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Preface

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Preface

The 17th European Conference on Mathematics for Industry, ECMI2012, was held in Lund, Sweden in July 2012. During this conference ECMI, the European Consortium on Mathematics for Industry, celebrated its 25th anniversary. The conference covered mathematics in a wide range of applications and methods, from circuit and electromagnetic devices, environment, fibers, flow, medicine, robotics and automotive industry, further applications to methods and education.

This Special Issue contains eight selected papers based on work discussed at ECMI2012, which reinforce the role of mathematics as being a catalyst for innovation as well as an overarching resource for industry and business.

Three papers deal with mathematical modelling and efficient numerical simulation of fiber production and flow in production processes: Marheineke et al. concentrate 'On simulations of spinning processes with a stationary one-dimensional upper convected Maxwell model', Svenning et al. discuss the 'Simulation of a highly elastic structure interacting with a two-phase flow', and Maringer et al. are concerned with the 'Application of a three-dimensional fiber lay-down model to non-woven production processes'.

A second bunch of papers contributes to mathematical challenges in Automotive and Aircraft industry: Othmer gives a Survey on 'Adjoint Methods for Car Aerodynamics', Petukhova et al. discuss a 'Numerical approach for airframe assembly simulation', and Kaufmann et al. propose an 'Efficient frequency-transient co-simulation of coupled heat-electromagnetic problems'.

This issue is completed by two contributions from medical and electronics applications: papers by Marheineke et al. on 'Optimal control of glucose balance in ICU patients based on GlucoSafe model', and Prins et al. on 'An inverse method for colour uniformity in white LED spotlights'.

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