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IMS-2026

II International **MATERIALS SUMMIT**

April 06-08, 2026 | Las Vegas, NV

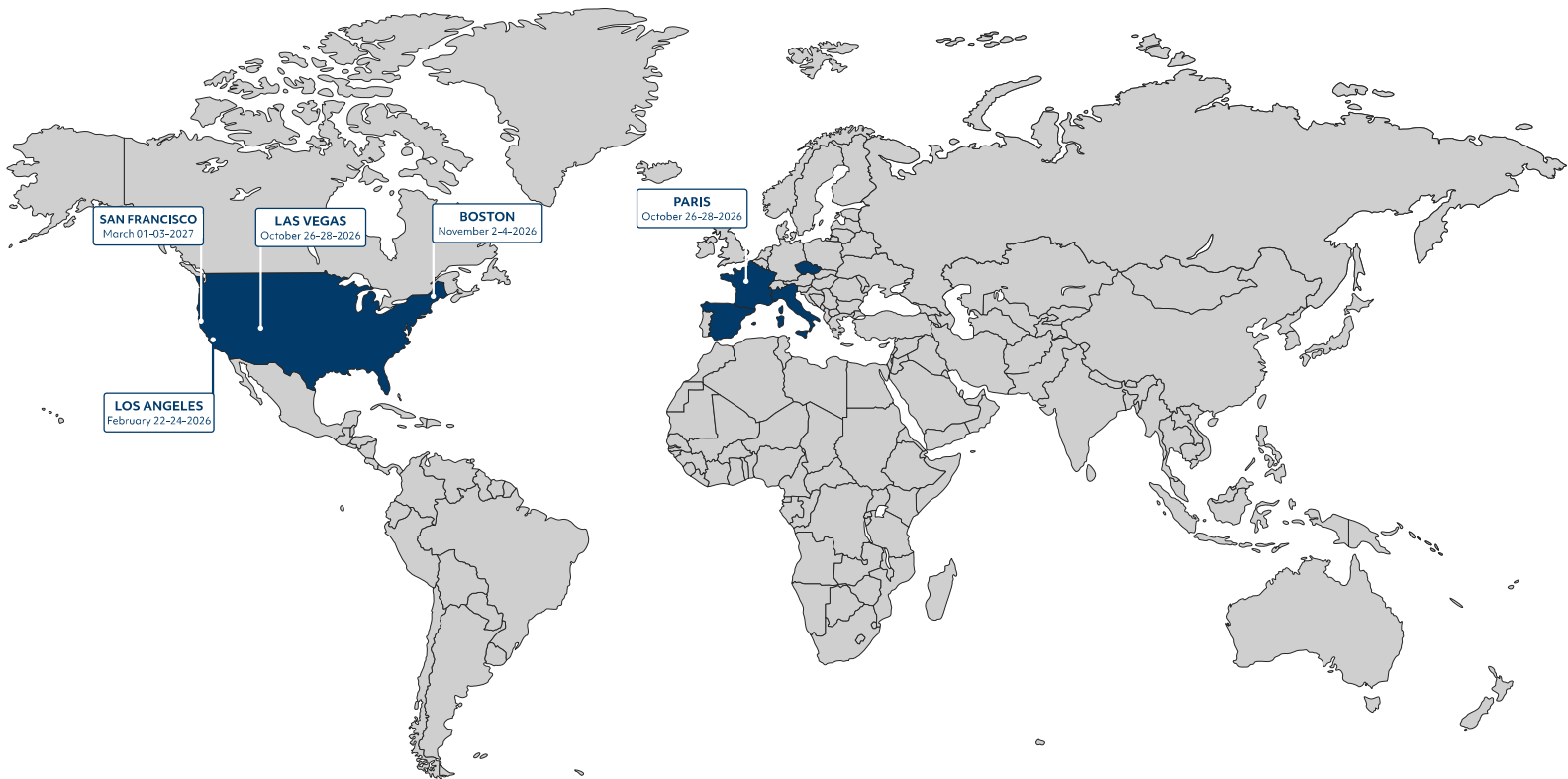


Hampton Inn Tropicana

4975 S. Dean Martin Dr.
Las Vegas, NV

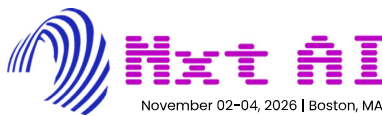


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Meeting ID: 848 2070 3106

Passcode: 448959

08:15-08:50 Registration & Badge Pickup

@Event Center Foyer

08:50-09:00 Opening Remarks

Plenary Presentations

Moderated by: **Tequila Harris**, Georgia Institute of Technology, Atlanta, GA



Antonio Facchetti, Georgia Institute of Technology, Atlanta, GA

Materials and Architectures for Neuromorphic Devices

Antonio. Facchetti is a Hightower Professor in the School of Material Science and Engineering at Georgia Tech, an Adjunct Professor of Chemistry at Northwestern and the Chief Technology Officer of Flexterra Corporation. He has published more than 600 research articles, 14 book chapters, and holds >125 patents (H-index 142). He received the ACS Award for Creative Invention, the Giulio Natta Gold Medal from the Italian Chemical Society, and the Italian Chemical Society Research Prize. He was inducted into the Advanced Materials Hall of Fame, was selected among the "TOP 100 MATERIALS SCIENTISTS OF THE PAST DECADE (2000-2010)" by Thomson Reuters and in 2015-2024 recognized as a Highly Cited Scientist. He is Fellow of the National Academy of Engineering, European Academy of Sciences, National Academy of Inventors, American Association for the Advancement of Science, Materials Research Society, Royal Society of Chemistry, Kavli Foundation, and the ACS Polymeric Materials Science and Engineering. Facchetti's research interests include organic, metal oxides and 2D semiconductors and dielectrics, conducting polymers, (bio)electronics, sensors, batteries, photovoltaics and neuromorphic devices.

09:00-09:40



Rigoberto Advincula, University of Tennessee, Knoxville, TN

Polymer Materials: AI/ ML in Synthesis and Advanced Manufacturing

