
Preface

C.K. Chao

Department of Mechanical Engineering,
National Taiwan University of Science and Technology,
Taipei 106, Taiwan
E-mail: ckchao@mail.ntust.edu.tw

Y-L. Shen

Department of Mechanical Engineering,
University of New Mexico,
Albuquerque, NM 87131, USA
E-mail: shenyl@unm.edu

Biographical notes: Ching Kong Chao is Chair Professor of Mechanical Engineering Department in the National Taiwan University of Science and Technology. His interests include the theoretical analysis and computation for multiple interface problems; contact problems; biomechanical analysis for pull-out strength and fatigue life of pedicle screws, external fixator for elbow joint; rapid thermal processing for the wafer; fabrication of microlens arrays; failure analysis of spent fuel zirconium cladding. He has published over 140 papers in peer-reviewed periodicals.

Yu-Lin Shen is Professor in the Department of Mechanical Engineering at University of New Mexico. He received his PhD from Brown University in 1994, and was a post-doctoral research associate at Massachusetts Institute of Technology between 1994 and 1996. His main area of research is mechanical behaviour of materials, especially in modelling related to thin films, composites, and microelectronic devices and packages. He has published more than 100 papers in archival journals. His book titled 'Constrained Deformation of Materials' was published by Springer in 2010. In 2005, he was elected Fellow of the American Society of Mechanical Engineers.

The 12th International Congress on Mesomechanics took place at National Taiwan University of Science and Technology (NTUST) in Taipei, Taiwan, June 21–25, 2010. The conference provided a comprehensive global forum for researchers to present their discoveries and analyses in mechanics, especially on the linking of length scales from both the theoretical and experimental standpoints. There were a total of 120 participants, with 12 keynote speeches as well as numerous invited and contributed presentations.

This Special Issue includes selected papers from the conference, with a total of six full-length papers and two short communications. All papers were re-written by their authors after the conference to meet the journal standard, and peer reviewed. The topics of selection encompass continuum-based analysis, atomistic simulation,

multiphysics phenomena and experimental characterisation, all under the theme of multiscale mechanical behaviour of materials.

We are grateful for the journal Editor-in-Chief, Professor Tariq A. Khraishi, for his support of this special edition. We would also like to acknowledge the conference organisers and staff, the conference participants, the authors and the reviewers. Special thanks are given to the US Army International Technology Center and the Air Force Office of Scientific Research, Asian Office of Aerospace Research and Development for their contribution to the success of this conference.