Dr. David Furrer is Senior Fellow Discipline Lead for the Materials and Processes Engineering organization at Pratt & Whitney. In this role he leads the Pratt & Whitney Materials Discipline Chiefs and Materials Fellows in the development of technical strategies, and engineering standards and procedures. David supports the development, design and deployment of new materials and associated manufacturing processes. He is responsible for manufacturing technologies development and maturation, including computational tools and methods to support legacy and emerging manufacturing process application and design for manufacture. He is involved in additive manufacturing process development along with other emerging manufacturing processes.

Prior to Pratt & Whitney, David was Chief of Strategic Materials and Process Technology and Fellow of Materials and Process Modeling at Rolls-Royce, where he led the strategy for materials modeling tools and methods, and the development and acquisition of advanced materials and processes.

David also held various roles at Ladish Co., Inc. (now ATI Forged Products) where he developed and delivered unique thermo-mechanical processing technology for aerospace and general industrial industries.

He has over 25 years of experience in the areas of aerospace materials engineering, development and application of computational modeling and simulation tools for engineering materials and manufacturing processes, and data analytics.

In addition to previously working within the aerospace and forging industry, he has been an adjunct professor at the Milwaukee School of Engineering, where he taught materials and manufacturing technology courses within the Mechanical Engineering Department.

David is a Fellow of ASM-International. He has served on the ASM-International Board of Trustees from 2010 to 2013. He is also a member of the Connecticut Academy of Science and Engineering. David has received Bachelors and Masters degrees in Metallurgical Engineering from the University of Wisconsin-Madison, and a Doctorate of Engineering from the Universität Ulm, Ulm Germany.
Abstract

Formalizing the Process-Structure-Property-Performance Approach to Materials, Process and Component Design and Development

Dr. David U. Furrer, FASM, President

Abstract: Computational materials and process modeling has continued to advance over several decades. The vision of truly integrated computational material and manufacturing engineering (ICM²E) is nearly upon us with rapid changes in how we design and develop new material and associated processing methods. The continued adoption and application of computational methods is changing the materials science and engineering discipline, and is enabling materials and processes to be a much greater part of component and system design at the earliest possible stages. This talk will review some of the advances being made in computational materials engineering, informatics and data analytics relative to various applications within the aerospace industry.