Advincula is a Governor's Chair Professor and Group Leader at Oak Ridge National Laboratory and University of Tennessee. His research and group interests are: design, synthesis, and characterization of polymers and nanomaterials capable of controlled-assembly, nanostructuring, and self-organization in ultrathin films and monoliths. This includes functional macromolecules, coordination polymerization, polymer brushes, electropolymerization, and preparation of nanoparticles and hybrid materials. Properties include: smart coatings, stimuli-responsive, toughened, conducting, energy translating, optically active, or biocompatible. Surface sensitive spectroscopy and microscopy is systematically utilized to probe materials properties at interfaces. They are also involved in investigating nanoparticles, nanostructured surfaces, nanocomposite materials, 3-D printing, coatings, biomaterials, and process development.

09:40-10:20

Keynote Presentations



Roland Faller, Texas Tech University, Lubbock, TX

Multiscale Modeling of Soft Materials - Polymers, Biomembranes and Proteins

Roland Faller became dean of the Edward E. Whitacre College of Engineering in August 2023. Prior to this role, he served as Executive Associate Dean of Engineering at UC Davis and previously held positions as Associate Dean for Graduate Studies and Associate Dean for Facilities and Capital Planning. A strong advocate for education, he chaired the graduate programs in Chemical Engineering and Materials Science and led a Department of Education-funded Graduate Assistantships in National Needs program for over 10 years. Originally trained as a physicist, Dr. Faller earned his doctorate in theoretical physics from the University of Mainz in 2000, conducting research at the Max Planck Institute for Polymer Research. His work in polymer simulations led him to chemical engineering, followed by postdoctoral research at the University of Wisconsin. Joining UC Davis in 2002, he advanced to department chair and helped strengthen academic excellence, diversity, facilities planning, graduate programs, and global research collaborations.

