

# Carnegie Mellon University

## Materials Science & Engineering

*presents*

### Will the Science Catch Up to Industry in Additive Manufacturing?

*John E. Barnes, Managing Director, The Barnes Group Advisors  
Adjunct Professor, Carnegie Mellon University  
Adjunct Professor, Royal Melbourne Institute of Technology University*

**ABSTRACT:** Additive Manufacturing has made great strides from its early beginnings as a prototyping technology for plastics. Today there are qualified, revenue generating, passenger airplanes flying parts made by AM or made using AM. This is in part due to laborious efforts engineers and scientists have taken to taking their requirement and working through this new technology to find out its strengths and weaknesses and account for them in design. Metal AM is much newer and more immature than its polymer colleague. Some of the basics of the process are just now starting to be understood, such as the laser to powder metal interaction. This will only serve to make the next generation of machines better. In this seminar, John will amaze and delight you with his super dry wit and will not put you to sleep. He will cover observations from around the world as industry is working through adoption.

**BIOGRAPHY:** John Barnes is the Founder of Metal Powder Works and The Barnes Group Advisors the leading independent consultancy and training provider in additive manufacturing. Previously, he was Vice President of Advanced Manufacturing & Strategy at Arconic where he helped shape the R&D budget and activities across manufacturing operations and influenced future business. There he worked with Airbus to qualify the first Titanium additively manufactured parts for series production on the A350. Prior to Arconic, he was Director of the High Performance Metals Program for the CSIRO, the national science agency for Australia where he oversaw the R&D and Commercialization activities and investments in the program's two principal areas: Metal Production and Additive Manufacturing.

His aerospace background includes lengthy positions at Honeywell Engines where he supported gas turbine Advanced Technology and was Program Manager of Marine Engines programs and as Senior Manager for Manufacturing Exploration and Development at Lockheed Martin Skunk Works. At Lockheed Martin, he was responsible for developments in advanced polymers, composites, carbon nano tubes, novel titanium production and processing, additive manufacturing of both polymer and metallic systems and low observable manufacturing methods. Primarily, John has a background in materials performance and processing relationships, but has led groups to develop low emission combustors, advanced polymers and low observable technology.

John has 3 US patents, 5 International patents pending, has given numerous invited presentations is published internationally. In 2014, he was awarded Purdue University's Outstanding Materials Engineer of the Year and was given an Adjunct professorship at RMIT. In 2015, he became an Adjunct Senior Research Fellow at Monash University. In the 2017, the faculty of Carnegie Mellon University appointed him an Adjunct Professor of Materials Engineering. John holds a B.S. in Materials Science and Engineering and an M.S. in Metallurgical Engineering from Purdue University.

**Doherty Hall 2210, 11:30AM  
Friday, February 1, 2019**