

## Call for Papers 2026 Summer Topical Meeting

# Advancing Precision in Additive Manufacturing

University of North Carolina at Charlotte  
Charlotte, NC, USA | July 7-9, 2026

## Topics

Papers addressing all AM processes and material systems as well as complementary processes for post-processing, inspection, and metrology are solicited.

### ■ Dimensional accuracy and surface finish in AM

- State of the art: What level of dimensional precision and accuracy is achievable?
- Functional specifications for form and finish
- Prediction and modeling of dimensional errors and surface topography
- Applications ranging from large-scale to micro-nano

### ■ Metrology for AM

- Challenges in form, texture, and internal feature metrology of rough as-built AM components
- Computed tomography for defect detection, dimensional metrology, internal geometries
- Multi-sensor approaches, data fusion, and machine learning
- Measurement, registration, and fitting of point clouds for freeform surfaces
- Development of instruments, artifacts, and data processing tools to establish traceability across ex- and in-situ metrology systems (e.g., dimensional, thermal, etc.)

### ■ Design for manufacturing and precision applications

- Design rules and tolerancing for AM
- Topology optimization in the context of AM and achieving precision
- Novel designs for flexures and kinematic couplings
- Metallurgy and fatigue issues in high-cycle precision applications
- Design, tolerancing, manufacture, and metrology of lattice structures

### ■ AM machines and process control

- Holistic views of the control system, process feedback, and correction
- Novel AM machine designs and control strategies
- In-process monitoring: melt pool, powder bed, workpiece shape and topography
- Artifacts to assess machine performance and errors; round-robin testing
- Fundamental machine metrology to assess machine performance and errors

### ■ Integrating AM into a holistic manufacturing process

- Cost-benefit trade-offs of using AM within a complex process chain
- Engineered partnerships between AM and secondary finishing
- Fixturing, machining, and metrology of near-net shape parts
- Deterministic methods for qualification of AM processes, feedstocks, and parts
- Functional correlations for the development of standards that support industry
- Achieving precision with a focus on sustainability

### ■ Process physics, simulation, and optimization

- Prediction and modeling of distortion and topography
- Parameter optimization and defect avoidance
- Model validation: experimental requirements and datasets
- Machine learning to conquer the complex AM parameter space

Technical sessions July 7, 8, 9

❖ NASCAR R&D Center Tour July 10 (details TBA) ❖

### Important dates

Short abstracts (200-300 words) due April 15<sup>th</sup>, 2026

Full papers (2-4 pages) due June 1<sup>st</sup>, 2026

~ Complete details are available at [www.aspe.net](http://www.aspe.net) ~

## Meeting Co-chairs

**Jaime Berez (Host)**

University of North Carolina at Charlotte

**John S. Taylor**

University of North Carolina at Charlotte

**Jason C. Fox**

National Institute of Standards and  
Technology

**Liam Blunt**

University of Huddersfield, UK

## Organizing Committee

**Can Ayas**

Delft University of Technology, Netherlands

**Theresa Buchenau**

Fraunhofer IFAM

**Eric Buice**

Lawrence Berkely National Lab

**Simone Carmignato**

University of Padova, Italy

**Michael A. Cullinan**

University of Texas at Austin

**Wim Dewulf**

KU Leuven, Belgium

**Christopher J. Evans**

University of North Carolina at Charlotte

**Joy Gockel**

Colorado School of Mines

**Ola L. A. Harrysson**

North Carolina State University

**Paul Hooper**

Imperial College, UK

**Bradley H. Jared**

University of Tennessee, Knoxville

**Shan Lou**

University of Huddersfield, UK

**Stephen J. Ludwick**

Aerotech, Inc.

**Dirk Oberschmidt**

TU Berlin, Germany

**David Bue Pedersen**

Technical University of Denmark, Denmark

**Samanta Piano**

University of Nottingham, UK

**Julian Polte**

TU Berlin, Germany

**Senajith Rekawa**

Lawrence Berkeley National Laboratory

**Zackary Snow**

Oak Ridge National Laboratory

**Ahmed Tawfiq**

University of Huddersfield, UK

**Bey Vrancken**

KU Leuven, Belgium

**Xiayun Zhao**

University of Pittsburgh

### Special session!

#### **Imprecision in Additive Manufacturing:**

Sharing oddities and failures to move technology forward  
Topics will be solicited from authors. No formal abstract or  
paper will be required. More information to be released  
after April 15<sup>th</sup>.