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## Editorial

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**Biographical notes:** Abdolreza Simchi graduated in Materials Science and Engineering at the Sharif University of Technology in 1999 and in 2001 received his PhD. After two years of postdoctoral research at the Fraunhofer Institute for Manufacturing and Advanced Materials (IFAM) in Bremen, Germany, he started his academic career at the Sharif University of Technology in 2001, where he became an Associate Professor in 2004. He actively contributed in the establishment of the Institute for Nanoscience and Nanotechnology at Sharif University of Technology, where he is currently a member of the research board. He is also the Chair of Research Center of Nanostructured and Advanced Materials at the Department of Materials Science and Engineering at Sharif University of Technology. His activities are in the broad area of nanostructured materials, metal matrix nanocomposites, nanoparticles, nanoceramics and mechanical properties of functional structures.

José Grácio received his PhD in Mechanics from the University of Coimbra, Portugal in 1992. The same year, he joined University of Aveiro as Head of the Department of Mechanical Engineering. He is currently the Scientific Coordinator of the Centre for Mechanical Technology and Automation, which obtained an excellent in the last Research Assessment Exercise (RAE) and Director of the Centre for Nanotechnology of the Atlantic Park. He was

Research Fellow at Pacific Northwest National Laboratory and is an Invited Professor at University Louis Pasteur in France. His main research interests are the implementation of physical models to predict the mechanical behaviour of materials for long-term applications in the areas of plasticity and nanotechnology.

Waqar Ahmed is the Chair of Nanotechnology and Advanced Manufacturing at the University of Central Lancashire. His area of research is in chemical vapour deposition of thin-film nanostructures, especially nanocrystalline diamond. He was educated at Salford University, UK, where he studied chemical and physical vapour deposition.

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In the last decade, significant achievements have been made in the development of *nanoscale structures*. The aim of this special issue of *International Journal of Nanomanufacturing* is to present the current state-of-the-art in the area of synthesis and characterisation of *nanoscale materials*. It also attempts to provide a forum for fundamental understanding of the atomic and molecular infrastructure of materials in order to develop next generation of nanomaterials and related manufacturing processes. The field of nanostructures already has many researchers and entrepreneurs engaging in cutting-edge efforts, with the field expected to grow exponentially over the next few decades. Major advances will be achieved when the novel behaviour, in particular the quantum mechanical behaviour, which nanoscale structures possess, can be controlled and harnessed. A massive effort is still needed in order to control the fabrication of nanostructured materials and exploit processes based on quantum mechanical laws. This special issue efforts to pull together some of the more recent research in this area and aids for those interested in a responsible approach to nanostructures while in pursuit of further advances in nanomanufacturing.

The papers presented in this issue are based on oral presentations made during the Second International Conference on Nanostructures held 11–14 March 2008 at the Kish University (Kish Island, I.R. Iran) with the scientific and technical support of the Institute for Nanoscience and Nanotechnology of the Sharif University of Technology (Tehran, I.R. Iran). At the conference, a large number of keynote lectures (14), invited talks (4), technical sessions (12), oral presentations (48) and posters (144) were provided on a wide range of topics such as *nanobiotechnology, nanoparticles and quantum dots, nanotubes and nanowires, nanocoatings and thin films, nanostructured materials, nanocomposites and nanocomputation and modelling*. Although, the conference proceedings contain all the presentations (Simchi, A. (Ed.) (2008) Proceedings of the Second Conference on Nanostructures, Kish University Publication) a selection of papers included in this special issue are specially extended versions of the conference presentations selected to represent advances in nanostructured materials and are expected to enlighten readers of the *International Journal of Nanomanufacturing*. We are grateful to authors who contributed to this special issue.