



X Workshop Nazionale AICIng
*Materiali e processi sostenibili nell'ambito di un'economia circolare
e di una migliore qualità della vita*

AICIng
Associazione Italiana di Chimica
per Ingegneria

13-14 Giugno 2024, M.A.N.U., Perugia



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PROGRAMMA SCIENTIFICO Workshop AICIng 2024

12 giugno 2024

	Caffè del Teatro Morlacchi
18.30-20.00	Registrazione e Aperitivo di Benvenuto

13 giugno 2024

	Sala Mario Torelli
8.30-9.00	Registrazione
9.00-9.30	Saluti Istituzionali Prof. <u>Fausto Elisei</u> (Pro-Rettore Vicario - Università degli Studi di Perugia) Prof. <u>Giovanni Gigliotti</u> (Direttore Dipartimento di Ingegneria Civile ed Ambientale - Università degli Studi di Perugia) Prof. <u>Luca Gammaitoni</u> (Coordinatore Scientifico VITALITY UNIPG - Università degli Studi di Perugia) Dott.ssa <u>Tiziana Caponi</u> (Direttrice Museo Archeologico Nazionale dell'Umbria - MANU) Prof. <u>Roberto Paolesse</u> (Presidente Associazione Italiana di Chimica per l'Ingegneria - AICIng)
9.30-10.30	Plenary Lecture (Chair: Roberto Paolesse; Marzio Rosi) PL- Prof. <u>Antonio Sgamellotti</u> (Professore Emerito dell'Università di Perugia e Accademico dei Lincei), <i>Raffaello in Villa Farnesina: dai colori della prosperità al Blu Egizio</i>
10.30-11.00	Coffee Break (Chiostro del MANU – piano terra)
	Sala Mario Torelli (Sessione Parallela, Chair: Isabella Chiarotto; Stefano Falcinelli)
11.00-11.15	O1- <u>Francesca Derobertis</u> (Politecnico di Bari), <i>Microwave assisted biodiesel production from waste cooking oil using steel slags as catalyst</i>
11.15-11.30	O2- <u>Rossella Grappa</u> (Università di Napoli Federico II), <i>Hybrid Synthesis Route for Stable and Swellable Lignin Nanoparticles</i>

11.30-11.45	O3- <u>Sebastiano Marra</u> (Università di Napoli Federico II), <i>Regenerative approaches for pomegranate waste: bioactive hybrid nanomaterials for oxidative stress treatment</i>
11.45-12.00	O4- <u>Laura Riva</u> (Politecnico di Milano), <i>Cellulose-based nanostructured aerogels for leachate decontamination: towards sustainable phosphorus recovery from sewage sludge ash</i>
12.00-12.15	O5- <u>Francesco Pizzoli</u> (Università di Roma "Tor Vergata"), <i>Towards selective detection of "forever chemicals": development of opto-electrochemical sensor array for perfluorooctanoic acid (PFOA)</i>
12.15-12.30	O6- <u>Mattia Manfroni</u> (Università di Bologna), <i>Synthesis and Characterization of Novel Poly(butylene succinate)/ Poly(pentamethylene 2,5-furandicarboxylate) blends for biomedical flexible packaging</i>
12.30-12.45	O7- <u>Lorena Di Zazzo</u> (Università di Roma "Tor Vergata"), <i>Conductive sensors based on metallo-polycorroles</i>
12.45-13.00	O8- <u>Marica Gallo</u> (Università di Napoli Federico II), <i>Unlocking the potential of Lignin-TiO₂ Hybrid Nanostructures for redox material production and sustainable wastewater decontamination</i>
13.00-13.15	O9- <u>Matteo Battaglia</u> (Università di Roma "Tor Vergata"), <i>Synthesis and characterization of perovskites for hydrogen production: study of a two-step thermochemical green water splitting cycle</i>
13.15-14.30	Pranzo (Chostro del MANU – Piano terra)

