2nd REUNICE Workshop "MULTIFUNCTIONAL MATERIALS and SUSTAINABILITY" Catania 3-5 July 2024

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Workshop Programme

Day	Time	Contribution (click to see the abstract)	Title Presenting Author, *Affiliation*
03-Jul (common programme with the Summer School)	12:30-		*Shuttle transfer from Piazza Repubblica (https://maps.app.goo.gl/RZ5tRSwnNwvqFhpw9) to Scuola Superiore Catania (https://maps.app.goo.gl/ZmCyWbtpX3QkJBpx9)*
	13:00-14:30		Registration + Lunch break
	14:30-14:45		*Welcome address* ***Prof. Francesco Priolo**, Rector UNICT* ***Prof. Salvatore Baglio**, Deputy Rector Research UNICT* ***Prof. Daniele Malfitana**, President SSSC*
	14:45-15:40	*Invited Keynote*	**Materials and systems for green hydrogen production and storage: challenges and opportunities** Sabrina Sartori, *University of Oslo*
	poster session in the courtyard, open coffee break during the whole session		
	poster 01		**Application of aluminium-coated membranes for the immobilization of enzymes: model reactions for the synthesis of chiral alcohols** Ramandeep Kotala, *Polish University of Technology*
	poster 02		**Solid-state modification of polybutylene terephthalate) with a photoreactive Cinnamamide derivative** Jaqueline Nayri Wandji, *University of Mons*
	poster 03		**Novel multimetallic complexes as precursors for fluoride functional materials** Claudia Barberato, *University of Catania*
	poster 04		**Single-Ion Counting with an Ultra-Thin-Nanocrystalline-Silicon Carbide Sensor for Quantum Applications** Enrico Sangregorio, *University of Catania*
	poster 05		**Boron-doped Zinc Oxide thin films as ETL alternative candidate in Perovskite single-junction solar cell** Noemia Timoteo, *University of Catania*
	poster 06		**250 µm thick detectors for neutron detection: design, electrical characteristics, and detector performances** Gabriella Tinaglia, *University of Catania*
	poster 07		**Earth-abundant nanostructured materials for energy storage applications** Maria Crimeni Knoblauch, *University of Oslo*
	poster 08		**Work function evaluation of thin films for solar cells by Ambient Pressure Photoemission** Alessia Torrisi, *University of Catania*
	poster 09		**Manufacture and optimization of ZnO-based high-frequency transducers** Rene Arbaud, *Université Polytechnique Hauts-de-France*
	poster 10		**Can surface-active ionic liquids based on caprylic acid be a green alternative to surfactants in detergent production?** Maria Wiśniewska, *Poznan University of Technology*
	poster 11		**Enzymatic membrane reactor supported with ionic liquid as an efficient platform for removal of estrogens** Tomasz Ciesielski, *Poznan University of Technology*
	poster 12		**Mechanochemical Synthesis as a Procedological Approach of Production of MOF-type materials** Alexandra Rakuljenka, *Poznan University of Technology*
	poster 13		**Synthesis of modern hydrogel polymer electrolytes** Wiktoria Zok, *Poznan University of Technology*
	poster 14		**Mechanism of aqueous electrolyte uptake by the hydrophilic lignin gel and its application as electrolyte for supercapacitor** Paweł Mrówka, *Poznan University of Technology*
	poster 15		**Ionic liquids comprising alkyl betainate cation and 2,4-dichlorophenoxyacetate anion as herbicides with reduced environmental impact** Adriana Olchowiak, *Poznan University of Technology*
	poster 16		**Interaction of surfactants of natural origin with polymeric membranes** Adam Gołdasz-Jarka, *Poznan University of Technology*
