

TRACK 1: STRUCTURES AND ADDITIVE MANUFACTURING

“ADDITIVE MANUFACTURING FOR AIRCRAFT SPARES & REPAIRS”

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ABSTRACT

As aerospace and defence assets continue to age and exceed the lives they were expected to be in service, the need for spares and repairs continues to increase. Advanced manufacturing concepts such as Additive Manufacturing (AM) are required in order to reduce spare part lead times and the need for costly, long lead tooling. This presentation will walk through the AM technologies that are prevalent in this area, and will focus in on Large Scale Laser Powder Bed Fusion (LPBF), Hybrid Additive/Subtractive Manufacturing technologies, and Supersonic Particle Deposition (Cold Spray) for repair of aircraft structural components. A discussion around the advancements seen to date in AM for sustainment as well as what hurdles are still yet to be overcome will ensue.

BIOGRAPHY OF SPEAKER



Dan Braley is a Boeing Associate Technical Fellow and the Boeing Global Services Additive Manufacturing Technical Focal & Initiatives Leader. In this role, he serves sustainment of all Boeing military, commercial, and derivative aircraft platforms through use of Additive Manufacturing technologies and implementation of advanced composites. Dan has more than 15 years of aerospace program and R&D experience in additive manufacturing, technical program management, materials and process engineering, composites, electromagnetic product development, and manufacturing technology development.

Prior to his current role, Dan was the USN/USMC Air Vehicle Technical Integrator through Boeing, with a focus on F/A-18 Flight Control Surfaces, wings, complex spares and repairs. He has held positions with Northrop Grumman Aerospace Systems, L-3 Communications ESSCO, and the Air Force Research Laboratory Munitions Aerial Vehicle (MNAV) directorate at Eglin Air Force Base as well. Dan currently holds 10 patents in the areas of additive manufacturing and next gen conductive composite materials development with many more patents still pending, and is also the lead inventor of 2 trade secrets. He is a past recipient of the Society of Manufacturing Engineers Outstanding Young Manufacturing Engineer Award, the Boeing Meritorious & High Honors Invention Awards, the Northrop Grumman Innovation Award, and the F-35 Lightning Rod Award. Dan received his BS and MS degrees in Mechanical Engineering from Florida State University, an MS in Engineering Management from Drexel University, and a Certificate in Additive Manufacturing from MIT. Dan is also a Certified Additive Manufacturing Technician (CAM-T) through UL, America Makes, and SME Tooling University.