	Sala della Biblioteca (Sessione Parallela, Chair: Liberata Guadagno; Giovanni Sotgiu)
11.00-11.15	O10- <u>Consuelo Celesti</u> (Università di Messina), <i>Modified gold-screen printed electrodes for the determination of heavy metals</i>
11.15-11.30	O11- <u>Antonio D'Angelo</u> (Università della Campania "Luigi Vanvitelli"), <i>Synthesis and characterization of colored MK-based geopolymers prepared in the presence of Acridine Orange</i>
11.30-11.45	O12- <u>Emanuele Previti</u> (Università di Messina), <i>Assessment of matrices influence on thermochemical behavior of novel organic hydrated salt</i>

11.45-12.00	O13- <u>Giulia Calabrese</u> (Università di Messina), <i>Perovskite oxides as efficient solution for solid state hydrogen storage</i>
12.00-12.15	O14- <u>Chiara Romeo</u> (Università di Trento), <i>Enhancing thermal conductivity of ladder-like polysilsesquioxanes-Al₂O₃ nanocomposites tuning the interactions among filler and matrix</i>
12.15-12.30	O15- <u>Agostino Attinà</u> , (Università di Catania), <i>Vapoluminescent properties of a Zn(salen)-type complex for sensing volatile organic compounds</i>
12.30-12.45	O16- <u>Emanuele De Rienzo</u> (Università di Modena e Reggio Emilia), <i>Sustainable upcycling of glass residues via alkali-activation</i>
12.45-13.00	O17- <u>Meryam Chelly</u> (Università di Messina), <i>Highly Fluorescent Plant-Derived Hydrochars For Heavy Metals Determination</i>
13.00-13.15	O18- <u>Cristina Lavorato</u> (Università della Calabria), <i>Photocatalytic mineralization of nanoplastics recovered from water by a membrane process.</i>
13.15-14.30	Pranzo (Chostro del MANU – Piano terra)

	Sala Mario Torelli (Sessione Parallela, Chair: Giacomo Giorgi; Nadia Lotti)
14.30-14.45	O19- <u>Williane Da Silva Freitas</u> (Università di Roma "Tor Vergata"), <i>Advanced materials for oxygen electrocatalysis in anion exchange membrane fuel cells and electrolyzers</i>
14.45-15.00	O20- <u>Arianna Palumbo</u> (Università di Bologna), <i>New Promising Bio-based Alternatives for Suture Production</i>
15.00-15.15	O21- <u>Alberto Mannu</u> , (Politecnico di Milano) <i>Crossing two main value chains: waste cooking oils and spent lithium-ion batteries valorisation</i>
15.15-15.30	O22- <u>Immacolata Climaco</u> (Università di Napoli Federico II), <i>Marine biofouling prevention: an eco-friendly polymer-based solution using sol-gel chemistry and hydrophobicity</i>
15.30-15.45	O23- <u>Gloria Nicastro</u> (Politecnico di Milano), <i>Nanocellulose/8-arm-PEG-NH₂ aerogels for controlled release of urea</i>

15.45-16.00	O24- <u>Costanza Borghesi</u> (Università di Perugia), <i>Electronic properties and optical behaviour of silicon doped vanadium dioxide: a DFT+U study</i>
16.00-16.15	O25- <u>Grazia Isa Carla Righetti</u> (Politecnico di Milano), <i>Seed4Green: unlocking HMF-DES potential for a green transition</i>
16.15-16.30	O26- <u>Khair Un Nisa</u> (Università di Roma "Tor Vergata"), <i>Enhancing Microbial Fuel Cell Power Output through Optimized Carbon-based Electrodes</i>
16.30-16.45	O27- <u>Daniele Conelli</u> (Politecnico di Bari), <i>Antisolvent-Engineered Synthesis of CsPbBr₃ for Efficient Photocatalytic Organic Dye Degradation</i>
16.45-17.15	Coffee Break (Chiostro del MANU – Piano terra)

