

**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**

**8:30** **Onsite Registrations**

**8:40** **Opening Remarks and Introduction**

### Plenary Talk (45+5 Minutes)

**9:00** **Cluster-based Energy Materials – A Paradigm shift in Design and Synthesis**  
**Puru Jena**, Virginia Commonwealth University, VA

### Keynote Session (40+5 Minutes)

**9:50** **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

**11:50** **Precipitation Processes in a Ti-15Mo Alloy**  
**Milos Janecek**, Charles University, Czech Republic

### 12:35 Lunch Break

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

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

**13:35** **Improving Biodegradable Mg-Zn(-Ca) Alloys by PEO Surface Treatment**  
**Peter Minarik**, Charles University, Czech Republic

**14:00** **Magnon-Phonon-Photon-Plasmon Coupling in 2D Artificial Magneto-Elastic Crystals**  
**Supriyo Bandyopadhyay**, Virginia Commonwealth University, VA

**14:25** **PCT-Based Smart Heaters from Conductive Polymers**  
**Petr Spatenka**, Czech Technical University in Prague, Czech Republic

**14:50** **Organic Mixed Ionic-electronic Conductors for Electrochemical Applications**  
**Penghui Ding**, Stanford University, CA

**15:15** **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

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

**15:40** **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

**16:05** **Plastic Instabilities and Microplasticity in FeAlCr-based Complex Concentrated Alloys**  
**Michal Knapek**, Charles University, Czech Republic

**16:30** **Critical Chloride Thresholds and Mechanisms of Corrosion Initiation in Low-Carbon Steel Rebar**  
**Ebenezer Fanijo**, Georgia Institute of Technology, GA

**16:55** **Based on Group III-Nitride Materials High Electron Mobility Transistors for mmWave Applications**  
**Hao Lu**, Xidian University, China

**Emerging Researcher Talk ( 10+5 Minutes)**

**17:20** **Facile Synthesis and Efficient Nickel-based Photothermal Catalyst for Selective Production of CH<sub>4</sub> and CO**  
**Guoshu Deng**, Southeast University, China

**17:35** **Poster Presentations & Networking Drink**

***Poster Presentation List***

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

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

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

**Day 2****Tuesday, June 10, 2025**

8:30 AV Check

8:50 Day 2 Opening Remarks

**Keynote Session (40+5 Minutes)**

9:00 **Doping in Diamond and Diamond as an Electronic Material - Diamondtronics**  
**M S Ramachandra Rao, IIT Madras, India**

9:45 **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, Indian Institute of Science, India**

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

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

11:45 **Characterization of Photoconductive UV Sensors Using ZnO Single Crystal Substrates and Thin Films**  
**Takami Abe, Iwate University, Japan**

12:10 **Liquid Metal Jetting for Electrode Fabrication on Glass Substrates**  
**Manoj Meda, Corning Inc., NY**

12:35 **Novel Rare-Earth-Free, Tetragonal (L10) Magnets**  
**Ian Baker, Dartmouth College, NH**

13:00 **Quantum Transport and Fractional; Nonlinear Hall Conductivity of Moiré Homo/heterostructures as Topological Valleytronic Materials**  
**Farzaneh Shayeganfar, University of Michigan, MI**

13:25 **Lunch Break**

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

14:25 **Enhanced Energy Storage in Supercapacitors using Graphene Oxide-based Electrodes**  
**Diego Alves, Federal University of Mato Grosso do Sul, Brazil**

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**14:50**     **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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**15:15**     **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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**15:40**     **Plant-mediated Synthesis of Silver-doped Zinc Oxide Nanoparticles and Evaluation of their Antimicrobial Activity Against Bacteria Cause Tooth Decay**  
**Mehran Zareanshahraki**, UCLA, CA

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**16:05**     **TBA**

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**16:30**     *Coffee Break*

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**17:00**     **TBA**

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**17:25**     **TBA**

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*Slots are available*

**Day 3****Wednesday, June 11, 2025****Virtual Session-Zoom****(Local Time: Seattle, WA [GMT-7])****Each Talk 15+5 Minutes**

<b>9:00</b>	<b>Electrocaloric and Elastocaloric Effects in Soft Materials</b> <b>Brigita Rozic</b> , Jožef Stefan Institute, Slovenia
<b>9:20</b>	<b>Structure-property Relationships of Nanostructured Materials: from Synthesis to Characterization for Multiple Applications</b> <b>Sara Cerra</b> , Sapienza University of Rome, Italy
<b>9:40</b>	<b>Conservation of Energy and Momentum of Drifting Electrons in Materials</b> <b>Ravi Kumar Chanana</b> , Self-Employed Independent Researcher, India
<b>10:00</b>	<b>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</b> <b>Sarah A. Akintola</b> , University of Ibadan, Nigeria
<b>10:20</b>	<b>Metal-insulator Transition in Bulk <math>\text{Ge}_2\text{Sb}_2\text{Te}_{(5-5x)}\text{Se}_{5x}</math> Phase Change Materials</b> <b>Utpal Chatterjee</b> , University of Virginia, VA
<b>10:40</b>	<b>Thermoelectric Properties of Graphene Nanoplatelets and Organic Semiconductor Composites</b> <b>Andrea REALE</b> , 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, TN
<b>11:20</b>	<b>TBA</b>
<b>11:40</b>	<b>TBA</b>
<b>12:00</b>	<b>TBA</b>

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

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