Additive Manufacturing (AM) has gained significant attention in many applications and particularly for the electronics industry. Broadly, the symposium will address three major sub-categories. The first is direct printing of electronics that leverage the complex geometries and mass customization offered by AM: patient-specific smart implants, spatially-efficient antennas for example. The second involves printing of high value complex components for use in the semiconductor industry such as components with novel designs used in wafer chambers to improve yield and process efficiency and the third is very high-volume consumer electronics components such as components using in phones or other electronic devices.

This symposium covers the following specific topics:

Applications:
- 3D printing of complex and mass customized electronics
- Next generation electromagnetic structures including as antennas and filters
- 3D printing of sensors and sensor systems
- Patient-specific smart wearables and implants
- Applying DFX for components used in semiconductor equipment using additive manufacturing

Processing:
- Hybrid processes that enhance traditional 3D printing to embed electronics
- Post processing in printing of electronic structures
- Post processing for AM components used in semiconductor process and clean room

Reliability and reproducibility
- 3D printed electronics
- Components for semiconductor equipment
- Products in consumer electronics

Materials in printed electronics and AM components used semiconductor and consumer electronics

ORGANIZERS
- Eric MacDonald, Youngstown State University, USA
- Alireza Sarraf, Lam Research, USA

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Session 3

Additive Manufacturing of Electronics

Session Chairs TBD

8:00 a.m. Invited Talk: The Ever-Changing Form Factors of Printed/3D Printed Electronics
Corey Shemelya, University of Massachusetts Lowell

8:30 a.m. Invited Talk: Additive Manufacturing via Aerosol Jet for Conductivity, Adhesion, and Harsh Environments
Clayton Neff, NRC/AFRL

9:00 a.m. Invited Talk: Multilevel Additively Manufactured Electronic (AME) Circuits and Devices: Design, Manufacturing, and Characterization
Jaim Nulman, Nano Dimension

9:30 a.m. Invited Talk: Printing Conformal Electronics on Unconventional Substrates: Emergence of new class of devices
Shweta Agarwala, Aarhus University

10:00 a.m. Invited Talk: Direct Digital Manufacturing for Complex Sensor Systems
Kenneth Church, Sciperio

11:00 a.m. Regular Talk: Integration of Printed Electronics into Laser Powder Bed Fusion Parts
Simon Vervoort, Fraunhofer Institute for Laser Technology

11:20 a.m. Invited Talk: Characterization and Performance of In Circuit Capacitors and Low Pass Filters Produced by Multilayer Additively Manufactured Electronics (AME) Technology
Daniel Sokol, Nano Dimension

1:00 p.m. Invited Talk: Progress in 3D Printed Multi-Functionality
Eric MacDonald, UTEP

1:30 p.m. Invited Talk: 3D Printing for Electronic Equipment
Joerg Sander, Hensoldt Sensors

2:00 p.m. Invited Talk: Laser-Enhanced Additive Manufacturing of 3D High-Frequency Electronics
Eduardo Rojas-Nastrucci, Embry-Riddle Aeronautical University

10:00 BREAK | 12:00 LUNCH | 2:30 SESSION ENDS