THE WORLD COMES HERE.

TMS 2025

154th Annual Meeting & Exhibition

March 23–27, 2025
MGM Grand Las Vegas
Hotel & Casino
Las Vegas, Nevada, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2025 SYMPOSIUM:

ELECTRONIC, MAGNETIC, AND ENERGY MATERIALS

Printed Electronics and Additive Manufacturing: Advanced Functional Materials, Processing Concepts, and Emerging Applications

Additive manufacturing and direct-write printed electronics technologies employing metal, dielectric, semiconductor, polymer, and ceramic materials have the potential to enable new products and markets. Accordingly, many emerging applications in sensing, photovoltaics, energy-harvesting and storage, robotics, wearables, healthcare, aerospace, and communication necessitate electronic materials of novel form factors and unique processing approaches. The proposed symposium will focus on the emerging additive manufacturing concepts and techniques for the processing of 2D/3D structures. Technical sessions will focus on fabrication methods and characterization of active and passive functional components on technological platforms as well as integrated into engineered geometries. Topics related to functional materials, low-temperature processing, large-area manufacturing, and electronic applications are within the scope of this symposium. Invited and contributed papers will discuss both the fundamental aspects underlying certain applications, the correlation of device performance and functionality, and the particular challenges regarding technology, fabrication processes, reliability, and sustainability.

Research fields of interest are related but not necessarily limited to the following topics:

- Direct-write printing and additive manufacturing of functional 2D/3D structures and geometries: Materials, Processes, and Characterization
- Nanomaterials, inks, and substrates for direct-write printing and additive manufacturing
- Nanostructured materials for solid-state and electrochemical energy storage devices (batteries and supercapacitors)
- Low thermal budget processing and characterization of functional inks and 2D/3D materials
- Flexible/stretchable devices enabled by printed electronics
- Methods and materials for printing on biodegradable and water-soluble substrates
- Multimaterial and multifunctional structures and devices
- Testing and quality control for qualification and standardization of printed electronics
- Hybrid electronics: Merging printed electronics and additive manufacturing (Materials and Process integration to realize active/passive sensors, detectors, optical and photonic devices, TFTs, antennas, PVs, batteries, supercapacitors, and large area electronics)
- Computational modeling/learning methods for predictive understanding of print-process control and design

ORGANIZERS

Tolga Aytug, Oak Ridge National Laboratory; **Pooran Joshi,** Elbit Systems of America; **Yong Lin Kong,** University of Utah; **Konstantinos Sierros,** West Virginia University; **Masoud Mahjouri-Samani,** Auburn University; **Changyong Cao,** Case Western Reserve University; **Dave Estrada,** Boise State University; **Ethan Secor,** Iowa State University

SYMPOSIUM SPONSORS

TMS Functional Materials Division, TMS Thin Films and Interfaces Committee

www.tms.org/TMS2025

QUESTIONS?
Contact programming@tms.org