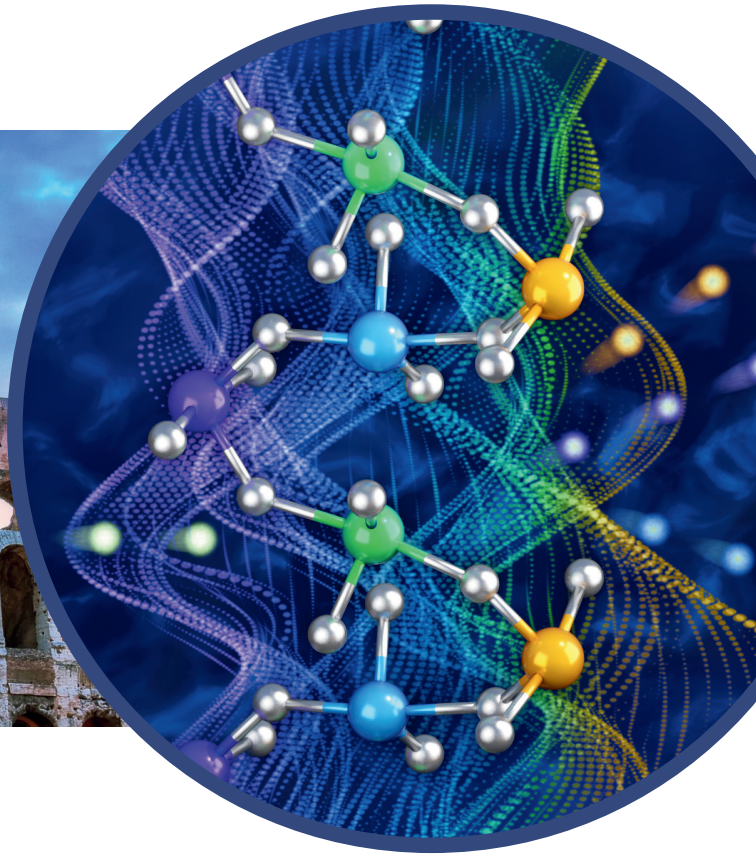
SYNERGIA SUMMITS
...fostering collaborations

FINAL PROGRAM

Annual International Conference on

Materials Science and Nanoscience



March 13-14, 2025
ROME, ITALY

Venue
MERCURE ROMA CINECITTÀ

AICMSN2025

https://aicmsn2025.synergiasummits.com/

Day 1

March 13, 2025 | Thursday

Meeting Room: SALA1

09:00-09:15	Registrations & Badge Pick Up
09:15-09:30	Introduction & Opening Ceremony

PLENARY SESSION

Moderator: **Konstantin Borodianskiy,** Ariel University, Israel

09:30-10:10	Title: Multifunctional Materials for Emerging Technologies **Federico Rosei**, Institut National de la Recherche Scientifique, Canada
10:10-10:50	Title: Happy Marriage between Low-Dimensional Materials and Low-Voltage Transmission Electron Microscopy **Ute Kaiser,** Ulm University, Germany
10:50-11:05	COFFEE BREAK
11:05-11:45	Title: Carbon Dots: Exploring Carbon at the Zero-Dimension **Ya-Ping Sun,** Clemson University, USA
11:45-12:25	Title: Solid-State Batteries with Polymer Electrolytes **Michel Armand,** CIC energiGUNE, Spain
12:25-13:05	Title: The Elimination of the Failure Mechanisms of Metals **John Campbell,** The University of Birmingham, UK
13:05-13:10	Group Photograph
13:10-13:50	LUNCH BREAK
13:50-14:30	Title: Stimuli-Sensitive Nanoparticular Drug Delivery Systems **Vladimir Torchilin,** Northeastern University, USA