10:20-10:50

10:50-11:10 Speed Networking & Morning Break

@Foyer



11:10-11:40

Guoqiang Li, Louisiana State University, Baton Rouge, LA

Syntactic Foams: Shape Memory, Damage Self-healing and Recycling, and Electromagnetic Interference Shielding

Guoqiang Li received his B.S., M.S., and Ph.D. degrees from Hebei University of Technology, Beijing University of Technology, and Southeast University, respectively, all in Civil Engineering. He received his postdoc training in Mechanical Engineering at Louisiana State University (LSU). He is currently the Major Morris S. & DeEtte A. Anderson Memorial Alumni Professor and John W. Rhea Jr. Professor in the Department of Mechanical & Industrial Engineering at LSU. He has also served as Associate Vice Chancellor/President/Provost at LSU. A Fellow of the National Academy of Inventors and a Fellow of the Royal Society of Chemistry, his research interest is in the broad area of engineering materials (polymers and polymer composites, and construction materials), additive manufacturing, engineering mechanics, and machine learning.



11:40-12:10

Jian Li, Arizona State University, Tempe, AZ

Blue Emitting Tetradentate Pt Complexes for Displays and Lighting Applications

Jian Li is a professor of aerospace and mechanical engineering in the Ira A. Fulton Schools of Engineering at Arizona State University. He received his doctorate in chemistry from University of Southern California in 2005. Li's research interests encompass design and synthesis of advanced materials for the application in organic semiconductor devices including organic light emitting devices, organic photovoltaics, organic memory and organic thin film transistors. Study and understand the mechanism of charge-transporting, energy transfer, and radiative or non-radiative decay of excited state molecules inside the organic solids.

12:10-13:20

Group Photo & Lunch Break

@Foyer

Moderated by: Nikolaos Dimakis, University of Texas Rio Grande Valley, Edinburg, TX



13:20-13:50

Vilas G. Pol, Purdue University, West Lafayette, IN

Pioneering Electrolyte and Materials Engineering for Deep-cryogenic Energy Storage

Vilas G. Pol is a Professor of Chemical Engineering at Purdue University, IN, USA. He authored/co-authored >300 research publications (h index 64), an inventor on 27 issued US patents and 10+ applications. He delivered 200 invited, keynote and plenary talks including 'TEDx'. Purdue University honored him with Outstanding Engineering Teachers, Most Impactful Inventors, Seed for Success, Bravo, and Purdue Faculty Scholar awards. He is honored with 20+ prestigious awards from professional AIChE, ACS, MRS, ACerS, TMS, IEEE and Carbon societies. He also received 2015 R and D 100 award as well as two Guinness World Records™. He is a fellow of Royal Society of Chemistry (FRSC) and a Fulbright Specialist (Global) in the energy storage area.



13:50-14:20

Alamgir Karim, University of Houston, Houston, TX

Low Dimensionality Polymer Dielectric Films for AI and Transient Energy Devices

Alamgir Karim obtained his Ph.D. in Physics from Northwestern University, Illinois, in 1992. He completed a postdoctoral fellowship in Chemical Engineering at the University of Minnesota before joining NIST in Gaithersburg, Maryland. At NIST, he served as Group Leader of the Polymer Blends, Combinatorial Methods, and Nanomaterials Group. From 2009 to 2017, he was Goodyear Chair Professor of Polymer Engineering at the University of Akron. He also served as Co-Director of the Akron Functional Materials Center and held roles including Associate Dean of Research and Institute Director. In 2017, he joined the University of Houston as a faculty member in Chemical and Biomolecular Engineering. He currently holds positions as Dow Chair Professor and Director of both the Doctoral Materials Program and ICPSM. His research focuses on polymer nanotechnology, thin films, interfaces, and applications in energy, sustainability, and health. He has published over 250 papers, holds an H-index of 65, and is a Fellow of APS and AAAS, as well as a Keck Foundation Award recipient.



