ICAM26

ORLANDO, FL
SEPTEMBER 28 -
OCTOBER 2, 2026

International Conference on Advanced Manufacturing

Research to Application through Standardization

Value Chain: Fatigue, Fracture, and Structural Integrity

amcoe.org/icam2026

SYMPOSIUM CO-ORGANIZERS

Armando Coro
ITP Aero, Spain

Thomas Niendorf
University of Kassel, Germany

Steve Salt
Rolls-Royce, United Kingdom

Jutima Simsiriwong
University of North Florida, USA

Riccardo Toninato
Enovis, Italy

Frank Walther
TU Dortmund University, Germany

Zachary Whitman
Boeing, USA

ASTM STAFF CONTACT

Arash Soltani
ASTM International

Additive Manufacturing (AM) technologies are increasingly used to produce functional components in applications such as medical, aerospace, automotive, energy, defense, and consumer electronics. However, their adoption in safety-critical systems within regulated sectors, such as civil aviation, remains limited. A major barrier is the need to mitigate risks associated with AM-specific material anomalies (e.g., porosity, lack of fusion, surface roughness–induced notches, and near-surface anomalies), requiring novel, sustainable, and robust characterization methodologies, including validated experimental models and predictive methods for fatigue behavior. Developing these tools for safety-critical applications relies on a fundamental understanding of how AM microstructures and anomalies affect component structural integrity. However, progress has been hampered by the lack of empirical results, comprehensive data on process-driven variability, and the rapid pace of technology development. We are convening at ICAM26 to share new discoveries, analyses, and case studies to advance qualification and certification as well as the safe use of AM components in fatigue-critical applications. We invite all subject-matter experts to submit abstracts focused on fatigue and fracture of AM parts.

Topics of interest include but are not limited to:

- Case studies showing mitigated structural integrity concerns of AM parts and components
- Replacement of conventional components (e.g., cast, brazed, or welded) with AM parts
- Development of new fatigue and fracture test methods addressing opportunities such as thin wall structures and lattices
- Defining acceptance criteria, design allowables, and standards for AM components
- Effect of material anomalies on fatigue and damage tolerance
- Size effects, scaling laws, and probabilistic approaches for structural integrity
- Crack nucleation and damage formation mechanisms in AM materials
- Establishing process-structure-property-performance relationships
- Predictive models and software for fatigue and damage tolerance of AM parts