

9th

INTERNATIONAL CONFERENCE ON

MATERIALS SCIENCE & NANOTECHNOLOGY



Jun 22 - 23, 2026



Barcelona, Spain

Venue: Alexandre Hotel
Frontair Congress



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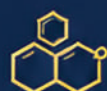
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DISCOVER



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HYBRID EVENT
In-Person & Online

9th International Conference on **MATERIALS SCIENCE & NANOTECHNOLOGY** Jun 22 - 23, 2026 at Barcelona, Spain

Meeting Hall - Sitges

Scientific Program

Day -1: June 22, 2026

Registrations Open (08:00 - 08:30)

Welcome Ceremony (08:30 - 09:00)

Moderator:

Jennifer LH Johnson, *NuvOx Pharma, USA*

Keynote Talks

Lia Krusin-Elbaum,

*The City College of New
York - CUNY, USA*

09:00-09:30

Electrical route to chiral magnon-charge interconversion in Weyl magnets

Malcolm Xing,

*University of Manitoba,
Canada*

09:30-10:00

Bio-inspired and Sensing-Enabled Sutures for Precision Medicine

Nguyen Quang Chinh,

*Eötvös Loránd University,
Hungary*

10:00-10:30

Universal Description of the Indentation Size Effect from crystalline to amorphous structures

Group Photo & Refreshment Break (10:30 - 10:50)

Scientific Session I

Session Chairs:

Tilo Söhnel, *New Zealand* & Cristina Satriano, *Italy*

Jan Novotný,

*Jan Evangelista Purkyne
University in Usti nad
Labem, Czech Republic*

10:50-11:15

Plenary Speaker:

Analysis of Magnetron Deposition
of Sandwich Multilayer Coating on
Chrome-Nickel Steel

Patrik Dobron,

*Charles University,
Czech Republic*

11:15-11:40

Plenary Speaker:

Application of advanced in-situ
techniques for investigation of
deformation behavior in Mg alloys

Kamal Choudhary,

*Johns Hopkins University,
USA*

11:40-12:00

Agentic AI for Materials Design with
AtomGPT.org

Stuart R. Miller,

*UL Research Institutes,
USA*

12:00-12:20

High throughput computational
and experimental methods for
accelerated electrochemical
materials discovery

Jintu Fan,

*The Hong Kong
Polytechnic University,
Hong Kong*

12:20-12:40

Robust Mix-charged Polyzwitterionic
Hydrogels for Ultra-efficient
Atmospheric Water Harvesting and
Evaporative Cooling

Daria Drozdenko,

*Charles University,
Czech Republic*

12:40-13:00

Low-alloyed Mg alloys with high
strength and moderate ductility

Lunch Break @ Restaurant 13:00 - 14:00

Scientific Session II

Session Chairs:

Lia Krusin-Elbaum, USA, Malcolm Xing, Canada & Roman Sobolewski, USA

Roman Sobolewski,
*University of Rochester,
USA*

14:00-14:25

Plenary Speaker:

Terahertz Inverse Spin Hall and Rashba-Edelstein Effects in Studied Spintronic Nanostructures

Cristina Satriano,
University of Catania, Italy

14:25-14:50

Plenary Speaker:

Biological and Catalytical Properties of Core-Shell Au@Pd Nanorods for Theranostic Applications

Beatriz Eleutério Goi,
Universidade Estadual Paulista Júlio de Mesquita Filho UNESP, Brazil

14:50-15:10

Design of Mn(II) e Ni(II)-NHC complexes as photocatalysts for radical polymerization under visible light and 3D printing

Luis Roso,
Universidad de Salamanca, Spain

15:10-15:30

Structured Light for Material Processing

Tilo Söhnle,
University of Auckland, New Zealand

15:30-15:50

Temperature-dependent structural studies on the Skyrmion Hosting Material, Cu_2OSeO_3

