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Special Issue: 2015 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS), Symposium on Modeling, Simulation and Control of Adaptive Systems

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Preface

Special Issue: 2015 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS), Symposium on Modeling, Simulation and Control of Adaptive Systems

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The 2015 *ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems* (SMASIS) was held from 21 to 23 September 2015, in Colorado Springs, Colorado. The scope of the conference covers intelligent, flexible, adaptive materials and systems that respond to changes in the environment to perform in the most profitable way. Scientific strides and technological maturity in the field are linked to the interdisciplinary efforts at universities, government and industry. SMASIS aims at assembling world experts across engineering and scientific disciplines such as mechanical, aerospace, electrical, materials, and civil engineering, as well as biology, physics and chemistry, to discuss the latest findings and trends in this fruitful area of research.

As one of the nine symposia at the ASME-SMASIS 2015, *Symposium 3: Modeling, Simulation and Control of Adaptive Systems* catalyzed discussions on topics ranging from system level dynamics and control of adaptive structures to the development, modeling, and simulation of new actuation and sensing techniques based on smart materials. The scope of the symposium comprises modeling, analysis, control, design, and characterization of active/passive dynamic and static structural systems in the presence of dissipative, gyroscopic, hysteretic, and nonlinear effects. This includes the control of integrated systems consisting of structures coupled with advanced actuators, sensors, and processing through passive, active, and hybrid approaches.

Over 40 technical presentations were given in 12 sessions—including two excellent invited talks presented by Prof. Eugenio Dragoni (University of Modena and Reggio Emilia) and Prof. Ziad Moumni (ENSTA-Paristech). These scientific contributions to Symposium 3 resulted in 29 peer-reviewed papers in the conference proceedings. This special issue of the *Journal of Intelligent Material Systems and Structures* (JIMSS) contains a selection of eight invited and significantly extended papers that highlight the scientific

achievements presented throughout the symposium and focus on current research on the modeling, simulation, and characterization of smart materials (shape memory alloys, magneto-rheological elastomers, hydrogels, piezoelectrics) as well as control applications of devices based on these materials. All papers considered for this special issue were subjected to the established peer review procedures of the journal.

The symposium organizers would like to express their sincere appreciation to the Conference General Chair, Prof. Ralph Smith (North Carolina State University) and the Conference Technical Chair Prof. Michael Philen (Virginia Tech) for their efforts in organizing ASME-SMASIS 2015 and providing an ideal environment for the symposium. We also thank all of the participating authors and reviewers for their significant contributions. We are further grateful to the leadership and members of the ASME-Aerospace Division-Adaptive Structures and Material Systems Branch and the Technical Committee on Adaptive Systems Dynamics and Controls for their time and support. Finally, we thank Prof. Daniel Inman (University of Michigan), Editor-in-Chief of JIMSS, and Prof. Norman M. Wereley (University of Maryland), Editor of JIMSS, for giving us the opportunity to publish this special issue.