

Preface

MEMS and Nanotechnology—The 12th International Symposium on MEMS and Nanotechnology (ISMAN)—represents one of eight volumes of technical papers presented at the Society for Experimental Mechanics Annual Conference & Exposition on Experimental and Applied Mechanics, held at Uncasville, Connecticut, June 13-16, 2011. The full set of proceedings also includes volumes on Dynamic Behavior of Materials, Mechanics of Biological Systems and Materials, Mechanics of Time-Dependent Materials and Processes in Conventional and Multifunctional Materials; Optical Measurements, Modeling and, Metrology; Experimental and Applied Mechanics, Thermomechanics and Infra-Red Imaging, and Engineering Applications of Residual Stress.

Each collection presents early findings from experimental and computational investigations on an important area within Experimental Mechanics. The 12th International Symposium on MEMS and Nanotechnology (ISMAN) was organized by: Cosme Furlong, Worcester Polytechnic Institute; Gordon A. Shaw, National Institute of Standards and Technology; Barton Prorok, Auburn University; Ryszard J. Pryputniewicz, Worcester Polytechnic Institute.

Microelectromechanical systems (MEMS) and nanotechnology are revolutionary enabling technologies (ET). These technologies merge the functions of sensing, actuation, and controls with computation and communication to affect the way people and machines interact with the physical world. This is done by integrating advances in various multidisciplinary fields to produce very small devices that use very low power and operate in many different environments. Today, developments in MEMS and nanotechnology are being made at an unprecedented rate, driven by both technology and user requirements. These developments depend on micromechanical and nanomechanical analyses, and characterization of structures comprising nanophase materials.

To provide a forum for an up-to-date account of the advances in the field of MEMS and nanotechnology and to promote an alliance of governmental, industrial, and academic practitioners of ET, SEM initiated a *Symposium Series on MEMS and Nanotechnology*.

The 2011 Symposium is the twelfth in the series and addresses pertinent issues relating to design, analysis, fabrication, testing, optimization, and applications of MEMS and nanotechnology, especially as these issues relate to experimental mechanics of microscale and nanoscale structures.

The symposium organizers thank the authors, presenters, organizers and session chairs for their participation and contribution to this track. We are grateful to the SEM TD chairs who co-sponsored and organized sessions in this track.

The opinions expressed herein are those of the individual authors and not necessarily those of the Society for Experimental Mechanics, Inc.

Bethel, Connecticut

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