	Sala della Biblioteca (Sessione Parallela, Chair: Marta Feroci; Piero Mastrorilli)
14.30-14.45	O28- <u>Chiara Petroselli</u> (Università di Perugia), <i>Implications on crops nutrition by short-term phosphorus dynamics the soil solution revealed by microsampling and digital twins</i>
14.45-15.00	O29- <u>Anna Scettri</u> (Università di Padova), <i>Valorisation of Coffee Silverskin through extractions and pyrolysis</i>
15.00-15.15	O30- <u>Sergio Santoro</u> (Università della Calabria), <i>Unlocking Sustainable Lithium Extraction: The Promise of Photothermal Membrane Crystallization</i>
15.15-15.30	O31- <u>Giuliana Rizzo</u> (Università di Catania), <i>Towards sustainable materials: blending vegetable oil in Unsaturated Polyester Resin for a greener composite manufacturing</i>
15.30-15.45	O32- <u>Luigi Vertuccio</u> (Università della Campania "Luigi Vanvitelli"), <i>New aircraft de-icing devices</i>
15.45-16.00	O33- <u>Raffaele Longo</u> (Università of Salerno), <i>Highly energy-saving process for the development of thermosetting structural composites</i>
16.00-16.15	O34- <u>Fabrizio Caroleo</u> (Università di Roma "Tor Vergata"), <i>Novel optical sensor for PFOA detection in water using different low-cost materials for corrole deposition</i>

16.15-16.30	O35- <u>Chiara Frezza</u> (Università di Roma Tre), <i>Ceria coating on nanostructured titanium surfaces enhance antibacterial and anti-inflammatory capabilities</i>
16.30-16.45	O36- <u>Asia Grattagliano</u> (Università di Roma "Tor Vergata"), <i>Nickel-(4-sulfonatophenyl) porphyrin as redox couple for Symmetric Aqueous Organic Redox Flow Battery (SAORFB)</i>
16.45-17.15	Coffee Break (Chiostro del MANU – Piano terra)

17.15-18.00	Sessione Poster (Chiostro del MANU – Primo piano)
18.00-19.00	Visita guidata al Museo Archeologico Nazionale dell'Umbria (MANU)
20.15-23:00	Cena Sociale (Ristorante del Sole)

14 giugno 2024

	Sala Mario Torelli (Sessione Parallela, Chair: David Cappelletti; Candida Milone)
9.00-9.15	O37- <u>Chiara Lo Porto</u> (Politecnico di Bari), <i>TiO₂ nanorods functionalized with catechol for enhanced visible light photoactivity</i>
9.15-9.30	O38- <u>Gianmarco Vannuzzo</u> (Università di Perugia), <i>Exploring Styrene Formation through Crossed Molecular Beam Experiments: the Phenyl + 1,3-Butadiene Reaction</i>
9.30-9.45	O39- <u>Martina Bortolami</u> (Università di Roma La Sapienza), <i>Electrochemically synthesized chiral carbon dots as nano-organocatalysts in stereoselective reactions</i>
9.45-10.00	O40- <u>Luca Mancini</u> (Università di Perugia), <i>New Insights in the Development of Selective Carbon-Based Nanomaterials: a Computational Analysis of the Interaction of Carbon Dioxide with Graphyne Layers</i>
10.00-10.15	O41- <u>Cinzia Michenzi</u> (Università di Roma La Sapienza), <i>Remediating Water Pollution: Biomass Carbon Dots for Nitrobenzene Detection</i>
10.15-10.30	O42- <u>Alessandra Perrucci</u> (Università di Bologna), <i>Novel sustainable and photoresponsive copolymers of PBS containing tertiary amide units derived from ferulic acid</i>

10.30-10.45	O43- <u>Marco Parriani</u> (Università di Perugia), <i>Double photoionization of allene molecules by synchrotron radiation</i>
10.45-11.00	O44- <u>Giacomo Pannacci</u> (Università di Perugia), <i>The role of oxygen atoms as degrading agents of polymers in space: the case of O(³P,¹D) + small aromatics reactions</i>
11.00-11.30	Coffee Break (Chiostro del MANU – Piano terra)
	Sala Mario Torelli (Sessione Parallela, Chair: Fabio Ganazzoli; Silvia Licoccia)
11.30-11.45	O45- <u>Emiliano Laudadio</u> (Università Politecnica delle Marche), <i>Development of a Metal-Insulator-Metal device based on HfO₂ for energy harvesting applications</i>
11.45-12.00	O46- <u>Andrei Ungureanu</u> (Università di Modena e Reggio Emilia), <i>CO₂ emissions upon thermal treatment of ceramic body: a Life Cycle Assessment (LCA) Approach</i>
12.00-12.15	O47- <u>Martina Marsotto</u> (Università di Roma "Tor Vergata"), <i>Synthesis and characterization of 5- and 10-oxocorroles from β-octaalkylcorroles</i>
12.15-12.30	O48- <u>Andrea Giustini</u> (Università di Perugia), <i>Theoretical Insights on the S(¹D)+H₂O reaction and implications on the chemistry at the surface of ice in extraterrestrial environment</i>

