

**6<sup>th</sup>** In-person and Online  
**INTERNATIONAL CONFERENCE ON  
MATERIALS SCIENCE &  
ENGINEERING**  
**JUNE 09-10, SEATTLE, WA, USA | JUNE 11, ONLINE, ZOOM**

**Organized by:**



**UNITED** | Scientific  
Group  
A Non-profit Organization

**Venue:**

*DoubleTree by Hilton Hotel Seattle Airport  
Seattle, WA 98188, United States*

## TENTATIVE PROGRAM

**Day 1**

**Monday, June 09, 2025**

**08:30**

**Onsite Registrations**

**08:40**

**Opening Remarks and Introduction**

### Plenary Talk (45+5 Minutes)

**09:00**

**Cluster-based Energy Materials – A Paradigm shift in Design and Synthesis**  
**Puru Jena**, Virginia Commonwealth University, VA

### Keynote Session (40+5 Minutes)

**09:50**

**Spectral Selective Solar Harvesting via Transparent Nano Hybrids for Synergistic Photothermal-Thermoelectric-Photovoltaic Energy Generation**  
**Donglu Shi**, University of Cincinnati, OH

**10:35**

**Coffee Break**

**11:05**

**Density Functional Theory Optical and Electronic Properties of MoS<sub>2</sub>-Graphene-Metal Heterointerfaces**  
**Nikolaos Dimakis**, University of Texas Rio Grande Valley, TX

### Featured Talks (Each Talk 20+5 Minutes)

#### **Session: Advanced Functional Materials: Synthesis, Interfaces, and Applications**

**11:50**

**Improving Biodegradable Mg-Zn(-Ca) Alloys by PEO Surface Treatment**  
**Peter Minarik**, Charles University, Czech Republic

**12:15**

**Magnon-Phonon-Photon-Plasmon Coupling in 2D Artificial Magneto-Elastic Crystals**  
**Supriyo Bandyopadhyay**, Virginia Commonwealth University, VA

**12:40**

**PCT-Based Smart Heaters from Conductive Polymers**  
**Petr Spatenka**, Czech Technical University, Czech Republic

**13:05**

**Lunch Break**

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**14:05**    **Organic Mixed Ionic-electronic Conductors for Electrochemical Applications**  
**Penghui Ding**, Stanford University, CA

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**14:30**    **Flexible Organic Electrochromic Devices Having Multicolored, Low-Voltage-Driven and High Contrast, and Organic Photovoltaic Properties Based on Oligomers and Viologen Derivatives**  
**Ping Liu**, South China University of Technology, China

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**Session: Nanostructured & Advanced Materials for Energy, Electronics, & Environmental Applications**

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**14:55**    **Recycling of Primary Spent Batteries Solution Through the Precipitation of Zeolitic Imidazolate Frameworks and Revalorization into Anode Materials for Li-ion Batteries**  
**Despoina ANDRIOTOU**, University of Grenoble Alpes, France

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**15:20**    **Plastic Instabilities and Microplasticity in Complex Concentrated Alloys**  
**Michal Knappek**, Charles University, Czech Republic

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**15:45**    **Critical Chloride Thresholds and Mechanisms of Corrosion Initiation in Low-Carbon Steel Rebar**  
**Ebenezer Fanijo**, Georgia Institute of Technology, GA

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**16:10**    **Based on Group III-Nitride Materials High Electron Mobility Transistors for mmWave Applications**  
**Hao Lu**, Xidian University, China

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**Emerging Researcher Talks (Each Talk 15+5 Minutes)**

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**16:35**    **Facile Synthesis and Efficient Nickel-based Photothermal Catalyst for Selective Production of CH<sub>4</sub> and CO**  
**Guoshu Deng**, Southeast University, China

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**17:00**    **TBA**

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**17:15**    **Poster Presentations & Networking Drink**

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*Poster Presentation List*

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**Alternative Wire Manufacturing Technology from Titanium and Nickel Shavings**  
**Michal Duchek**, COMTES FHT a.s., Czech Republic

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**Evaluating the Corrosion Resistance of Nickel-Based Superalloys in Fluoride Salts for Molten Salt Reactors**  
**Pavel Podaný**, COMTES FHT a.s., Czech Republic

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**Effect of the Laser Cleaning Method on the Corrosion Resistance of Mg Alloy AZ80**  
**Frantisek Novy**, University of Žilina, Slovak Republic