Anil K. Bhowmick, University of Houston, Houston, TX

Sustainable Materials from Renewable Resources for Applications in Rubber

Anil K. Bhowmick is a distinguished Indian polymer scientist renowned for his pioneering contributions to rubber science and engineering and elastomer research. He served as a Professor of Eminence at the Indian Institute of Technology Kharagpur, India and later as Director, Indian Institute of Technology, Patna. With a career spanning over four decades, Prof. Bhowmick has significantly advanced the understanding of structure–property relationships in elastomers, polymer blends, nanocomposites, sustainable polymers and additives and thermoplastic elastomers. He has authored and edited numerous influential books and research articles, earning international recognition for his work in polymer science and engineering. Prof. Bhowmick has also been actively involved in mentoring young researchers and fostering industry–academia collaborations in advanced materials. His research has contributed to the development of high-performance rubber products for automotive, aerospace, and industrial applications.

14:20-14:50

Special Talks



14:50-15:15

Tequila Harris, Georgia Institute of Technology, Atlanta, GA

Roll-to-Roll Manufacture of Bilayer Thin Films for Trending Applications



15:15-15:40

Ghassan Jabbour, University of Ottawa, Canada

Beyond the Wafer: Direct Melt-spinning for Next-generation Silicon Electronics

Oral Presentations

Biomaterials and Polymer Technologies

15:40-16:00

Khwaja G. Hossain, Mayville State University, Mayville, ND

Harnessing Plant Polymers for Bioplastics, Drug Delivery, and Cancer Treatment Applications

16:00-16:20

Evening Break

@Foyer

16:20-16:40

Divya Bijukumar, University of Illinois, Rockford, IL

Dual-action Integrin-targeted Micelles for the Prevention of Early Pericyte Loss in Diabetic Retinopathy

16:40-17:00

Tiancun Xiao, University of Oxford, UK

Preparation of Super Active Catalyst for CO₂/ CO Conversion to Make Sustainable Aviation Fuel using Organic Combustion Method

17:00-17:20

Anastasios Angelopoulos, University of Cincinnati, Cincinnati, OH

Direct Syngas Low Temperature Proton Exchange Membrane (LT-PEMFC) Fuel Cells

17:20-18:00

Networking Drinks

@Event Center Foyer

End of Day 1

Moderated by: **Iftikhar Ahmad**, University of South Carolina, Columbia, SC

Keynote Presentations



08:30-09:00

Mihaela C. Stefan, University of Texas at Dallas, Richardson, TX

Biodegradable and Biocompatible Functionalized Polycaprolactones for Drug Delivery

Mihaela C. Stefan is a Professor of Chemistry at the University of Texas at Dallas, where she leads a highly interdisciplinary research program focused on polymer chemistry, organic electronics, and sustainable materials. Her work spans the design and synthesis of conjugated polymers, block copolymers, and functional macromolecules for applications in semiconductors, solar cells, and biomedical systems. Dr. Stefan has published extensively in top-tier journals and is recognized for her contributions to advancing next-generation materials through molecular design and structure-property relationships. She earned her Ph.D. in Polymer Science from the University of Akron and completed postdoctoral research at the University of California, Los Angeles. At UT Dallas, she has served in several academic leadership roles, including Graduate Studies Chair and program director for major research initiatives. Dr. Stefan has received numerous awards for teaching, mentorship, and scientific innovation, and her group collaborates broadly with industry and national laboratories.



09:00-09:30

Christopher Papile, BraneCell, USA

Insights into the Loschmidt Umkehrwand Paradox Applied to Quantum Neural Network Information Processing Systems

Papile and his team are advancing a new class of qubit that underpins quantum gates and neural networks through interference, entanglement, quantum walks, and free-space interactions. At BraneCell, these principles are engineered into quantum machine learning, gate-based QPUs, PQC communications (QSDC), and quantum radar technologies. Throughout his career, Dr. Papile has contributed to fundamental science, product innovation, and business growth. He has co-founded startups and global corporate task forces, including one that reached IPO status, and developed molecular products that achieved international market leadership. His intellectual property spans atomic and molecular architectures for neural networks, low-cost AI chip fabrication, computational modeling, catalysts, polymers, renewables, and engineering processes, with dozens of granted and pending patents.



