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Third Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS 2012)

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This special issue comprises of selected papers that were presented in the Third Asian Conference on Mechanics of Functional Materials and Structures (ACMFMS 2012), organized by the Indian Institute of Technology Delhi in New Delhi, India, during December 5–8, 2012. The ACMFMS series began in 2008 with the aim of providing a forum for researchers and academics, particularly from East Asia and the neighboring region, to present their latest findings, exchange ideas, and establish relationships for future cooperation and subsequent promotion of research in the theoretical and applied mechanics of solids. The first in the series was held in Matsue, Japan in October, 2008 and the second in Nanjing, China, in October, 2010.

In recent years, solid mechanics has emerged as one of the key areas of engineering science, controlling technological developments in many areas ranging from nanotechnology to space technology. It offers fundamental understanding of materials, structures, and diverse complex systems such as those found in biology and nanotechnology, and many physical phenomena at multiple scales. The concept of multifunctional materials and structures has attracted multifaceted research activities in applications spanning over mechanical, aerospace, civil, materials, biomedical, naval, and arctic engineering. The papers presented in this issue represent the recent developments in the mechanics of functional materials and structures, as well as its applications to modern technology.

ACMFMS 2012 received 359 submissions from 13 countries, reflecting the growing interest in the conference. Among the accepted submissions, 239 four-page papers have been published in the Proceedings of the conference, covering mechanics of functional and smart structures, mechanics of functional materials, structural health monitoring, elasticity and thermo-elasticity, mechanics of composite and functionally graded materials and structures, bio- and nano-mechanics, dynamics and stability, impact, plasticity and contact, fatigue and fracture, and solid–fluid interaction. With more than 250 delegates, 235 presentations, seven keynote lectures, and eight invited lectures, ACMFMS 2012 was a great success.

Based on two reviews of the four-page papers, only a selected few of 22 were invited to submit the full-length manuscripts. The full-length submissions were then reviewed by two or more referees in the subject area drawn from across the globe. Finally, 17 have made it through the rigorous review process and have been accepted for this special issue.

I would like to express my heartfelt gratitude to the Editorial Board of the ACTA MECHANICA headed by Prof. Hans Irschik for dedicating this precious volume for ACMFMS 2012, and bestowing the trust on me for editing it. I also extend my sincere thanks to all the authors for their fine contributions and to the large number of reviewers for sparing their valuable time in providing sincere and critical reviews. I hope and trust that the ACMFMS community will grow stronger with each conference. The next ACMFMS-2014 will be held in the beautiful city of Nara, Japan, during October 10–13, 2014, and I expect a strong attendance.

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