

Editorial

CompTest 2006

The third international conference on Composites Testing and Model Identification was held from April 10th–12th 2006 at the University of Porto in Portugal. A total of 96 delegates from 19 countries attended the CompTest 2006 conference.

Following the previous editions of the Composites Testing and Model Identification conference, CompTest 2003 held at ENSAM in Châlons en Champagne and CompTest 2004 held at the University of Bristol, the main aim of CompTest 2006 was to promote a discussion forum for the scientific community working in the fields of testing and modelling of composite materials.

Testing composite materials raises difficulties such as the identification of numerous material properties and the need for special test fixtures, test specimens and test procedures that control the parasitic effects that may occur during testing. In addition to the accurate measurement of the relevant material properties, there is the need for a stronger interaction between composites testing and modelling. For example, models based on Damage and Fracture Mechanics normally require material properties for which there are no standard test methods. In addition, the definition of reliable constitutive models benefits from detailed experimental observations of the material response that can be obtained using full-field techniques. Finally, the validation of the advanced computational models that are able to predict not only the final failure load but also the onset of damage, type of damage and damage accumulation should be supported by recently developed experimental techniques that identify these relevant parameters during testing.

The International Scientific Committee selected 46 papers to be presented orally in single-session format. The topics of the sessions reflect the multidisciplinary nature of the conference: novel test methods and residual stresses, fracture, structures, fabric composites, fatigue and durability, damage models, full field techniques, and scale effects and joints. In addition, 41 posters were presented in five sessions where the presenters had the opportunity to discuss the details of their work with the other delegates. The invited lectures presented at CompTest 2006 covered

new experimental and modelling techniques applied to composite materials, and were presented by Prof. Didier Baptiste (ENSAM, France) on ‘Multiscale analysis of the strain rate effect on the behaviour and damage of composite materials’, by Dr. Paul Robinson (Imperial College London) on ‘Delamination research: progress in the last two decades and the challenges ahead’ and by Dr. David Mollenhauer (Air Force Research Laboratory, Dayton, Ohio) on ‘Interlaminar deformation along the cylindrical surface of a hole in laminated composites’. All papers and presentations are available for download in the following URL: <http://www.fe.up.pt/comptest2006/>.

The International Scientific Committee selected the papers to be submitted to this special issue of Composites – Part A. The papers were reviewed following the standard procedures of the journal and 15 papers covering the topics of the conference were accepted for publication.

The social programme of the conference, the reception at *Círculo Universitário do Porto*, the conference dinner at the Cellars of the Porto Wine and the boat tour to the Douro Valley provided an enjoyable opportunity for additional informal discussions between the conference delegates. Following the interest raised by the three initial editions of the Composites Testing and Model Identification conference, and reflecting the outstanding research in the fields of composites testing and modelling performed in the United States of America, the next CompTest conference will take place at Dayton, Ohio, from October 20th to 22nd 2008. Further information about CompTest 2008 can be found in: <http://academic.udayton.edu/Steven-Donaldson/comptest2008.html>.

I would like to thank the individuals and institutions that made CompTest 2006 possible: the conference co-chairmen, Prof. Michael Wisnom, University of Bristol, and Prof. Fabrice Pierron, ENSAM, the authors and presenters, the members of the International Scientific Committee that reviewed all the abstracts and the papers for this special issue, the local organizing committee, in particular António Melro and Fernanda Fonseca, and our sponsors: Faculty of Engineering of the University of Porto, Fundação Calouste Gulbenkian, Fundação para a Ciência

e a Tecnologia, Luso-American Foundation, European Office of Aerospace Research and Development of the U.S. Air Force Research Laboratory, Institute of Mechanical Engineering and Industrial Management (INEGI), French Society for Composites (AMAC), French Mechanics Association (AFM), Institute of Materials, Minerals and Mining (IOM³), American Society for Composites (ASC) and the Spanish Association for Composite Materials (AEMAC).

I look forward to the next edition of the Composites Testing and Model Identification – CompTest 2008.

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