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## Preface

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**Biographical notes:** Xiaoping Li is a Professor at the Department of Mechanical Engineering and Graduate Program of Bioengineering in the National University of Singapore. He is a member of American Society of Mechanical Engineers (ASME), a senior member of Society of Manufacturing Engineering (SME) and a senior member of North American Manufacturing Research Institute/SME. His current research interests include nanostructured functional materials, micro/nano fabrication, magnetic field sensors, neural sensors and neuromodulation. His research contributions include nine patents granted, three patents in pending, three software copyrights, and over 380 international refereed journal and conference papers.

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Yunfeng Zhang is currently an Associate Professor at the Department of Mechanical Engineering, National University of Singapore. He received his BEng from Shanghai Jiao Tong University, China in 1985 and PhD from the University of Bath in 1991. His research interests include reverse engineering, computer-aided process planning for multi-axis machining, and the computational intelligence in design and manufacturing.

Chenggen Quan graduated from Harbin Institute of Technology (HIT), China with a BEng in Mechanical Engineering in 1982. He received his MEng from HIT in 1988 and his PhD from Warwick University, UK in 1992. He was appointed as a Lecturer at National University of Singapore (NUS) in February 1998 and is currently an Associate Professor at the Department of Mechanical Engineering, NUS. His research interests include optical nondestructive testing, experimental mechanics, laser metrology, and digital image processing. He has authored or co-authored over 120 international refereed journal papers.

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Sustainable energy and the related systems and mechatronics have long been the focuses of the international research community and of industrial technology development. The goal of this special issue is to provide a multidisciplinary platform for researchers in the field to publish results from their scientific and technological advancements, with the topics focusing on renewable

energy and related materials, systems, mechatronics and manufacturing technologies.

For this special issue, from the 3rd International Forum of Systems and Mechatronics, 2010 (IFSM2010), as well as from the submissions in response to the general call for papers, through rigorous peer reviews, 13 papers have been selected, in which Norio Matsuura et al. of Kyoto Institute of Technology, Japan present their attempt on

improving property of highly-densified biomass resources for renewable energy, Min-Fu Hsieh and Yu-Han Yeh of National Cheng Kung University, Taiwan present an integrated design of a permanent-magnet generator for small wind energy conversion system, Weiwei Zhang et al. of Shandong University, China report energy-saving analysis in the hydraulic system of loader working device, Xiaojuan Wang et al. of Huazhong University of Science and Technology, China present a multi-objective genetic algorithm for fuzzy flexible job-shop scheduling problem, Xue Wang et al. of National University of Singapore, Singapore present a study of foot and ankle kinematics during stance phase of normal walking, Min-Fu Hsieh and Wei-Che Chang of National Cheng Kung University, Taiwan present a synchronous control scheme for a mechanically coupled dual ball screw system, Mingcong Deng et al. of Tokyo University of Agriculture and Technology, Japan present an operator based actuator fault detection system design of a thermal process, Bui Ha Duc

and Xiaoping Li of National University of Singapore, Singapore present a functional neuroimaging study of circadian fatigue, Jinling Wang and Wen F. Lu of National University of Singapore, Singapore present a haptics-based virtual simulation system for product design, H.L. Seet et al. of National University of Singapore, Singapore present a study on diffusion in annealing of Nanocrystalline Ni<sub>80</sub>Fe<sub>20</sub>/Cu Composite Wires, Jie Sun et al. of National University of Singapore, Singapore report a case study of feature analysis in tool condition monitoring, Yuan Sun et al. of National University of Singapore, Singapore and NanYang Technological University, Singapore present a hybrid intelligent system for 3D reconstruction from a single line drawing, the same group of authors also report investigations of the compliance function in 3D reconstruction from 2D line drawings.

We wish to deeply thank the authors for their excellent contributions and most important collaboration in the production of this special issue.