ICAM26

International Conference on Advanced Manufacturing

Research to Application through Standardization

ORLANDO, FL
SEPTEMBER 28 - OCTOBER 2, 2026

Non-Metallic Materials: Ceramics, Microelectronics, and Semiconductors

This symposium explores advances across ceramic additive manufacturing (AM), microelectronics, semiconductor-related applications, and multi-material AM systems that integrate structural and functional performance. As AM technologies mature, the intersection of ceramics, electronics, and semiconductor manufacturing has become a critical frontier for high-temperature systems, UHTCs, power electronics, heterogeneous integration, multifunctional components, and next-generation device architectures.

This symposium welcomes contributions that address materials, processes, design methods, reliability, and novel applications enabling or requiring complex geometries, multi-material assemblies, enhanced thermal and mechanical capabilities, embedded electronics, and high-value semiconductor-adjacent technologies. Topics include progress in AM ceramics, ceramic composites, AME (additively manufactured electronics), microfabrication approaches, multi-layer/multi-material integration, and emerging pathways for electronic and semiconductor device manufacturing using AM.

Topics of interest include but are not limited to:

Ceramics, Ceramic Composites, and Advanced Materials

- Material extrusion, binder jetting, and vat photopolymerization of ceramic systems
- Ultra-high-temperature ceramics (UHTCs) and harsh-environment materials
- Feedstock development, characterization, and highly loaded suspensions
- Sintering strategies for single- and multi-material components
- Printability modeling and predictions
- Post-processing innovations for ceramic AM
- In-situ measurements and monitoring for process control
- Qualification and validation of AM ceramics
- Sustainability in ceramic feedstocks and processing

Microelectronics, Semiconductors, and AM-Enabled Devices

- Additively manufactured electronic circuits, sensors, antennas, filters, and passive components
- Micro- and nano-scale AM processes for device architectures
- Fabrication methods for flexible, wearable, and conformal electronics
- AM of patient-specific smart devices, smart home systems, and printed batteries
- AM-enhanced components for semiconductor manufacturing equipment (DFX-driven design)
- Hybrid AM processes that embed functional conductors, dielectrics, and semiconductors
- AME on semiconductor chips during or post-fabrication
- Novel sintering strategies for printed electronics
- Testing, reliability, and reproducibility of AME components and architectures

Materials, Design, Standards, and Modeling

- Functional materials for electronic and semiconductor AM: dielectrics, conductors, resistive materials, ferrites, etc.
- Adoption of materials from photonics, optoelectronics, quantum technologies, and semiconductor ecosystems
- Standards development and performance benchmarks for AM materials and devices
- Multiphysics modeling, digital design workflows, ECAD–MCAD integration, and design automation
- Simulation of device performance, thermal-mechanical behavior, and multifunctional architectures
- Quality control frameworks and characterization methodologies

amcoe.org/icam2026

SYMPOSIUM ORGANIZERS

Brandon Cox
Honeywell, USA

Matthew Krohn
Pennsylvania State University, USA

Eric MacDonald
University of Texas at El Paso, USA

Russell Maier
NIST, USA

Michael Stuer
Empa, Switzerland

Hui-Suk Yun
Korea Institute of Materials Science, South Korea

ASTM STAFF CONTACT

Scott Klavon
ASTM International