

## Preface

Composite materials are utilized for various structural applications in a broad spectrum of engineering disciplines, such as aerospace, automotive, wind energy, marine, mechanical, and civil engineering. In order to fully exploit the potential of using composites to achieve efficient structural designs, the capability to accurately and efficiently predict the complex mechanical behavior of composite materials and structures is required.

At the 3rd ECCOMAS Thematic Conference on the Mechanical Response of Composites, held from 21 to 23 September 2011 in Hannover, recent developments in describing the mechanical behavior of composite materials and structures have been presented in a wide range of thematic sessions.

The aerospace field is traditionally one of the main drivers for research in composites, due to their superior stiffness-to-weight and strength-to-weight ratio. The EU large-scale integrating project MAAXIMUS, More Affordable Aircraft through eXtended, Integrated and Mature nUmerical Sizing (2008 - 2013), aims at achieving the fast development and right-first time validation of a highly-optimised composite fuselage on the basis of a coordinated effort between virtual structure development and composite technology. The consortium, led by Airbus, is made up of 57 partners and gathers the key players in the aircraft industry, R & T centres, universities and software providers. The yearly Public Forum of MAAXIMUS was part of the ECCOMAS conference and two sessions were dedicated to MAAXIMUS research.

These two special issues of *CMC: Computers, Materials, & Continua* present a selection of highly interesting contributions related to the Thematic Conference on the Mechanical Response of Composites 2011, a combination of extensions of papers that have been presented at the conference and contemporary work of the key-note lecturers.

We would like to thank the Editorial Board of *CMC* for giving us the possibility to publish these contributions in two special issues of *CMC*. We would like to thank in particular the *CMC* editors and reviewers who have been involved in the peer-review process of the papers for their efforts, and Mr Andreas Kempe for managing the reviewing process.

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