

SEMINAR

**Additive Manufacturing Research
at the Manufacturing Demonstration Facility
at Oak Ridge National Laboratory****Dr. Ryan Dehoff**Deposition Science and Technology Group,
Oak Ridge National Laboratory (ORNL)**November 18 (Monday) | 11:00 AM**
Tech A230

ABSTRACT The Manufacturing Demonstration Facility, established in 2012, is the Department of Energy's only designated user facility focused on performing early-stage research and development to improve the energy and material efficiency, productivity and competitiveness of American manufacturers. Research focuses on manufacturing analytics and simulation, composites and polymer systems, metal powder systems, metrology and characterization, machining and large-scale metal systems. The MDF comprises a 110,000 sq. ft. facility designed to deliver results that drive energy efficiency improvements in the manufacturing sector, efficiently utilize abundant and available domestic energy resources and support the production of clean energy products with benefits extending across the nation's economy. Since 2012, the MDF has had over 50 university partners, 35 patent applications, up to 100 peer reviewed conference papers and journal publications per year, more than 180 industry partners, 14 licensed technologies and over 30,000 visitors from 4,600 organizations.

Specific projects that will be discussed relate to the development and utilization of the digital thread for AM fabricated components and how this can be used in the certification and qualification of difficult to process alloys such as those utilized in the gas turbine industry. Specific details about the impact of scan strategy on microstructure will be discussed and how these details can impact the design and development of new alloys for additive manufacturing.



BIO Dr. Ryan Dehoff is the Deposition Science and Technology Group Leader for Oak Ridge National Laboratory. Dr. Dehoff facilitates the development of additive manufacturing of components, utilizing various techniques including electron beam melting, laser metal deposition and ultrasonic additive manufacturing. He is developing processing techniques and exploring new materials via additive manufacturing to improve energy efficiency during component production, decrease material waste, and improve material performance. Projects include near net shape fabrication of Titanium and nickel base super alloy components using low cost feedstock materials and developing laser processing techniques for forming nanocomposite coatings and bulk components utilizing amorphous based powder materials.

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