KEYNOTE SESSION

14:30-15:00	Title: First-principles Materials Design of Atomic Layered Materials for Nanoelectronics Devices **Yoshitaka Fujimoto,** Kyushu University, Fukuoka, Japan
15:00-15:30	Title: Oxide Bioactive Surfaces through Plasma Oxidation of Metal in Molten Salts **Konstantin Borodianskiy,** Ariel University, Israel
15:30-16:00	Title: The Formation of the Four-way Symmetric Translational Tiles (crystal) and Corresponding Unit Cells **Chung Yuan Kung,** National Chung Hsing University, Taiwan
16:00-16:15	COFFEE BREAK
16:15-16:45	Title: New Generation of Multimaterial Fibers Used as Sensors **Angéline Poulon-Quintin,** University of Bordeaux, CNRS, France
16:45-17:15	Title: Hyaluronic Acid-bilirubin Nanomedicine for Biomedical Applications **Yonghyun Lee,** Ewha Womans University, South Korea

ORAL TALK	
17:15-17:35	Title: Acidic Degradation of Glass Fibre-Reinforced Epoxy Plastics **Sarah B. Ulaeto,** RWTH Aachen University, Germany
End of Day-1	

Day 2

March 14, 2025 | Friday

BREAKOUT ROOM 1: SALA1	
INVITED SESSION: 2D and Advanced Materials | Quantum Materials	
	Session Chair: **Matjaz Valant**, University of Nova Gorica, Slovenia
09:30-09:55	Title: Intercalation in 2D TMDs and in-situ Studies for Scalable Production and Water Decontamination **Zeng Zhiyuan,** City University of Hong Kong, China
09:55-10:20	Title: Stability of Interfaces between Bi2Se3 Topological Insulator and Metals **Matjaz Valant,** University of Nova Gorica, Slovenia
10:20-10:45	Title: Solution-derived BiFeO3 Multifunctional Perovskite Films with Manifold Applications in Emerging Technologies **Lourdes Calzada,** Materials Science Institute of Madrid, CSIC, Spain
10:45-11:10	Title: Tuning Stable Radical Emitters: A Study of Structure and Properties **Rasa Keruckienė,** Kaunas University of Technology, Lithuania
11:10-11:25	COFFEE BREAK
11:25-11:50	Title: Enhanced Properties of Plasma-Induced Ga2O3/GaS Nanodomain Heterostructures: Advantages and Challenges **Serge Zhuiykov,** Ghent University Global Campus, South Korea
11:50-12:05	Title: New Findings of Junction Ferroelectricity and Single-element Ferroelectric **Yucheng Jiang,** Suzhou University of Science and Technology, China
12:05-12:30	Title: Quantum Information Transfer in the Davydov Model **Elham Faraji,** Forschungszentrum Jülich, Germany
12:30-13:20	LUNCH BREAK

ORAL SESSION: 2D and Advanced Materials | Quantum Materials	
Session Chair: **Matjaz Valant**, University of Nova Gorica, Slovenia	
13:20-13:40	Title: Transport Properties of Conformal Pt/TiO2 Nanotube Diodes **Mach Michaels,** Georgia Institute of Technology, USA
13:40-14:00	Title: Corrosion, Electrical and Mechanical Properties of 3D Printed Materials for Shape Memory Applications **Schintke Silvia,** University of Applied Sciences and Arts Western Switzerland, Switzerland
14:00-14:20	Title: Spent Li-ion Battery Electrode Coating Material Based Catalysts for Decarboxylative - Dimerization of Levulinic Acid to C6 and C9 Fuel Precursors **Ananda S Amarasekara,** Prairie View A&M University, USA
14:20-14:40	Title: Development of Ceramic Powder Coatings for High Temperature Electrical Insulation **Zhongyuan Xing,** Teesside University, UK
14:40-15:00	Title: Electroplating Nickel-Iron Alloys on Copper for High Temperature Protection **Chulin Jiang,** Teesside University, UK
BREAKOUT ROOM 2: SALA3	
INVITED SESSION: Materials Science for Energy Technologies | Nanomaterials	
Moderator: **Soumendra Basu**, Boston University, USA	
09:30-09:55	Title: Microstructure and Mechanical Strength of Super-Rapidly Solidified Fe-C-Cr-Ni Quaternary Eutectic Alloy **Kiyotaka Matsuura,** Hokkaido University, Japan
09:55-10:20	Title: Correlating Microstructural Changes to Performance Degradation of Reversible Solid Oxide Cells **Soumendra Basu,** Boston University, USA
10:20-10:45	Title: Hydrogel Nanofilms for Cryo-transmission Electron Microscopy (cryoTEM) and Biosensing **Andreas Terfort,** Goethe-University Frankfurt, Germany
10:45-11:10	Title: Semiconducting Metal Oxide Nanostructures – fabrication based on the metallic precursors **Lukasz Skowronski,** Bydgoszcz University of Science and Technology, Poland
12:10-11:25	COFFEE BREAK
11:25-11:50	Title: Investigation of the Optical Properties of Cysteamine Systems with Halogens from the First Principles Calculations **Noura Alkhaldi,** University of Hafr Al Batin, Saudi Arabia

