

Preface

Micro and Nanomechanics 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, in June 12–15, 2017. The complete proceedings also includes the following volumes: *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*; *Mechanics of Composite, Hybrid and Multifunctional Materials*; *Fracture, Fatigue, Failure and Damage Evolution*; *Residual Stress, Thermomechanics & Infrared Imaging, Hybrid Techniques and Inverse Problems*; and *Mechanics of Additive and Advanced Manufacturing*.

Each collection presents early findings from experimental and computational investigations on an important area within experimental mechanics, micro- and nanomechanics being one of these areas.

The micro- and nanomechanics fields are specialized scientific areas that involve miniaturizing conventional-scale components and systems to take advantage of reduced size and weight and/or enhanced performance or novel functionality. These fields also encompass the application of principles ranging from the micron scale down to individual atoms. Sometimes these principles borrow from conventional-scale laws but often involve new physical and/or chemical phenomena that require new behavioral laws and impart new properties to exploit. Studying how mechanical loads interact with components of these scales is important in developing new applications, as well as assessing their reliability and functionality. Establishing this symposium at the Annual Meeting of the Society for Experimental Mechanics provides a venue where state-of-the-art experimental methods can be leveraged in these endeavors.

The 2017 Symposium is the eighteenth in the series and addresses pertinent issues relating to design, analysis, fabrication, testing, optimization, and applications of micro- and nanomechanics, especially as these issues relate to experimental mechanics of microscale and nanoscale structures.

We are deeply grateful to the organizing committee, session chairs, authors and keynote speakers, participants, and SEM staff for making the *18th International Symposium on Micro- and Nanomechanics (ISMAN)* a valuable and unforgettable experience.

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