

ASTM INTERNATIONAL CONFERENCE ON ADVANCED MANUFACTURING

Research to Application through Standardization

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

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

Topics of interest include but are not limited to:

- Landscape analysis of in-situ monitoring and in-process control in AM
- Challenges and development of in-situ monitoring and in-process control in AM
- Validation and management of in-situ monitoring data
- Development and validation of signal-defect-property relationships
- Integration of in-situ monitoring, in-process control, and modeling approaches
- Use of in-situ monitoring to elucidate process physics
- Monitoring to assist and accelerate process development
- In-situ monitoring to aid post-process NDE
- Case studies demonstrating correlations between process monitoring data and material quality/performance
- Leveraging novel data-driven analysis approaches in in-situ monitoring & in-process control (e.g. ML / AI)
- Framework of qualification and certification enabled by in-situ monitoring
- Standardization of in-situ monitoring and in-process control
- Recent technologies for in-situ monitoring of AM processes



Symposium Organizers

- Jack Beuth, Carnegie Mellon University, USA
- Ulrich Kleinhans, EOS, Germany
- Ajay Krishnan, EWI, USA
- Erin Lanigan, NASA - MSFC, USA
- Edward (Ted) Reutzler, Pennsylvania State Universities Applied Research Laboratory, USA
- Zackary Snow, Oak Ridge National Laboratory, USA



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