Lhoussain Mllaoui,
Universite de Toulon, France

15:50-16:10

Synthesis, microstructure and photocatalytic properties of $\{(1-x)\text{BiOBr}/(x)\text{Bi}_2\text{O}_3\}$ composite for Ciprofloxacin photodegradation

Kazuteru Shinozaki,
Yokohama City University, Japan

16:10-16:30

Visualization of trap distribution in $\text{SrAl}_2\text{O}_4:\text{Eu}_{2+},\text{Dy}_{3+}$ revealed by simulations of persistent luminescence based on a random walk model

Refreshment Break @ 16:30-16:45

Ashish L Sarode, <i>Sanofi, USA</i>	16:45-17:05	Potent liver-tropic mRNA lipid nanoparticles: ApoE-mediated delivery through an LDLR-independent uptake mechanism
Jennifer LH Johnson, <i>NuvOx Pharma, USA</i>	17:05-17:25	Fluorocarbons and treatment of hypoxic tissue
Shrirang S Karve, <i>Sanofi, USA</i>	17:25-17:45	PEGylated lipid screening, composition optimization, and structure–activity relationship for mRNA lipid nanoparticles
Eliane Trovatti, <i>University of Araraquara - UNIARA, Brazil</i>	17:45-18:05	Lysine grafted poly(lactic acid): An intrinsically antimicrobial polymer

Panel Discussion & Closing the Day 1

Day-2: June 23, 2026

Moderator:

Karolina Bronczyk, *Adam Mickiewicz University, Poland*

Keynote Talks

Wen Zhong,
*University of Manitoba,
Canada*

09:00-09:30

Engineering Living Interfaces: Multi-Functional Hydrogel Platforms for Real-Time Wound Monitoring and Therapy

Gregory A Hudalla,
University of Florida, USA

09:30-10:00

Engineering an indoleamine 2,3-dioxygenase immunotherapy

Scientific Session-III

Session Chairs:

Wen Zhong, *Canada* & **Roger Bresoli Obach**, *Spain*

Roger Bresoli Obach,
*Institut Quimic de Sarrià
CETS Fundacio Privada,
Spain*

10:00-10:25

Plenary Speaker:

Direct Visualization and Modeling of AC Dielectrophoretic Nanoparticle Dynamics

Refreshment Break @ 10:25-10:45

Giuseppe Nenna,
ENEA, Italy

10:45-11:10

Plenary Speaker:

Photomobile materials, innovative approaches: from soft robotics to solar energy harvesting through 4D process printing

Dongling Ma,
*Institut national de la
recherche scientifique,
Canada*

11:10-11:35

Plenary Speaker:

Strategies for Enhancing Visible-Light-Driven Photocatalysis

Jianyi (Jay) Zhang,
*University of Alabama at
Birmingham, USA*

11:35-11:55

Heart Regeneration and Graft Associated Arrhythmia in Large Mammals

Kenshi Matsumoto,
Kyoto University, Japan

11:55-12:15

Inter-element miscibility and well-designed nanoparticles guide the formation of unprecedented ordered alloy phase

Zhiyu Tian,
The Hong Kong Polytechnic University, China

12:15-12:35

DIW-printed self-powered intelligent wearable electronics based on TENG for sports injury rehabilitation

Jingcheng Hao,
Shandong University, China

12:35-12:55

DIW-printed self-powered intelligent wearable electronics based on TENG for sports injury rehabilitation

12:55-13:50 Lunch Break @ Restaurant

Posters Session 13:50-14:50

Poster Judge:

Chalet Tan, University of Tennessee Health Science Center, USA

Bohdan Chumak,
Lithuanian Energy Institute, Lithuania

ICMSN 1

Properties of wormwood and its potential use as a biocatalyst

Wenhong Ding,
Wuhan University of Science and Technology, China

ICMSN 2

Active Control of Residual Stress in Steel via Alloy-Driven Spatiotemporal Phase Transformation Kinetics under Non-Uniform Thermal-Mechanical Fields