09:30-10:00

Ling Zang, University of Utah, Salt Lake City, UT

Luminescent MOFs for Removing PFAS with Real-time Monitoring

Ling Zang is a USTAR Professor at the University of Utah, affiliated with the Department of Materials Science and Engineering. He is a Fellow of the National Academy of Inventors, the American Association for the Advancement of Science (AAAS), and the Royal Society of Chemistry. He previously received the NSF CAREER Award, the K. C. Wong Foundation Research Fellowship, and was an Alexander von Humboldt Fellow. Dr. Zang earned his B.S. in physical chemistry from Tsinghua University and his Ph.D. in chemistry from the Chinese Academy of Sciences. His research spans nanoscale imaging, molecular probing, organic semiconductors, metal-organic frameworks, and porous carbon materials, with applications in sensors and nanodevices addressing health, environmental, and public-safety challenges. His work has been supported by major federal agencies, industry partners, and private foundations. A strong advocate for technology transfer, Dr. Zang has generated over 40 patents and founded startups including Vaporsens, Metallosensors, and most recently Novus Analytical Technologies.



Alessandra Lanzara, University of California, Berkeley, CA

Quantum Materials Response in Operando Conditions

Alessandra Lanzara received her PhD in physics from Universita' di Roma La Sapienza, Italy in 1999. She was a postdoc at Stanford University for three years since 1999. In 2002 she joined the physics Department faculty at UC Berkeley as Assistant Professor and since 2011 she is a Full Professor. She is also a Senior Faculty Scientist at the Materials Sciences Division of the Lawrence Berkeley National Laboratory since 2002. She is recipient of many prizes among which was elected Fellow of the American Physical Society in 2008 and elected to the American Academy of Art and Science in 2022. Other affiliation of Prof. Lanzara includes the Kavli Energy Nanoscience Institute, the department of Applied Sciences and Technology and the Materials Sciences Division at LBNL. She is also the founder and director of the Center for Sustainable Materials and Innovation at UC Berkeley.

10:00-10:30

10:30-10:50 **Speed Networking & Morning Break**

@Foyer

Oral Presentations

Computational and Data-Driven Materials Science Electronic, Photonic, and Quantum Materials

10:50-11:10 **Hung-Duen Yang**, National Sun Yat-Sen University, Taiwan
Exotic H-field Induced Multiferroic Behaviors in Spin-frustrated Systems

11:10-11:30 **Kai Fu**, University of Utah, Salt Lake City, UT
Epitaxy of UWBG Semiconductor GeO₂ by MOCVD

11:30-11:50 **Yong-Jihn Kim**, University of Puerto Rico, Mayaguez, PR
Room Temperature Ambient Pressure Superconductor, CES-2023: Superconducting Mechanism and Applications

11:50-12:10 **Mikel Barry Holcomb**, West Virginia University, Morgantown, WV
Surface Oxide Phases in Niobium-based NASA Superconducting Devices

12:10-12:30 **Nikolaos Dimakis**, University of Texas Rio Grande Valley, Edinburg, TX
Density Functional Theory and Bethe-salpeter Equation Calculations on Pristine and Ag Modified Hexagonal Boron Nitride for Gas Sensing Applications

12:30-13:30 **Lunch Break**

@Foyer

Chair: Wen Jin Meng, Louisiana State University, Baton Rouge, LA

13:30-13:50 **Iftikhar Ahmad**, University of South Carolina, Columbia, SC
Achieving Ultra Smooth, Low Defect Density GaN via *In situ* Pore Assisted Lateral Epitaxy

13:50-14:10 **Masoud Agah**, Virginia Tech, Blacksburg, VA
My Journey Through the Semiconductor and Chip World

Nanomaterials and Nanoengineering Functional and Structural Materials and Energy Materials Materials for Industrial Applications and Manufacturing

14:10-14:30 **Ivy Krystal Jones**, Norfolk State University, Norfolk, VA
Mechanochemical Synthesis of Double Halide Perovskite Powder for Multi-functional: Magnetic-fluorescent to Ionizing Radiation Detection Applications

14:30-14:50 **Margarita Russina**, Helmholtz Zentrum Berlin, Germany
Fast Na⁺ Ion Transport in Disordered Sodium Oxyhalides: Insights from Neutron Spectroscopy