	poster 17		**Precipitation of Platinum Group Metal Nanoparticles in Bioinspired Systems** Wiktoria Jakubowska, *Poznan University of Technology*
	poster 18		**Impact of potentially protective agents on lactic acid bacteria in dehydrated forms** Aurora Burlina, *Università degli Studi di Milano*
	poster 19		**Perovskite-based surfaces as photoanodes for an enhanced solar-driven CO_2 reduction to formate** José Antonio Alvarez, *University of Cantabria*
	poster 20		**Potential integration of osmotic pumps and magnetic nanoparticles in the development of novel drug delivery systems** David Maldonado Hidalgo, *University of Cantabria*
	poster 21		**Valorization of pollutant biomass waste for the synthesis of N-doped carbon electrodes for CO_2 electroreduction to formate** Iker Uriarte-Porras, *University of Cantabria*
	poster 22		**Photoelectrochemical conversion of CO_2 with perovskite photocathodes** Elena Alcalá Alcalá, *University of Cantabria*
	poster 23		**Enhancing Electrochemical CO_2 Reduction: Improved Performance of a Three-Compartment Reactor for Formic Acid Production** Marcos Gea-Grau, *University of Cantabria*
	poster 24		**Sustainable technologies for the extraction and separation of strategic raw materials for lithium-ion batteries: an innovative development.** Teresa Garcia Cortina, *University of Cantabria*
	poster 25		**Ni-decorated $CaTiO_3/WO_3/BiVO_4$ layered photoanodes for photoelectrochemical applications** Sara Cretoiu, *University of Cantabria*
	poster 26		**Evaluation of photocatalyst charge carriers of $CdTiO_3$ heterojunction for photocatalytic hydrogen production** Gabriela Lucia Pascu, *University of Cantabria*
	poster 27		**Sodium alginate surface-modified magnetic materials for microplastic separation** Daniel Morales, *University of Cantabria*
	poster 28		**Synthesis and multi-scale characterization of Zinc Oxide Nanowires** Imen Berkissate, *University of Mons*
	poster 29		**On the Importance of a Correct Data Acquisition Protocol of the Electrochemical Properties of Materials for Energy Harvesting Applications: Piezoelectric Nanogenerators as a Case Study** Pierre Nicholas Descamps, *University of Mons*
	poster 30		**Synthesis of New Silicopantothe Materials Based on Hydric Acid with Antibacterial Activity** Erika Saccullo, *University of Catania*
	poster 31		**Root-associated microorganisms for optimizing sustainable crop production** Mahagadol Mintesa, *Università di Catania*
	poster 32		**Nanostructuration of GaN: A Promising Route to Quantum Single-Photon Sources** Francesco Lentini, *University of Catania*
	poster 33		**Enhancing Energy Consumption Forecasting Accuracy: A Hybrid Autoregressive and Machine Learning Approach** Giovanni Pappalardo, *University of Catania*
	poster 34		**Frontiers in nanomedicine: unlocking wound healing potentials with PVPcapped (old and modern) silver nanomeds** Mikel Fernandez, *University of Catania*
	poster 35		**Spin-orbit coupling effects in a graphene honeycomb junction** Federico Bonaiera, *University of Catania*
	poster 36		**Circuit Quantum Electrodynamics with two-dimensional Dirac-cone Tóbelectrets: Nanoprocessing** Mmoyosi Dumse, *Università degli Studi di Catania*
	poster 37		**Fully integrated galvanic isolation interface in GaN technology** Carla Sammito, *University of Catania*
	poster 38		**Towards sustainable polyester resins: from synthesis of monomers and additives for a greener thermal and UV-light curable manufacturing** Lorenzo Rossi, *University of Catania*