Leng Huachao,
The Hong Kong Polytechnic University, China

ICMSN 3

Fabrication of Macro-Patterned and Micro-Porous Near-Field Electrospun Scaffolds by Gradient Solvent Evaporation Process

Carolina Caicedo Cano,
Unidad Central del Valle del Cauca -UCEVA, Colombia

ICMSN 4

Development of PLA-curcumin biopolymeric films for pH monitoring in chronic wounds

Xiangyu Zhang,
*National University of
Singapore, Singapore*

ICMSN 5

A Humidity-Insensitive System for
Edible Oil Spoilage Detection with
Molecularly Imprinted Polymers

Lukasz Poloczek,
*Łukasiewicz Research
Network - Upper Silesian
Institute of Technology,
Poland*

ICMSN 6

Development of a Predictive
Model for Oxide Growth and
Decarburization during Heat
Treatment of 30CrMoNiV5-11 Steel

**Adam Zieliński & Hanna
Purzynska,**
*Łukasiewicz Research
Network - Upper Silesian
Institute of Technology,
Poland*

ICMSN 7

Degradation Mechanisms and Creep
Performance of 30CrMoNiV5-11
Steel during Long-Term High-
Temperature Exposure

Krzysztof Radwanski,
*Łukasiewicz Research
Network - Upper Silesian
Institute of Technology,
Poland*

ICMSN 8

Formation and Characteristics of
Fe–O Oxides in Steel Processing

Skander Ktifa,
*Centre de Recherches
et des Technologies de
l'Energie Technopôle de
Borj-Cédria, Tunisia*

ICMSN 9

High performance of Ag/AlN/
Si Schottky diode: Study of the
DC sputtering power effect on its
electrical properties

Scientific Session IV

Session Chairs:

Gregory A Hudalla, USA & Jianyi (Jay) Zhang, USA

Maria João Camacho,
*INIAV - Instituto nacional
de Investigação Agrária e
Veterinária, IP, Portugal*

14:50-15:10

Smart Sensor Technologies for
Sustainable Agriculture: New Frontiers
in Nematode Detection

Luca Piantanida,
*The University of British
Columbia Okanagan,
Canada*

15:10-15:30

DNA-PAINT as a precise analytical
platform for nanoscale metrology

Chalet Tan,
*University of Tennessee
Health Science Center, USA*

15:30-15:50

Long-circulating nanobody confers
durable prophylaxis against SARS-
CoV-2 Omicron infection

Fereshteh Sourani,
*Erich Schmid Institute of
Materials Science, Austrian
Academy of Sciences,
Austria*

15:50-16:10

Process-Structure-Bioresponse
Relationships in LPBF-Fabricated Zr-
based Bulk Metallic Glass

**Sara Manuela Duque
Londoño,**
*Unidad Central del Valle del
Cauca (UCEVA), Colombia*

16:10-16:30

Polymeric Biocomposites with
Nanostructured Hydroxyapatite:
Additive Processing and Evaluation for
Biomedical Applications

Refreshment Break @ 16:30-16:45

Karolina Bronczyk,
*Adam Mickiewicz University,
Poland*

16:45-17:05

Safety of new food contact materials:
Migration and sorption studies

RASHAD AL-GAASHANI,
*Hamad Bin Khalifa
University (HBKU)/Qatar
Environment and Energy
Research Institute (QEERI),
Qatar*

17:05-17:25

One-Step Synthesis of Cellulose-
Based Biochar Functionalized
with Fe₂O₃/Fe₃O₄ and ZnO
Nanocomposites for Advanced Water
Treatment

Panel Discussion & Closing day 2

VIRTUAL SESSION

9th International Conference on

MATERIALS SCIENCE & NANOTECHNOLOGY

June 22 - 23, 2026 at Barcelona, Spain

CENTRAL EUROPEAN TIME ZONE (CET)



[Join Zoom Meeting](#)