11:50-12:05	Title: Development of a Hydrogen Storage and Distribution System using Advanced Composite Integrated with Sensor Technology **Swati Neogi,** Indian Institute of Technology, Kharagpur, India
12:05-12:30	Title: Temperature-Pressure Phase Diagrams of Metal Nitrogen Compounds through Density Functional Theory Computations and Thermodynamic Calculations **Hanof Alkhaldi,** University of Hafr Al Batin, Saudi Arabia
12:30-13:20	LUNCH BREAK
ORAL SESSION: Materials Science for Energy Technologies | Nanomaterials	
Moderator: **Ukrit Sahapatsombut**, National Energy Technology Center, Thailand	
13:20-13:40	Title: Screening Hard Carbon from Agricultural By-products as an Electrode for Sodium-ion Batteries **Ukrit Sahapatsombut,** National Energy Technology Center, Thailand
13:40-14:00	Title: Platinum (II) Complex/ β-Cyclodextrin Guest Host Complex Loaded into mPEG-PLGA Copolymeric Nanoparticles: A Trojan Horse For Conquering Triple-Negative Breast Cancer **Sherif Ashraf Fahmy,** Philipps University of Marburg, Germany
14:00-14:20	Title: Development of Safer High-Energy Lithium-Ion Batteries Electrolytes **Panida Muangkasem,** National Energy Technology Center, Thailand
14:20-14:40	Title: Controllable Preparation of Mesoporous Porphyrin Polymer Used as Electrode Materials Directed by Block Copolymer Mecilles **Xin Cao,** CRRC Qingdao Si Fang Co., LTD., China
14:40-15:00	Title: Conjugated Polyelectrolytes-based Smart Fluorescent Thermal Sensors for Versatile Applications **Dana Kaafarani,** American University of Beirut, Lebanon
15:00-16:30	POSTER PRESENTATIONS
P001	Title: Technology and Electrophysical Properties of Multicomponent PZT Ceramics Modified with Samarium (x=0.008, 0.010, 0.012) **Dariusz Bochenek,** University of Silesia, Poland
P002	Title: The influence of Rare Earth Elements (Eu, Nd, Gd) Doping on the Microstructure and Electrophysical Properties of Multicomponent Material based on PbZr1-xTixO3 (PZT) **Przemysław Niemiec,** University of Silesia, Poland
P003	Title: Tuning the Electron-deficient Core of Y6-based Non-fullerene Acceptors to Achieve Over 19% Efficiency in Binary Organic Solar Cell **Zahra Sabeen,** University of Science and Technology, South Korea

P004 Title: Au NPs Obtained By Electrochemistry Techniques Over Carbon SPEs With A View To Their Use As Supports For The Covalent Modification Of Antibodies Selective To IPNV

Isabeau Daniela Monserrat Figueroa Jara, Universidad de Valparaíso, Chile

P005 Title: Diaphites: Modelling Synthesis of Diamond-graphite Nanocomposites

Zuzanna Trzmielak, University of Oxford, UK

P006 Title: Facilitating Growth of Functional Extensive Nanowire Arrays within Nanoporous Alumina