	17:40-		*shuttle transfer from Scuola Superiore Catania (https://maps.app.goo.gl/ZmCyWbtpX3QkJBpx9) to Monastero Benedettini (https://maps.app.goo.gl/Yr4vudpSoTFrRjgf8)*
	18:00-20:00		Guided tour of Monastero Benedettini
	20:15-		Social dinner, city center (Osteria Eventi Center)
04-Jul	09:00-		*Shuttle transfer from Piazza Repubblica (https://maps.app.goo.gl/RZ5tRSwnNwvqFhpw9) to Scuola Superiore Catania (https://maps.app.goo.gl/ZmCyWbtpX3QkJBpx9)*
	09:30-10:10	*Invited Talk (IT)*	**Plastic sustainability - old methods - new trends** Rafael Mincheva, *University of Mons*
	10:10-10:30	*Oral 01*	**Sol-Gel elution synthesis of bismuth oxide thin film for high energy storage performance** Giovanna Pellegrino, *University of Catania*
	10:30-10:50	*Oral 02*	**Formation of an inorganic membrane enzyme system for environmental applications** Dorota Kołodyńska, *Poznan University of Technology*
	10:50-11:10	*Oral 03*	**Characterization of SiC free-standing membrane for X rays intensity monitoring in synchrotron radiation beamlines** Gabriele Tinaglia, *University of Catania*
	11:10-11:30		*coffee break*
	11:30-11:50	*Oral 04*	**Study of the carbon materials formation during the plasmolysis of methane in a gliding arc reactor** Rasim Barakhmanov, *University of Mons*
	11:50-12:10	*Oral 05*	**Comprehensive Analysis of Energy Conversion in TENGs Deposited by Doped Barium Fluoride Thin** Francesca Lo Presti, *University of Catania*
	12:10-12:30	*Oral 06*	**High-performance Graphene/PVA Spray-Coated Films for Flexible and Wearable Tóbelectrets: Nanogeneration** Hongliang Dang, *University of Catania*
	12:30-14:30		*lunch break*
	14:30-15:10	*Invited Talk (IT)*	**Microneedle graphene field-effect transistors for wearable biosensing** Mario Hofstetter, *University of College*
	15:10-15:30	*Oral 07*	**Biocidal compounds - effects on cell membrane** Julia Szczerbińska, *Poznan University of Technology*
	15:30-15:50	*Oral 08*	**Production and characterization of nanostructured spinel thin mixed films and their application for water splitting** Federico Bonaiera, *University of Catania*
	15:50-16:10	*Oral 09*	**Light-emitting Silicon nanowires array as versatile optical biosensors** Maria José La Fata, *University of Catania*
	16:10-16:30		*Coffee break*
	16:30-16:50	*Oral 10*	**Application of aluminium-coated membranes for the immobilization of enzymes: model reactions for the synthesis of chiral alcohols** Ramandeep Kotala, *Polish University of Technology*
	16:50-17:10	*Oral 11*	**Graphene and Copper Nanoparticles based electrochemical sensors for the detection of Glyphosate in Water** Ganesh Nasi, *University of Catania*
	17:10-17:30	*Oral 12*	**Sputtered MoOx Films: A Dopant-Free Approach to Passivation and Hole Selectivity in SiH Solar Cells** Salvatore La Mantia, *University of Catania*
	17:30-		*Shuttle transfer from Scuola Superiore Catania (https://maps.app.goo.gl/ZmCyWbtpX3QkJBpx9) to Piazza Repubblica (https://maps.app.goo.gl/RZ5tRSwnNwvqFhpw9)*
	18:00-		*Free time, autonomous dinner*
05-Jul (common programme with the Summer School)	09:00-		*Shuttle transfer from Piazza Repubblica (https://maps.app.goo.gl/RZ5tRSwnNwvqFhpw9) to Scuola Superiore Catania (https://maps.app.goo.gl/ZmCyWbtpX3QkJBpx9)*
	09:30-10:10	*Invited Talk (IT)*	**Nature-mimicking intelligent microhumanoids** Mario Cesa, *University of Mons*
	10:10-10:30	*Oral 013*	**Facile synthesis of modified MoO_3 nanostructures from industrial waste powder for energy storage application** Giovanni Di Pietro, *University of Catania*
