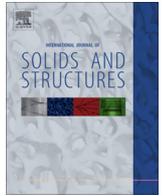


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Preface



A state-of-the-art workshop, “Computational and Experimental Mechanics of Advanced Materials,” (CEMAM) was held at King Abdullah University of Science and Technology (KAUST), Jeddah, KSA, July 1–3, 2013.

Advanced materials play a major role in the current state and the future of industrial development. Innovative technological solutions for energy production and transportation, civil engineering, or aeronautics require materials that can perform better over wide operational ranges and at lower costs. Cross-correlated experimental–numerical approaches are needed in order to improve our understanding of the structure/material property relationships. The objective of the CEMAM event was to provide opportunities for exchanging ideas and discussing state-of-the-art theories, techniques, and applications in the field of advanced materials. The three-day workshop consisted of 20 presentations conducted in single session format. A panel discussion on relevant subjects raised during the presentations ended each session.

Approximately 30 distinguished researchers from 15 countries, from academia and industry, converged at KAUST to attend the event organized by Composite and Heterogeneous Materials Analysis and Simulation Laboratory (COHMAS). To provide intellectual diversity, these researchers were from different communities, ranging from solid mechanics, physics, and applied mathematics to chemistry, but all shared a common interest in computational and experimental mechanics of advanced composites and spatially tailored materials. The range of disciplines and backgrounds provided a unique opportunity for cross-fertilization of ideas, techniques, and approaches to the underlying mechanics problems. Subjects covered included multiscale experimental and computational approaches for design of advanced materials, inverse problems for non-destructive control and health monitoring of

composite structures, durability of materials and structures, and multiphysics material modeling.

This special issue of IJSS includes eight articles from the workshop dealing with composites and advanced materials. The articles were peer reviewed in accordance with the editorial policies of the Journal. We hope that the connections, interactions, and collaborations that began during the workshop will continue beyond the bounds of the event.

Acknowledgements

The success of the symposium, as well as of this volume, depended strongly on the participants to whom we express our gratitude. The assistance of the scientific committee in selecting the participants is acknowledged. We are also grateful to the local organization committee and especially the graduate students and post-doctoral fellows of COHMAS for their commitment to the CEMAM workshop success. Finally, the financial support provided by KAUST was essential to making the CEMAM event a reality and is gratefully acknowledged.

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