Meeting ID: 824 7277 6475

Pass code: F428CZ



Scientific Program - Virtual Session

Day 1 - June 22, 2026

Amra Ali Abutalib Alhassni, <i>AL Baha University, Saudi Arabia</i>	12:50-13:05	E-Poster: Study of the Influence of Gamma Radiation on the Optical Properties of Self-Assembled In _{0.52} GaAs _{0.48} Quantum Dots Grown on (100) GaAs Substrates by Molecular Beam Epitaxy using Bismuth as a surfactant
Alon Grinberg Dana, <i>Technion - IIT, Israel</i>	13:05-13:35	Keynote Talk: The agentic age of predictive chemical kinetics
Talha Iftikhar, <i>FEM/FAU, Germany</i>	13:35-13:50	E-Poster: Thermodynamic and kinetic interpretation of rapid solidification in composition modified 316L stainless steel powders
Dominika Zabiegaj, <i>Northumbria University, UK</i>	13:50-14:10	Investigating the Impact of Air Pollutants on Lung Surfactant through Interactions of Carbon Nanotube–TiO ₂ Nanoparticle Mixtures with DPPC Monolayers
Monica Mir, <i>Institute for Bioengineering of Catalonia (IBEC), Spain</i>	14:10-14:30	Implantable sensors for early diagnosis
Nisryne El Massafi, <i>University Mohammed VI Polytechnic, Morocco</i>	14:30-14:50	Machine Learning Prediction of Ionic Conductivity and Binding Energy in Doped Li ₂ ZrCl ₆ Halides for Solid-State Electrolyte
Manuel Melendrez, <i>Universidad San Sebastian, Chile</i>	14:50-15:10	Field Assessment of Eco-Friendly Anticorrosive Coatings Incorporating Natural Polyphenols and Encapsulated Nanoparticle
David Huitink, <i>University of Arkansas, USA</i>	15:10-15:30	Encapsulated phase-change materials as a pathway to enhance thermal capacitance functionality in electronics temperature management
Federica Carnamucio, <i>Virginia Commonwealth University, USA</i>	15:30-15:50	Inhalable Metal-Complexed Liposomal Gemcitabine for Osteosarcoma Lung Metastases

<p>Su Ryon Shin, Harvard Medical School, Brigham and Women's Hospital, USA</p>	<p>15:50-16:20</p>	<p>Keynote Talk: Nano- and Micro-engineered Biomaterials Directing Stem Cell Behavior for Regenerative Medicine and Biohybrid Soft Robots</p>
<p>Abbas S. Milani, University of British Columbia, Canada</p>	<p>16:20-16:40</p>	<p>Digital twinning of advanced manufacturing in the Industry 5.0 era: a thermoforming study</p>
Closing the Day 1		
Day 2 - June 23, 2026		
Central European Time Zone (CET)		
<p>Kenichi Kawano, Hiroshima University, Japan</p>	<p>09:00-09:20</p>	<p>Curvature-sensing peptide functions as a membrane interfactant that glues small extracellular vesicles to cell membranes and enhances vesicle cellular uptake</p>
<p>Takuma Kishimoto, Nagoya Institute of Technology, Japan</p>	<p>09:20-09:40</p>	<p>Experimental and crystal plasticity finite element analysis of surface roughening in hollow sinking of microtubes</p>
<p>Sam Hsien-Yi HSU, School of Energy and Environment, City University of Hong Kong, Hong Kong</p>	<p>09:40-10:10</p>	<p>Keynote Talk: Harnessing Interfaces: Hybrid Materials for Energy Transformation and Waste Valorization</p>
<p>Daoud Walid, City University of Hong Kong, China</p>	<p>10:10-10:35</p>	<p>Plenary Speaker: Mechanical Energy Harvesting for Wearable Electronics and Power Systems</p>
<p>Ni Ao, Southwest Jiaotong University, China</p>	<p>10:35-10:55</p>	<p><i>In situ</i> tomography of corrosion fatigue crack initiation in high-strength aluminum alloys</p>
<p>Abdul Sattar, China</p>	<p>10:55-11:15</p>	<p>Study on optimization of charge transport layer and crystal quality regulation of active layer for perovskite photovoltaics</p>
<p>Peter Kuznetsov, Siberian Branch of the Russian Academy of Sciences, Russia</p>	<p>11:15-11:35</p>	<p>Anisotropic needle coke based on coal dissolved products</p>
<p>Aleksei Dagman, Novolipetsk Steel (NLMK), Russia</p>	<p>11:35-11:55</p>	<p>Investigation of effect of microalloying elements and hot rolling parameters on the strength of low-carbon steels</p>