	Sala della Biblioteca (Sessione Parallela, Chair: Sandra Dirè; Gian Paolo Suranna)
9.00-9.15	O49- <u>Mariachiara Spennato</u> (Università di Bologna), <i>Towards Sustainable Polymer Synthesis: Enzymatic Recycling and Upcycling Strategies for Plastic Materials</i>
9.15-9.30	O50- <u>Simone Russo</u> (Università di Napoli Federico II), <i>Synergistic Action of Humic Substance/Metal-Oxide Nanoparticles: Advancements in Antibacterial and Antimycotic Activity</i>
9.30-9.45	O51- <u>Alessia Fata</u> (Università di Roma "Tor Vergata"), <i>N-methyl-corroles and their catalytic activity</i>

9.45-10.00	O52- <u>Alessandro Coatti</u> (Università di Bologna), <i>Biobased poly(butylene succinate)/poly(pentamethylene 2,5-furanoate) block copolymers for monolayer food-packaging film</i>
10.00-10.15	O53- <u>Marianna Orrico</u> (Università di Napoli Federico II), <i>Phenolic driven decoration of silica with Ag nanoparticles: Towards sustainable water remediation</i>
10.15-10.30	O54- <u>Stefano Bianchi</u> (Università di Bologna), <i>Assessing the antioxidant activity of coffee-derived phenolic compounds on the stability of poly(1,4-butylene succinate) formulations</i>
10.30-10.45	O55- <u>Martina Napolitano</u> (Università di Modena e Reggio Emilia), <i>High-efficiency fertilizing systems from waste materials: circular economy and soil protection</i>
10.45-11.00	O56- <u>Erika Zamboni</u> (Università di Bologna), <i>Circular economy in agriculture: new biomaterials from agro-waste</i>
11.00-11.30	Coffee Break (Chiostrò del MANU – Piano terra)
	Sala della Biblioteca (Sessione Parallela, Chair: Cristina Leonelli; Mauro Pasquali)
11.30-11.45	O57- <u>Matteo Venturi</u> , (Università di Bologna), <i>Poly(butylene isophthalate-co-2,5-furandicarboxylate): High-Performance Solutions for Sustainable Food Packaging</i>
11.45-12.00	O58- <u>Gaetana Petrone</u> (Università di Roma La Sapienza e CNR-IMM), <i>Dye-sorption in liquid for surface area analysis</i>
12.00-12.15	O59- <u>Josè Miguel Silva Ferraz</u> (Università di Roma La Sapienza), <i>The Role of Thermal Analysis on the Characterization of Organic Semiconductor Materials: A Case Study on Two Phenanthroline Derivatives</i>
12.15-12.30	O60- <u>Paola Amato</u> (Università di Napoli Federico II), <i>Microplastics oxidative degradation: a trash-to-treasure approach</i>
12.30-13.00	Consegna Premi AICIng, MDPI e EdiSES e Conclusione Lavori (Sala Mario Torelli)
13.00	Pranzo (Chiostrò del MANU – Piano terra)

