

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 complimentary 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 15th, 2026

Full papers (2-4 pages) due June 1st, 2026

~ Complete details are available at 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

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 15th.