

# ASTM INTERNATIONAL CONFERENCE ON ADVANCED MANUFACTURING

## Research to Application through Standardization

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### Value Chain: Non-Destructive Evaluation and Inspection

While destructive evaluation methods such as mechanical testing and microstructural characterizations are often used to evaluate the mechanical performance of additively manufactured (AM) materials and parts, non-destructive evaluation (NDE) methods can provide significant insights without the need for sectioning and damaging the part. Since the presence of defects (e.g., pores, lack of fusion, surface roughness, etc.) often influences the mechanical performance of AM parts significantly, understanding the critical characteristics (such as type, size, and distribution) and location of these defects is key to managing performance expectations, and qualification and serviceability.

#### Topics of interest include but are not limited to:

- Applications of current NDE methods for AM parts
- Novel or improved NDE inspection capabilities
- Current status of standards and guidelines and needs for new standards
- Ultrasonic/resonance/x-ray/CT-scan as inspection methods for defects
- Enabling targeted inspection and identification of defect formation root cause
- Integration of NDE with in-process monitoring (indirect inspection) & in-process inspection (direct inspection), structural modeling, validation, and qualification
- Techniques for evaluation and analysis of NDE results and measuring NDE process capability
- NDE modeling and simulation for AM
- Applications of NDE methods in serial production of AM parts: state of the art, limitations, capabilities, and future needs
- Novel materials and non-metal AM NDE



### Symposium Organizers

- Anton Du Plessis, Stellenbosch University/Comet Technologies Canada, South Africa/Canada
- Ben Dutton, The Manufacturing Technology Centre (MTC), United Kingdom
- Patrick Howard, GE Aerospace, USA
- Felix Kim, NIST, USA
- Philip Riegler, Norsk Titanium, USA