Poster

P01 - <u>Marika Fiorentino</u> (Università della Campania "Luigi Vanvitelli"), <i>Spectroscopic and biological characterization of quercetin loaded in PEG-silica hybrid materials</i>
P02 - <u>Antonella Sola</u> (Università di Modena e Reggio Emilia), <i>Evaluation of the environmental sustainability of fused filament fabrication through life cycle assessment (LCA): A literature survey</i>
P03 - <u>Michelina Catauro</u> (Università della Campania "Luigi Vanvitelli"), <i>Quercetin Adsorption on Amorphous Silica Surfaces in Hybrid Organic–Inorganic Biomaterials as Drug Delivery Systems</i>
P04 - <u>Veronica Viola</u> (Università della Campania "Luigi Vanvitelli"), <i>Drug delivery system: caffeic acid in Si/PEG hybrids</i>
P05 - <u>Peyman Hamidizadeh</u> (Politecnico di Bari), <i>Depolymerization and Hydrodeoxygenation of Lignin by Using Nickel Raney Catalyst</i>
P06 - <u>Maria Michela Dell'Anna</u> (Politecnico di Bari), <i>Assessing microplastic pollution in commercial and touristic Apulian Ports</i>
P07 - <u>Maria Michela Dell'Anna</u> (Politecnico di Bari), <i>Carpentry waste wood flour valorization with microwave-assisted deep eutectic solvent treatment</i>
P08 - <u>Anna Troiani</u> (Università di Roma La Sapienza), <i>Photo-Activation Of Carbon Dots: The Knoevenagel Condensation Studied By Mass Spectrometry</i>
P09 - <u>Marta Loletti</u> (Università di Perugia), <i>Theoretical investigations of the structural and electronic properties of CaTiO₃ for photoconversion applications</i>
P10 - <u>Paola Di Matteo</u> (Università di Roma La Sapienza), <i>Comparative study of Essential oils by a multi-analytical approach using GC-MS, ESI-MS/MS and FT-IR techniques</i>
P11 - <u>João Malafatti</u> (Embrapa Instrumentação), <i>Enhancement of porphyrin anchored on zeolite A and their fluorescence properties</i>
P12 - <u>Francesco Parrino</u> (Università di Trento), <i>Effects of silanization on structural, opto-electronic and photocatalytic features of TiO₂</i>
P13 - <u>Sandra Dirè</u> (Università di Trento), <i>Photocurable starch-titania nanocomposites for sustainable packaging</i>

P14 - <u>Meriem Goudjil</u> (Università di Firenze), <i>Exploring the structural features influencing the adsorption dynamics of VOCs on Bispidine-based CPs</i>
P15 - <u>Costanza Borghesi</u> (Università di Perugia), <i>Defect dependent infrared properties of cerium based nanoceramics for passive radiative cooling</i>
P16 - <u>Simona Sabbatini</u> (Università Politecnica delle Marche), <i>Preparation and Characterization of Biodegradable Polylactic Acid/hemp essential oil composite film for Food Packaging Application</i>
P17 - <u>Riccardo Ceccato</u> (Università di Trento), <i>Hybrid Sol-gel coatings for stone consolidation in archaeological artefacts</i>
P18 - <u>Elodia Spinelli</u> (Università di Roma "Tor Vergata" e IPCB-CNR), <i>Advanced Nanostructured Materials for the Protection of Artworks</i>
P19 - <u>Maria Stella Leone</u> (Politecnico di Bari), <i>Novel catalysts from spent cigarette butts for biodiesel partial hydrogenation reaction</i>
P20 - <u>Valeria Vanoli</u> (Politecnico di Milano), <i>NMR Spectroscopy in sustainable polymer science</i>
P21 - <u>Alberto Mannu</u> (Politecnico di Milano) <i>Circularity of Used Vegetable Oils: the project WORLD</i>
P22 - <u>Grazia Isa Carla Righetti</u> (Politecnico di Milano), <i>Hydrophobic eutectic solvents in water remediation</i>
P23 - <u>Giulia Maria Itri</u> (Università Mediterranea di Reggio Calabria), <i>Synthesis of a new heterogeneous photocatalyst for the valorization of biomass residues by photoreforming</i>
P24 - <u>Antonio Cosimo Pio Trimboli</u> (Università Mediterranea di Reggio Calabria), <i>Catalytic Upcycling of Polyolefin Plastic Waste into Valuable Liquid Hydrocarbons</i>
P25 - <u>Susanna Romano</u> (Università degli Studi Roma Tre), <i>Active Starch/Chitosan composite films using choline ionic liquids as plasticizers</i>