Preface

The 16th conference of the European Consortium for Mathematics in Industry took place in the *Historische Stadthalle Wuppertal*, the historical city hall of Wuppertal, Germany, from July 26 to July 30, 2010. This venue, a member of the Historic Conference Centers of Europe, is one of the most remarkable concert halls and conference centers in Europe.

The organizers welcomed nearly 250 registered participants from 30 different countries. Most of the participants contributed actively to the scientific program of the conference, which included—besides a poster session accompanied by an extended coffee break sponsored by ST Microelectronics—10 plenary talks, 132 talks within 27 minisymposia and 57 contributed talks. In this proceedings, industrial mathematics appears in a wide range of applications and methods, reflecting the topics addressed at ECMI 2010: from Circuit and Electromagnetic Device Simulation, Model Order Reduction for Chip Design, Uncertainties and Stochastics, Production, Fluids, Life and Environmental Sciences to Dedicated and Versatile Methods. We should mention that of the 106 contributions that were submitted to these proceedings, 76 have been selected for publication after a peer review process.

We would like to recall some of the highlights of our conference: On Monday evening, the public lecture *Modern Mathematics for Better Technologies* was given by Volker Mehrmann, president of Matheon. He emphasized mathematics as an innovation enabler for industry and business, and as an absolutely essential pre-requisite for Europe on its way to becoming the leading knowledge-based economy in the world. The same day, Volker Mehrmann chaired a panel discussion to promote and facilitate this process based on the outcome and recommendations of the Forward Look Project *Mathematics and Industry* of the European Science Foundation.

On Wednesday, the *Associazione Angelo Marcello Anile* and ECMI together awarded the first Anile-ECMI Prize for Mathematics in Industry, which is dedicated to young researchers for excellent PhD theses in industrial mathematics. It was initiated to honor the memory of the former ECMI council member Angelo Marcello Anile (1948–2007), Professor of Applied Mathematics at the University of Catania,

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Italy. This prize was awarded to Andriy Vasyliovich Hlod for his PhD thesis at TU Eindhoven, The Netherlands. It included an invited talk, which he gave on *Jets of Viscous Fluid*. Continuing a long tradition of the ECMI conferences and following the suggestion of the Local Organizing Committee, honorary membership of ECMI was awarded to Willi Jäger, Professor of Applied Mathematics and founder of the IWR at the University of Heidelberg, for his pioneering work in Applied and Industrial Mathematics. The award ceremony took place during the conference dinner in the large ballroom of the historical city hall, a magnificent example of the art nouveau style of architecture.

ECMI 2010 would never have been the success it was without the help of many. Among them, first of all, the participants, the speakers and the Program Committee. We thank Lambert T. Koch, Rector of the *Bergische Universität Wuppertal*, whose negotiation skills—together with the gratefully acknowledged financial support of all our sponsors and partners (see: `www.ecmi2010.eu`)—allowed us to select for the conference the unique venue of ECMI 2010, the *Historische Stadthalle Wuppertal* for nearly 1 week. Special thanks go to our team assistants Elvira Mertens, Lisa Hartmann and Eva Winnemöller for their excellent administrative support. We are very grateful to our colleagues Matthias Ehrhardt and Roland Pulch for their invaluable work within the local organizing committee. Finally we would like to acknowledge the great support of the many students who helped us during the conference, e.g., by setting up the equipment and answering technical and practical questions.

Wuppertal and Stuttgart   *Michael Günther*
Germany   *Andreas Bartel*
                                                                     Markus Brunk
                                                                  Sebastian Schöps
                                                                  Michael Striebel