	10:30-10:50	*Oral 014*	**On the Electromechanical Properties of Hybrid Piezoelectric Nanocomposites by Scanning Probe Microscopy** Pierre Nicholas Descamps, *University of Mons*
	10:50-11:10	*Oral 015*	**Impact of rare earth doping in transition metal oxide nanoparticles and electrochemical sensing of pharmaceutic alcohols in polluted wastewater** Ali Jamil Tehrani, *University of Catania*
	11:10-11:30		*coffee break*
	11:30-11:50	*Oral 016*	**Utilizing contact lens-TiO_2 Nanocomposites for sustainable wastewater remediation** Ernestina Lufrano, *University of Catania*
	11:50-12:10	*Oral 017*	**Creative management of waste from production of sugar : glycine betaine as the future for the agrochemicals and surfactants market** Michał Niemczak, *Poznan University of Technology*
	12:10-12:30	*Oral 018*	**I tuka Monte-Carlo simulations of Neutron Detection for Fusion Reactors** Rita Salvatore Mancuso, *University of Catania*
	12:30-12:50	*Oral 019*	**New lidocaine derivatives showing antimicrobial activity as new APIs with low environmental impact** Barbara Dominczak, *Poznan University of Technology*
	12:50-14:30		*lunch break*
	14:30-14:50	*Oral 020*	**Exploring the Nanoscale Electromechanical Properties of Hybrid Thin Films and Nanostructures for Energy Harvesting Applications** Emanuel Ledinek, *University of Mons*
	14:50-15:10	*Oral 021*	**Cu Nanoparticles by Laser Ablation in Liquid for green hydrogen production** Cristiano Lo Re, *University of Catania*
	15:10-15:30	*Oral 022*	**Design of porous carbon electrodes for energy storage systems** Agnieszka Pawlak, *Poznan University of Technology*
	15:30-15:50	*Oral 023*	**Iron Oxide based Nanocomposites for sustainable fertilization** Valeria Torrisi, *University of Catania*
	15:50-16:10	*Oral 024*	**Photocatalysts for Green Hydrogen Production: Electronic Structure and Morphological Study** Caterina Sanzaro Rosa, *University of Catania*
	16:10-16:30		*coffee break*
	16:30-16:50	*Oral 025*	**Intrinsic Doping and Ageing of Sputter Deposited In_2O_3 thin films** Andrea Lo Vasco, *University of Catania*
	16:50-17:10	*Oral 026*	**Magnetic nanoparticles with green surface modifications for the efficient capture of polyethylene microplastics** Camilla Abbadessa, *University of Cantabria*
	17:10-17:30	*Oral 027*	**Photocatalytic Thermoelectric Coatings Layered onto Cement Surfaces for Gaseous Pollutants Abatement** Luana Persano, *University of Catania*
	17:30-17:40	*Closing works*	
	17:40-		*shuttle transfer from Scuola Superiore Catania (https://maps.app.goo.gl/ZmCyWbtpX3QkJBpx9) to Piazza Repubblica (https://maps.app.goo.gl/RZ5tRSwnNwvqFhpw9)*
	18:00-		free time, autonomous dinner

SCIENTIFIC COMMITTEE

- **Prof. Antonio Terzaz** - Department of Physics and Astronomy "Ettore Majorana" - *University of Catania*
- **Prof. Philippe Leclère** - Institut Matériaux - *University of Mons*
- **Prof. Denis Rémiens**- IEMN Valenciennes - *Université Polytechnique Hauts-de-France*

ORGANIZING COMMITTEE

- **Prof. Cristina Satriano** - Department of Chemical Sciences - UNICT REUNICE Project Leader
- **Pasqua Moccaldo** - UNICT REUNICE Project Officer
- **Dr. Valentina Barbagallo** - UNICT International Relation Office, Coordinator
- **Marco Insalaco** - UNICT Information Systems Area - *IASI*
- **Scuola Superiore di Catania** (School of Excellence) - Mediterranean University Center
- **Third Mission Area (ATM)** - UNICT