Hayk Minassian, <i>A. Alikhanian National Science Laboratory, Armenia</i>	11:55-12:15	Two photon absorption in $Ti_3C_2T_x$ MXene: interpretation of experiments
Hatice Evlen, <i>Karabük University, Turkey</i>	12:15-12:35	Advanced Functional Nanomaterials: From Design to Biomedical and Engineering Applications
Meital Zilberman, <i>Tel Aviv University, Israel</i>	12:35-13:05	Keynote Talk: Soy Protein as a Biomaterial
Shani Shoham, <i>Kinneret Limnological Institute, IOLR, Israel</i>	13:05-13:25	Microbe-mediated molybdenum hyperaccumulation in the marine sponge <i>Theonella conica</i>
Medeina Mačiukėnaitė, <i>Lithuanian Energy Institute, Lithuania</i>	13:25-13:40	E-Poster: Sustainable catalytic potential of mugwort biochar
Dovilė Petrauskaitė, <i>Lithuanian Energy Institute, Lithuania</i>	13:40-13:55	E-Poster: Strategy development for valorising by-products generated during burning landfill waste to produce eco-friendly building materials
Regina Kalpokaitė- Dičkuvienė, <i>Lithuanian Energy Institute, Lithuania</i>	13:55-14:15	Potential of oil shale ash in acid-based geopolymer production
Jarosław Dziadek, <i>Institute of Medical Biology PAS, Poland</i>	14:15-14:35	Advancing Antitubercular Drug Discovery: From Phenotypic Screening to Target Validation and Preclinical Evaluation
Georg Amthauer, <i>University of Salzburg, Austria</i>	14:35-15:05	Keynote Talk: Crystal chemistry of $Li_7La_3Zr_2O_{12}$ (LLZO) garnet doped with Al, Ga, and Fe.
Lefteris Danos, <i>Lancaster Univeristy, UK</i>	15:05-15:25	Development of light harvesting structures for photovoltaic applications
Lucía Bravo-Baranda, <i>University of Valencia, Spain</i>	15:25-15:45	Self-organization of lung tumor spheroids in a type I collagen scaffold: a morphological study of epithelial- stromal interactions
Mobbassar Hassan Sk, <i>University of Cambridge, UK</i>	15:45-16:05	In-situ approaches to study process dynamics of material corrosion/ degradation

<p>Felice Alberto Sfregola, <i>Università degli studi di Bari, Italy</i></p>	<p>16:05-16:25</p>	<p>Predictive Finite-Element Modeling with Experimental Validation for Acoustophoretic Particle Sorting in SSAW Microfluidic Systems</p>
<p>Igor Fedin, <i>The University of Alabama, USA</i></p>	<p>16:25-16:45</p>	<p>II-V Semiconductor Quantum Dots as Short-Wave Infrared Emitters</p>
<p>Hendrik Heinz, <i>University of Colorado- Boulder, USA</i></p>	<p>16:45-17:15</p>	<p>Keynote Talk: Advancing energy and environmental technologies through high-accuracy simulations</p>
<p>Rodney Herring, <i>University of Victoria, Canada</i></p>	<p>17:15-17:35</p>	<p>Effectively and Efficiently Disinfecting and Cleaning Pollutants from Surfaces, Water and Air Using Fe doped TiO₂ Crystals</p>
<p>Closing the Day 2</p>		

