ICAM25

International Conference on Advanced Manufacturing

Research to Application through Standardization

October 6-10 | Las Vegas, NV

Value Chain: In-Situ Monitoring and In-Process Control

As the field of Additive Manufacturing (AM) quickly evolves and increasingly adopted by industry, in-situ monitoring and in-process control have become crucial pillars for enhancing yields, improving print quality, reducing the cost of non-destructive evaluation (NDE), and accelerating qualification and certification. The AM community recognizes that integrated efforts across the AM value chain can play a significant role in advancing AM industrial adoption by improving the capabilities and accelerating the standardization of in-situ monitoring and control methods.

TOPICS OF INTEREST INCLUDE BUT ARE NOT LIMITED TO:

- Landscape analysis of in-situ monitoring and in-process control in AM
- New sensing solutions, systems, and architectures for gathering data in-situ
- Multi-sensor data fusion
- Challenges and development of in-situ monitoring & in-process control or intelligent feed forward techniques
- Development and validation of signal-flaw-property relationships
- Verification, validation, and management of in-situ monitoring data
- Integration of in-situ monitoring, in-process control, and modeling approaches
- Use of in-situ monitoring to elucidate process physics
- In-situ data to support digital twin of AM processes
- Use of in-situ data for process optimization, part personalization and first t ime-right production
- In-situ monitoring to assist and accelerate process development or aid post-process NDE
- Case studies or research correlating sensor modalities to real process failure modes, material quality, performance, and/or part geometry inspection
- Qualification and certification frameworks enabled by in-situ monitoring
- Standardization of in-situ monitoring and in-process control workflows

Symposium Organizers

- **Bianca Maria Colosimo**, Politecnico di Milano, Italy
- **Alaa Elwany**, Texas A&M University, USA
- **Brian Fisher**, RTX Technology Research Center, USA
- **Michael Heiden**, Sandia National Laboratories, USA
- **Thomas Jones**, Rolls-Royce Submarines, United Kingdom
- **Andrey Molotnikov**, Royal Melbourne Institute of Technology (RMIT) & Additive Assurance, Australia
- **Luke Scime**, Oak Ridge National Laboratory (ORNL), USA

Submit an abstract

amcoe.org/icam2025