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Additive Manufacturing in Aviation and Space Flight

The aerospace industry is one of the primary sectors which leverages additive manufacturing (AM) to its fullest extent. Cost savings and schedule reductions are the key drivers, which can be achieved by redesigning many existing components and through part consolidation. Acceptable structural integrity, new materials with superior properties, and novel design methodologies are the key enablers. However, related standards, as well as qualification and certification practices may need to re-evaluated/updated for additively manufactured products.

This symposium covers the application of AM in aerospace, general aviation and commercial space flight, focusing on the following topics:

- Airworthiness of AM parts
- Specific AM applications in aviation
- Specific AM applications in space flight
- Testing and quality assurance of additively manufactured parts for aviation and space application
- Accelerate AM across the lifecycle through the application of computational approaches
- Recognized regulatory requirements in aviation
- Qualification and certification strategies

ORGANIZERS
- Rick Russell, NASA, USA
- Alison Park, Aerojet Rocketdyne, USA
- Charles Park, Boeing, USA
- John Vickers, NASA, USA

www.amcoe.org/icam
Session 1
Additive Manufacturing in Aviation and Space Flight
Session Chairs TBD

8:00 a.m. Invited Talk: Development of Metal Additive Manufacturing Capabilities for Demonstration on the International Space Station
Tracie Prater, Materials and Processes Laboratory

8:30 a.m. Regular Talk: Transitioning Legacy Cast F-15 Part to LPBF
Jason C. Jones, Moog, Inc.

11:00 a.m. Regular Talk: AM-Enabled Design Enhancement of an Aeroderivative Gas Turbine Combustion Transition Duct
Tad Steinberg, Siemens Additive Manufacturing

11:20 a.m. Invited Talk: Component Applications using Metal Additive Manufacturing Techniques and Materials for Rocket Propulsion
Paul Gradl, NASA Marshall Space Flight Center

11:50 a.m. Invited Talk: Accelerating AM Adoption via Aligned Qualification Plans
John Barnes, The Barnes Global Advisors

1:30 p.m. Invited Talk: Forging the Future: The Impact of Multi-Material Additive Manufacturing on the Future of Space Exploration
Matt Napoli, Made In Space, Inc.

2:00 p.m. Invited Talk: Development of secondary structures for ESA’s JUICE spacecraft with Additive Manufacturing
Johannes Gumpinger, European Space Agency

2:30 p.m. Invited Talk: A Pathfinding Experience to an Additively Manufactured Structural Part
Paul Toivonen, Research & Technology

3:30 p.m. Invited Talk: Progress by the UK’s Aerospace Supply Chain – a Perspective from UK National Centre AM
Katy Milne, The MTC

4:00 p.m. Regular Talk: Next Generation Durability and Damage Tolerance to Support Certification of Flight Hardware
Edward H. Glaessgen, NASA

9:00 PANEL DISCUSSION PREP | 9:05 PANEL DISCUSSION
10:20 BREAK | 12:20 LUNCH | 3:00 BREAK | 4:20 SESSION ENDS