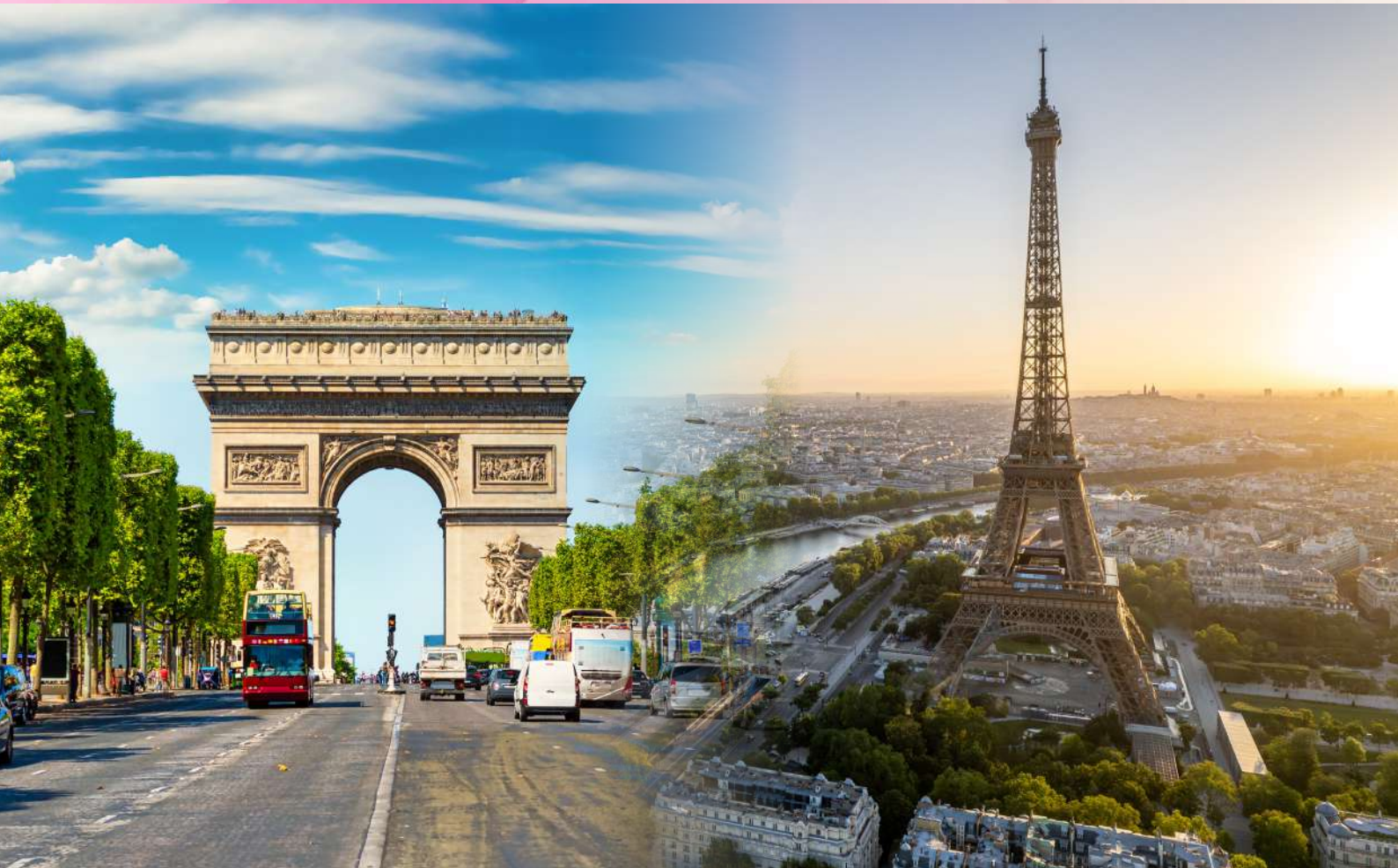
We wish to see you again at

10th International Conference on
**MATERIALS SCIENCE &
NANOTECHNOLOGY**

June 21-22, 2027 in Paris, France (Hybrid Event)

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