

**1<sup>st</sup> Annual Additive Manufacturing Day at Tennessee Tech University**

**November 30<sup>th</sup>, 2021**

**All times are CENTRAL**

**Keynote Presentation**

- 10:00AM-10:05AM  
Jennifer Taylor  
Vice President for Research  
Tennessee Tech University

**Additive Manufacturing with Cement-based Materials**

- 10:05AM-10:20AM  
Chemo-mechanical Properties of 3D Printed Cement Paste  
Michael Kosson and Florence Sanchez  
Vanderbilt University
- 10:20AM-10:30AM  
Rheology of Cement-based Pastes  
Babajide Onanuga and Joseph Biernacki  
Tennessee Tech University
- 10:30AM-10:40AM  
Hydrogels, a Transformative Technology for Cement-based Printing Materials  
Hajar Taheri and Joseph Biernacki  
Tennessee Tech University
- 10:40AM-10:50AM  
2D-Stational Computational Printing of Cement-based Materials  
Abdul Salam Mohammad and Joseph Biernacki  
Tennessee Tech University
- 10:50AM-11:00AM  
Design and Additive Manufacturing of Architected Cementitious Materials  
Reza Moini  
Princeton University

**Multi Material Additive Manufacturing**

- 11:00AM-11:10AM  
Development of Novel Biocompatible Material for Fabricating the 3D printed Composite Dentures  
Ankit Gupta and Ismail Fidan  
Tennessee Tech University
- 11:10AM-11:20AM  
Quality Analysis of Low-Cost Metal Material Extrusion Fabricated Parts using Machine Learning  
ZhiCheng Zhang and Ismail Fidan  
Tennessee Tech University

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- 11:20AM-11:30AM  
Mechanical Application of Functionally Graded Composite Parts Manufactured by the Fused Filament Fabrication Process  
Seymur Hasanov, The University of Alabama in Huntsville  
Ismail Fidan, Tennessee Tech University

**Wire Arc Additive Manufacturing**

- 11:30AM-11:40AM  
Manufacturing and Prediction of Large-Scale Metal Component in Wire-Arc AM  
Yousub Lee  
Oak Ridge National Lab
- 11:40AM-11:50AM  
Tailoring Microstructural Heterogeneity for Improved Mechanical Performance in Wire-Arc Additively Manufactured Structures  
Md. Rumman Ahsan and Duck Bong Kim  
Tennessee Tech University
- 11:50AM-12:00PM  
Fabrication of Thin-walled Overhead/Overhang Structures using Cold Metal Transfer (CMT) based Wire + Arc Additive Manufacturing (WAAM)  
Sainand Jadhav and Duck Bong Kim  
Tennessee Tech University
- 12:00PM-12:10PM  
Gas Tungsten Arc Welding (GTAW) based Wire + Arc Additive Manufacturing (WAAM) of NbZr1 Refractory Alloy  
Saiful Islam and Duck Bong Kim  
Tennessee Tech University

**Additive Manufacturing from UK**

- 12:10PM-12:20PM  
Establishing a Design for Additive Manufacturing Research Community in the UK  
Allan Rennie  
Lancaster University, UK
- 12:20PM-12:30PM  
Multi-Axis Additive Manufacturing with Fusion 360  
Robert Bowerman  
Autodesk, UK

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**Additive Manufacturing Potpourri**

- 12:30PM-12:40PM  
Towards Dynamic Characterization of Fully 3D Printed Capacitive Sensors for Footbed Pressure Sensing Applications  
Andrew Gothard and Steven Anton  
Tennessee Tech University
- 12:40PM-12:50PM  
Creation of a 3D-Printed Tactile Learning Device with Embedded Fiber Optic Sensing  
Tyler Stanifer and Daniel VandenBerge  
Tennessee Tech University