14:50-15:10 **Wen Jin Meng**, Louisiana State University, Baton Rouge, LA
Probing Micron Scale Plasticity, Fatigue Cracking, and Hydrogen Embrittlement using Small Scale Mechanical Testing

- 15:10-15:30 **Lavanya Raman**, South Dakota Mines, Rapid City, SD
Materials for Extreme Environments
- 15:30-15:50 **Feng Zhao**, Missouri University of Science and Technology, Rolla, MO
Natural Organic Resistive Switching Random Access Memory (ReRAM) for Sustainable Neuromorphic Computing
-
- 15:50-16:10 **Evening Break** @Foyer
-
- 16:10-16:30 **Alicia Manjon Sanz**, Oak Ridge National Laboratory, Oak Ridge, TN
Designing Materials for High Temperature Energy Applications
- 16:30-16:50 **Kamal Choudhary**, Johns Hopkins University, Baltimore, MD
Agentic AI for Materials Design with AtomGPT.org
- 16:50-17:10 **Jin Yuqi**, Prairie View A&M University, Prairie View, TX
Metallic Sound Insulators *via* Fusion-based Additive Manufacturing and Solid-state Manufacturing
- 17:10-17:30 **Torti Uwaiké**, North Carolina Agricultural and Technical State University, Greensboro, NC
High Performance Sustainable Polymer Nanocomposites Fabricated *via* 3D Printing
- 17:30-17:40 **Pavel Podaný**, COMTES FHT a.s., Czech Republic **[Digital Poster]**
Research and Development of High-strength Steel for Gas Cylinders

End of Day 2

Chair: **Hugo Bouteiller**, Oak Ridge National Laboratory, Oak Ridge, TN

- 08:30-08:50 **Hugo Bouteiller**, Oak Ridge National Laboratory, Oak Ridge, TN
Skutterudite-based Thermoelectric Devices for Radioisotope Thermoelectric Generator Technology
- 08:50-09:10 **Zhihua Jiang**, Auburn University, Auburn, AL
Engineering Transparent and Flexible Cellulose Nanocrystal Films
- 09:10-09:30 **Vincenzo Guidi**, University of Ferrara, Italy
Application of Nanomaterials to Gas Sensing
- 09:30-09:50 **Beata Wodecka-Duś**, University of Silesia, Poland
Effect of Special Glass on the Structure and Functional Electrical Properties of La-doped BaTiO₃ Ceramics
- 09:50-10:10 **Norifusa Satoh**, National Institute for Materials Science, Japan
Hierarchically Designed Thinner Peltier Sheet
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- 10:10-10:20 **Speed Networking & Morning Break** @Foyer
-
- 10:20-10:40 **Sanja Stipičević**, Institute for Medical Research and Occupational Health, Croatia
Functional Biowaste-based Agromaterials for Sustainable Agriculture: Development and Applications
- 10:40-11:00 **Jolanta Makowska**, University of Silesia, Poland
Impact of Rare-earth Doping on the Functional Behavior of BZT–BCT Ceramics
- 11:00-11:20 **Juan Julio Gonzalez-Frias**, Western Michigan University, Kalamazoo, MI
Microstructural Model Relating Local and Global Material Properties
- 11:20-11:40 **Youssef ESSHOUBA**, Mohammed VI Polytechnic University, Morocco
Optimized Acid-leaching Recovery of Iron from Pyrrhotite Waste and Hydrothermal Crystallization of High-purity α -Fe₂O₃ Nanoparticles for Magnetic Applications
- 11:40-12:10 **[Virtual Keynote]**
Roya Maboudian, University of California, Berkeley, CA
2D Aerogel-based Sensors for Distributed Environmental and Health Monitoring
- Roya Maboudian is a Professor of Chemical and Biomolecular Engineering at the University of California, Berkeley, where she is internationally recognized for her pioneering work in surface science, micro- and nanoelectromechanical systems (MEMS/NEMS), and functional thin films. Her research focuses on interfacial phenomena, protective coatings, energy-efficient materials, and advanced microdevice technologies, with applications spanning sensors, energy systems, and semiconductor manufacturing. Dr. Maboudian has authored highly influential publications and holds multiple patents that have shaped modern approaches to materials engineering at the nanoscale. She earned her Ph.D. in applied physics from Caltech and joined Berkeley as a faculty member, where she has been honored with numerous awards for research excellence, mentorship, and innovation. Dr. Maboudian is also known for her leadership in large collaborative research initiatives and active engagement with industry partners. Her work continues to advance next-generation materials and device technologies with broad societal impact.
- 12:10 **Lunch & Departures**



