAEL	425

Tuesday, 19 September 2023

MAGNETIC SKYRMIONIC TEXTURES X05

9:00	Resonant dynamics of three-dimensional skyrmionic textures in thin film multilayers Titiksha SRIVASTAVA	963
9:30	Texture-induced spin-orbit coupling and skyrmion-electron bound states in a Néel antiferromagnet Revaz RAMAZASHVILI	1363
9:45	Topotronics with Ferromagnetic Topological Materials and Antiferromagnetic Half-Skyrmions Oleg TRETIAKOV	143
10:15	Nucleating antiferromagnetic skyrmion analogues in an a-Fe ₂ O ₃ /Co/Pt heterostructure Jheng-Cyuan LIN	1466

10:30 Coffee Break

PbZrO₃ vs CaTiO₃

X06

11:00	Why is PbZrO ₃ antiferroelectric while CaTiO ₃ is not ? Philippe GHOSEZ	650
11:30	Orthorhombic distortions and ferroelectricity in epitaxially strained CaTiO ₃ thin films Lukas KOROSEK	898
11:45	Antiferroelectric till next time: Raman and dielectric spectroscopy of PbZrO ₃ Cosme MILESI-BRAULT	1298
12:00	Probing the Electric-Field Induced Antiferroelectric-Ferroelectric Phase Transition in PbZrO ₃ with Second Harmonic Generation Imaging Artem LEVCHUK	536
12:15	In situ atomic STEM monitoring of ferroelectric phase transitions in a 45 nm thick antiferroelectric PbZrO ₃ thin film Maxime VALLET	55
12:30	Lunch	

DOMAINS AND TEXTURES

X07

14:00	Probing magnetic chiral textures through spin waves with a quantum sensor Aurore FINCO	475
14:30	Rare-earth doped ferroelectrics towards all-optical sensors Jingye ZOU	1014
14:45	Destabilization of the cycloidal state in BiFeO ₃ nanoparticles Brahim DKHIL	669
15:00	BiFeO ₃ domain walls and nanodomains at low temperature Mauro A. P. GONÇALVES	1573
15:15	Electrical control of magnetic texture in a multiferroic oxide Peter MEISENHEIMER	1093

UNDER PRESSURE X08

16:00	Defect structures in ferroelectrics caused by pressure-dissolution Mojca OTONICAR	1521
16:30	Flexure-induced strain control of antiferromagnetic domains and topological textures in crystal membranes Jack HARRISON	1307
17:00	Ferroelectric switching in ultrathin films of SrTiO ₃ under compressive strain Evgenios STYLIANIDIS	1117
17:15	Nanolithography using switchable tribology of ferroelectrics Seongwoo CHO	938

Wednesday, 20 September 2023

ANTIFERROMAGNETIC AND FERROELECTRIC TOPOLOGIES X09

14:00	Toroidal topology in ferroelectric polymers Mengfan GUO	491
14:30	Design and Control of Topological Polar Nanotextures in Multiferroic BiFeO ₃ Epitaxial Thin Films Arthur CHAUDRON	318
14:45	Contribution of the antiferromagnetic coupling on the skyrmion dynamics in ferrimagnets and synthetic anti-ferromagnets Stanislas ROHART	1185
15:15	Multiferroic skyrmions in BiFeO ₃ Michel VIRET	407

DOMAIN WALLS IN FERROELECTRICS X10

16:00	Internal Structure of Ferroelectric Domain Walls: Impact of Curvature and Orientation Salia CHERIFI-HERTEL	586
16:30	Phase diagram and domain wall properties in PbTiO ₃ ferroelectric thin films Ludovica TOVAGLIERI	1086

16:45	Ferroelectric Domain Wall p-n Junctions Marty GREGG	1184
17:15	In situ Characterisation of Ephemeral p-n Junctions inside Ferroelectric Domain Walls Kristina HOLSGROVE	1442

Thursday, 21 September 2023

ANTIFERROELECTRIC AND RELAXOR BEHAVIORS X11

9:00	Antiferroelectric-like switching in PbTiO ₃ -SrTiO ₃ superlattices Pavlo ZUBKO	1274
9:30	Ferrielectricity and translational boundaries in antiferroelectric PbZrO ₃ Gustau CATALAN	983
10:00	Relaxor ferroelectrics for mimicking biological synapses Long CHENG	1164
10:15	A New Mechanism of Relaxor Ferroelectric System for Neuromorphic Computing Haoyuan MA	958
10:30	Coffee Break	