Yuliy Yuferov, Ariel University, Israel

P007 Title: Poly(n-alkyl ester)-Based Solid Polymer Electrolytes For Solid-State Li-Metal Batteries: Polymer Chain Stereoisomerism/Ionic Conductivity Relationships

Jeongyoon Kim, Sungkyunkwan University, Republic of Korea

P008 Title: Effect of Chemically Modified Detonation Nanodiamonds on 2D Endothelial Cells

Yordan Handzhiyski, Roumen Tsanev Institute of Molecular Biology, Bulgaria

P009 Title: Effect of Chemically Modified Detonation Nanodiamonds on 3D Model of Atherosclerotic Plaque

Rositsa Tsekovska, Roumen Tsanev Institute of Molecular Biology, Bulgaria

P010 Title: Deformation and Damage Mechanisms of Directional Solidified Ni-based Superalloy in Thermomechanical Fatigue Loading

SeungHoon Nahm, Korea Research Institute of Standards and Science, Republic of Korea

P011 Title: High Energy-Density Asymmetric Supercapacitor of Manganese Carbide with a Low Work Function

Debabrata Nandi, Palacky University Olomouc, Czechia

P012 Title: Application of Ion Imprinted Polymers for Selective Extraction of Trace Scandium and Yttrium in Titanium Dioxide

Finn Eaglestone-Blundell, University of Lincoln, UK

P013 Title: Structure of the Rapidly Solidified Ni-Mn-Co-In Magnetic Shape Memory Alloys

Krystian Prusik, University of Silesia in Katowice, Poland

P014 Title: Enhanced Neuromorphic Performance with Control etched Ti_3C_2Tx MXene Low-Voltage Operating Flexible Memristors

Jeny D Gosai, Pandit Deendayal Energy University- PDEU, India

P015 Title: Selective Nanofilters In Environmental Remediation Of Silver And Cobalt

Aleksandra Strach, University of Silesia in Katowice, Poland

P016	Title: Co-Optimization of Stability and Activity of Ni-Mo Electrocatalysts Using Machine Learning Guided Experimentation **Paolo Vincenzo Freiesleben de Blasio,** Technical University of Denmark, Denmark
P017	Title: High-Valence Element Doping to Enhance the Structural Stability of Li-rich Layered Oxide Cathode Materials **Chang Woo Lee,** Kyung Hee University, Republic of Korea
P018	Functionalized Biocompatible Nanoparticle Calcium Phosphate Fertilizers for Foliar Nutrient Delivery **Elif Coşkun,** Technical University of Denmark Energy Conversion and Storage, Denmark
P019	Title: Nb2CClx MXene as a catalyst for activating 2TiVCr BCC material for solid-state hydrogen storage at room temperature **Tijin Thomas,** Indian Institute of Technology Bombay, India
P020	Title: One-Pot Synthesis of Nonconventional Fluorescent Polymer Dots for Biomedical Applications: Cytotoxicity, Bioimaging, and Skin Regeneration Potential **Tzong-Yuan Juang,** China Medical University, Taiwan
P021	Title: Use of graphene to improve the mechanical properties of polymeric composites **Samia Danuta,** Leonardo S.p.A, Italy
P022	Title: Electron-Phonon Interaction Correction To The Total Energy Of SiC Polytypes **Shilpa Paul,** Indian Institute of Technology Bombay, India
P023	Title: Electrosynthesis of carbon polypyrrole silver-nanoparticle electrode with view of selective antibodies immobilization **Matias Ignacio Luengo Reyes,** Universidad de Valparaíso, Chile
P024	Title: Characterization Of Void Space Within Amorphous Carbons **Andrea Oyarzún Aravena,** University of Cambridge, UK
P025	Title: Al/Zinc-based metal organic framework with anti-oxidant and anti-inflammatory properties for atopic dermatitis treatment **Se-Na Kim,** MediArk Inc., Cheongju, Republic of Korea

16:30-17:00	**Award Ceremony & Closure of Conference**

Next Edition

2nd Annual International Conference on

Materials Science and Nanoscience

April 13-15, 2026 | LISBON, PORTUGAL

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