

Preface

Mechanics of Additive and Advanced Manufacturing represents one of nine volumes of technical papers presented at the 2017 SEM Annual Conference and Exposition on Experimental and Applied Mechanics organized by the Society for Experimental Mechanics and held in Indianapolis, IN, June 12–15, 2017. The complete Proceedings also includes volumes on: *Dynamic Behavior of Materials*; *Challenges In Mechanics of Time-Dependent Materials*; *Advancement of Optical Methods in Experimental Mechanics*; *Mechanics of Biological Systems, Materials and other topics in Experimental and Applied Mechanics*; *Micro- and Nanomechanics*; *Mechanics of Composite, Hybrid and Multifunctional Materials*; *Fracture, Fatigue, Failure and Damage Evolution*; and *Residual Stress, Thermomechanics and Infrared Imaging, Hybrid Techniques and Inverse Problems*.

Mechanics of additive and advanced manufacturing is an emerging area due to the unprecedented design and manufacturing possibilities offered by new and evolving advanced manufacturing processes and the rich mechanics issues that emerge. Technical interest within the society spans several other SEM technical divisions such as: composites, hybrids and multifunctional materials, dynamic behavior of materials, fracture and fatigue, residual stress, time-dependent materials, and the research committee.

In this inaugural track in SEM 2017, the topic of mechanics of additive and advanced manufacturing included in this volume covers design, optimization, experiments, computations, and materials for advanced manufacturing processes (3D printing, micro- and nano-manufacturing, powder bed fusion, directed energy deposition, etc.) with particular focus on mechanics aspects (e.g., mechanical properties, residual stress, deformation, failure, rate-dependent mechanical behavior, etc.).

Seattle, WA, USA
Livermore, CA, USA
Los Alamos, NM, USA
West Lafayette, IN, USA
Urbana-Champaign, IL, USA
Annapolis, MD, USA
Albuquerque, NM, USA
Lake Jackson, TX, USA

Junlan Wang
Bonnie Antoun
Eric Brown
Weinong Chen
Ioannis Chasiotis
Emily Huskins-Retzlaff
Charlotte Kramer
Piyush R. Thakre

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