Keynote Presentations



Donglu Shi, University of Cincinnati, Cincinnati, OH

Spectral Selective Solar Light Harvesting and Photothermal Energy Generation through Multiple Transparent $\text{Fe}_3\text{O}_4/\text{Cu}_2\text{-xS}$ Thin Films with a Solar Tunnel

Donglu Shi is a Professor of Materials Science and Engineering at the University of Cincinnati. His NSF-funded research focuses on advanced three-dimensional solar light-harvesting strategies that overcome fundamental limitations of conventional two-dimensional photovoltaic systems. His work has led to innovations in solar-activated energy generation, photothermal-photovoltaic building envelopes, and solar-driven desalination technologies. Dr. Shi has authored more than 300 peer-reviewed publications in leading journals, including Nature, Physical Review Letters, Advanced Materials, and ACS Nano. He currently serves as Editor-in-Chief of Nano LIFE, is a member of the Editorial Boards of the Journal of Energy and Power Technology and Biomaterials Advances, and serves as an Associate Editor of the Journal of Nanomaterials. Dr. Shi is a Fellow of ASM International, recognizing his sustained contributions to materials science and energy-related research.

12:30-13:00



Prashant N. Kumta, University of Pittsburgh, Pittsburgh, PA

Exploring Advanced Materials for Meeting the High Energy Density Challenge

Prashant N. Kumta is a distinguished professor at the University of Pittsburgh, specializing in materials science, biomedical engineering, and chemical engineering. His research focuses on advanced materials for energy storage and conversion, including batteries, fuel cells, and supercapacitors, as well as biomaterials for regenerative medicine. A prolific researcher, Dr. Kumta has authored numerous publications, holds multiple patents, and is recognized globally for his contributions to sustainable energy technologies and biomedical innovations.

13:00-13:30

Oral Presentations

- 13:30-13:50 **Dustin Nolen PE**, Vista Engineering & Consulting, Birmingham, AL
Innovative Resistance Welding Technology for Carbon Fiber-reinforced Thermoplastic Composites
- 13:50-14:10 **Lin Dong**, New Jersey Institute of Technology, Newark, NJ
Smart Hydrogels for Integrated Energy Harvesting and Sensing
- 14:10-14:30 **Ada Orlowska**, Silesian University of Technology, Poland
Modeling the Functional Properties of SLM-produced Titanium Scaffolds for Orthopedic Applications
- 14:30-14:50 **Monika Gwozdz – Lason**, University of Bielsko-Biala, Poland
Intelligent Glass-based Materials in Sustainable Smart Buildings: Circular Economy, EU Directives, and their Impact on Real Estate Value
- 14:50-15:10 **Yao Fu**, Virginia Tech, Blacksburg, VA
A Phase-field Study of Multiphase Precipitation in Inconel 718: Effects of Time-dependent Misfit Strain, Elasticity, and Grain Boundaries
- 15:10-15:30 **Will Skene**, Universite de Montreal, Canada
Integrating Sustainability into Sustainable Devices
- 15:30-15:50 **Utpal Chatterjee**, University of Virginia, Charlottesville, VA
The Coexistence of Charge Density Wave and Spatially Homogeneous Superconductivity in $n\text{Cu}_x\text{TiSe}_2$
- 15:50-16:10 **Madhab Neupane**, University of Central Florida, Orlando, FL
Observation of Altermagnetic Spin-splitting in an Intercalated Transition Metal Dichalcogenide

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