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## Day 2

Tuesday, June 10, 2025

08:30 AV Check

08:50 Day 2 Opening Remarks

### Keynote Session (40+5 Minutes)

09:00 Doping in Diamond and Diamond as an Electronic Material - Diamondtronics  
M S Ramachandra Rao, IIT Madras, India

09:45 Topographic Scanning Electron Microscopy Revealing the Three-Dimensional Surface Structure  
Ouyang Jianyong, National University of Singapore, Singapore

### 10:30 Coffee Break

11:00 Surprises from MAPbI<sub>3</sub>: Beyond its Optoelectronic Properties  
Dipankar Das Sarma, IIT Bengaluru, India

11:45 Precipitation Processes in a Ti-15Mo Alloy  
Milos Janecek, Charles University, Czech Republic

**Session: Nanostructured & Advanced Materials for Energy, Electronics, & Environmental Applications**

### Featured Talks (Each Talk 15+5 Minutes)

12:30 Characterization of Photoconductive UV Sensors Using ZnO Single Crystal Substrates and Thin Films  
Takami Abe, Iwate University, Japan

### 12:55 Lunch Break

14:00 Additive Manufacturing of Electrodes for Advanced Displays using Liquid Metal Jetting  
Manoj Meda, Corning Inc., NY

14:25 Novel Rare-Earth-Free, Tetragonal (L10) Magnets  
Ian Baker, Dartmouth College, NH

14:50 Quantum Transport and Fractional; Nonlinear Hall Conductivity of Moiré Homo/heterostructures as Topological Valleytronic Materials  
Farzaneh Shayeganfar, University of Michigan, MI

15:15 TBA

15:40 TBA

### 16:05 Coffee Break

## **Session: Functional Composites, Energy Storage, and Structural Applications**

- 16:35**    **Enhanced Energy Storage in Supercapacitors using Graphene Oxide-based Electrodes**  
**Diego Alves**, Federal University of Mato Grosso do Sul, Brazil
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- 17:00**    **Influence of Anisotropic Mechanism of W-2%wt Y2O3 Alloy on DBTT and Fracture Analysis in Small Punch Testing**  
**Jun Huang**, Hefei University of Technology, China
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- 17:25**    **Application of Roughness Measurements in Assessing the Resistance of CrN/CrCN Coating and Austenitic Steel to Cavitation Erosion**  
**Alicja Krella**, Institute of Fluid-Flow Machinery Polish Academy of Science, Poland
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- 17:50**    *TBA*

**Day3**

**Wednesday, June 11, 2025**

## **Virtual Session-Zoom**

**Each Talk 15+5 Minutes**

- 09:00**    **Electrocaloric and Elastocaloric Effects in Soft Materials**  
**Brigita Rozic**, Jožef Stefan Institute, Slovenia
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- 09:20**    **Structure-property Relationships of Nanostructured Materials: from Synthesis to Characterization for Multiple Applications**  
**Sara Cerra**, Sapienza University of Rome, Italy
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- 09:40**    **Conservation of Energy and Momentum of Drifting Electrons in Materials**  
**Ravi Kumar Chanana**, Self-Employed Independent Researcher, India
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- 10:00**    **The Effect Of Soybeans Hull (Glycine Max), Beans Pod (Phaseolus Vulgaris) And Dry Willow Leaf (Salix Spp) on the Properties of a Simple Water -Based Mud**  
**Sarah A. Akintola**, University of Ibadan, Nigeria
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- 10:20**    **Metal-insulator Transition in Bulk  $\text{Ge}_2\text{Sb}_2\text{Te}_{(5-5x)}\text{Se}_{5x}$  Phase Change Materials**  
**Utpal Chatterjee**, University of Virginia, USA
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- 10:40**    **Thermoelectric Properties of Graphene Nanoplatelets and Organic Semiconductor Composites**  
**Andrea REALE**, University of Rome Tor Vergata, Italy

<b>11:00</b>	<b>Exascale Transport Simulations for the Understanding of the Switching Mechanism in Atomically Thin Memristors</b> <b>Liangbo Liang</b> , Oak Ridge National Laboratory, USA
<b>11:20</b>	<b>Plant-mediated Synthesis of Silver-doped Zinc Oxide Nanoparticles and Evaluation of their Antimicrobial Activity Against Bacteria Cause Tooth Decay</b> <b>Mehran Zareanshahraki</b> , UCLA, CA
<b>11:40</b>	<b>TBA</b>
<b>12:00</b>	<b>TBA</b>
<b>12:20</b>	<b>TBA</b>

*\*PLEASE NOTE THIS SCHEDULE IS TENTATIVE AND SUBJECT TO CHANGE\**

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