

Preface

This special issue of Materials Science and Engineering Technology (Materialwissenschaft und Werkstofftechnik) contains selected papers presented at the 2nd International Conference on Advanced Computational Engineering and Experimenting (ACE-X 2008) held at Hotel Melià (Barcelona), Spain during the period 14th–15th July, 2008. The included papers are related to (a) Cellular and Composite Materials, (b) Mathematical Modelling, (c) Fatigue, Failure and Damage and (d) Mechanical Properties.

The goal of the conference was to provide a unique opportunity to exchange information, present the latest results as well as review the relevant issues on engineering mechanics research today. Young scientists were especially encouraged to attend the conference and to establish international networks with well known scientists. The large amount of presented papers during this second conference emphasizes the considerable academic and industrial interest in the conference theme. More than 160 papers were presented by researchers from more than 25 countries. The organizers wish to thank the authors and delegates for their participation and cooperation, which made the conference possible.

During the conference, a special session related to *Adhesive Bonding* (organised by Prof. Lucas Filipe Martins da Silva and Prof. Juan Carlos Suárez Bermejo) was held. In addition, three short courses related to *Modelling and Testing of Cellular Materials* (organised by Prof. Andreas Öchsner), *Structural Hybrid Materials: Biomimeticism and Bioinspiration* (organised by Prof. Juan Carlos Suárez Bermejo) and *Structural Analysis in Vehicle Engineering* (organised by Prof. Markus Merkel) were organised.

The plenary lectures were given by Professor H. Dante Espinosa, Northwestern University, USA (In-Situ Electron Microscopy Testing of Nanostructures), Professor D.R.J. Owen, University of Wales Swansea, UK (Computational

Modelling of Multi-Field and Multi-Physics Problems), Professor H. Altenbach, Martin-Luther-Universität Halle-Wittenberg, Germany (A new theory for the global analysis of plates made of FGM), Professor Rudrapatna V. Ramnath, Massachusetts Institute of Technology - MIT, USA (Rapid Computation Using Multiple Scales) and Professor Marek Danielewski, AGH University of Science & Technology, Poland (Mechano-chemistry, foundations and modeling).

This special issue contains the revised version of papers, which were submitted to the conference. We would like to express our sincere appreciation to the representatives of WILEY-VCH, in particular to Dr.-Ing. Jörg Ellermeier, Editor of Materials Science and Engineering Technology, who made this special issue possible.

Finally, we wish to express my gratitude to our colleagues, associates and friends for their sustained assistance, help and enthusiasm during the preparation of the conference.

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