COMPLEX POLAR TEXTURES X12

11:00	Electric bubble quasiparticles Jorge IÑIGUEZ	293
11:30	Non-uniform strain-coupled polar textures in ferroelectric nanocylinders Svitlana KONDOVYCH	1264
11:45	Structural, Chemical and Electronic Structure Interplay in BaTiO ₃ Ultrathin Films Probed Using X-ray and Electron Spectroscopies Sara GONZALEZ	1122
12:00	Antipolar distortions and tilt-induced super-order in multiferroic-metal superlattices Ran XU	622

12:15 Finite temperature properties of BaTiO₃ materials using the effective Hamiltonian formalism 1039
Maxim POPOV

12:30 Lunch

ULTRAFast MANIPULATION AND COMPLEX MULTIFERROIC TEXTURES

X13

14:00 Ultrafast creation of a topological magnetic phase 1618
Bastian PFAU

14:30 Light-induced sub-THz and THz coherent acoustic phonons in BiFeO₃-based nanostructures 540
Pascal RUELLO

14:45 New perspectives on the domain configuration puzzle in single crystal BiFeO₃ 1216
Ana SANCHEZ

15:15 Anisotropic strain-induced single antiferromagnetic cycloid direction in BiFeO₃ 562
Amr ABDELSAMIE



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Symposium Y

Sessions: Room 206 | Main Building

FUNDAMENTALS

QUANTUM NANOMATERIALS - NFFA EUROPE PILOT SYMPOSIUM

Symposium organizers:

- | | |
|--------------------------------|---|
| Connie BEDNARSKI-MEINKE | - Forschungszentrum Jülich GmbH |
| Flavio CARSUGHI | - Forschungszentrum Jülich GmbH. J |
| Giancarlo PANACCIONE | - CNR - Istituto Officina dei Materiali (IOM) |
| Jose A. Martín GAGO | - CSIC - Instituto de Ciencia de Materiales de Madrid |

Monday, 18 September 2023

14:00 Welcome

SESSION 1
Y01

- | | | |
|-------|--|------|
| 14:15 | NFFA-Europe Pilot: a great research and innovation opportunity for the European and worldwide nanoscience community.
Flavio CARSUGHI | 1044 |
| 14:30 | Emergent honeycomb physics from chiral atomic orbitals on a triangular lattice
Domenico DI SANTE | 1066 |
| 15:10 | Ultrafast scattering between bulk and topological states of photoexcited carriers in Bi ₂ Se ₃ thin films
Stefano TURCHINI | 1436 |
| 15:30 | Coffee Break | |

SESSION 2
Y02

- | | | |
|-------|--|------|
| 16:00 | TaCoTe ₂ : A Candidate Magnetic Dirac System with a Large Intrinsic Nonlinear Hall Effect
Ivana VOBORNIK | 891 |
| 16:20 | Relevance of thermal fluctuations in Fe(100)-p(1x1)O in optically-induced ultrafast demagnetization
Alessandro DE VITA | 912 |
| 16:40 | Conserving approximations for the single-impurity Anderson model: Magnetic response and the Kondo scale
Šimon KOS | 1202 |

Tuesday, 19 September 2023
SESSION 3
Y03

- | | | |
|------|--|------|
| 9:00 | Semiconductor Quantum Dot arrays for Quantum Information Transfer
Gloria PLATERO | 1154 |
| 9:40 | Arrangement, composition and magnetisation of epitaxial iron oxide nanoislands on strontium titanate
Steffen TOBER | 190 |

10:00	Spin waves pumped by surface acoustic waves in a thin film Riccardo CUCINI	623
10:20	Investigation of magnetoelastic coupling in Fe(10 nm)/Py(10 nm) nanowire array Marta BRIOSCHI	1251
10:30	Coffee Break	

SESSION 4

Y04

11:10	Superconducting quantum optoelectronics Alex HAYAT	1480
11:50	Mn Doping in Low-Dimensional Perovskites: A Switch for Controlling Dopant and Host Emission Bapi PRADHAN	240
12:10	Tuning shape-imposed anisotropy via magnetic multilayers on self-organized nanospheres Asmaa QDEMAT	1519



Exhibition

18-20 September 2023, 09:00-17:15

Location: Main Hall | Main Building



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They offer the broadest wavelength coverage with high power at unique wavelengths. Known for their exceptional quality and reliability, TOPTICA lasers are endorsed by OEMs, scientists, and Nobel Laureates.

Founded in 1998 near Munich, Germany, TOPTICA is a leading photonics company renowned for the coherence and beam profiles of its lasers. Its 490 employees ensure that innovations find commercial applications.