

Preface

From July 22 until July 25, 2014, the 10th International Conference on “Scientific Computing in Electrical Engineering” (SCEE) was held in Wuppertal, Germany. It was jointly organized by the Chair of Applied Mathematics and Numerical Analysis and the Chair of Electromagnetic Theory, Bergische Universität Wuppertal.

Due to a generous donation, we were able to use the beautiful *Historische Stadthalle Wuppertal* as our conference venue: a remarkable building in Wilhelminian style, which was inaugurated in 1900. There we welcomed our participants in the Offenbach Saal for all our talks, and we had registration, poster sessions, conference cafe, and personal meetings in the impressive Wandelhalle.

The tenth edition of the SCEE brought together more than 90 scientists from the fields of applied mathematics, electrical engineering, and the computer sciences as well as scientists from industry. Again, it created an excellent working atmosphere, especially due to its unique workshop character, where all talks and poster introductions were presented in the plenary. In addition, we had very clear talks and poster presentations, lively and fruitful discussions, and a great deal of personal networking.

We had a large variety of different talks from excellent invited scientists representing both academia and industry, including an inspiring opening talk by Stéphane Clénet. Our keynote speakers were (in alphabetical order):

Piergiorgio Alotto (Università di Padova, Italy), “Parallelization and Sparsification of a Surface-Volume Integral Code for Plasma-Antenna Interaction”

Stéphane Clénet (Arts & Métiers ParisTech, France), “Approximation Methods to Solve Stochastic Problems in Computational Electromagnetics”

Andreas Frommer (University of Wuppertal, Germany), “Computing $f(A)\mathbf{b}$: The Action of a Matrix Function on a Vector”

Daniel Klagges (Kostal GmbH & Co. KG, Germany), “Simulation of Power Electronics in Automotive Product Development”

Antonino La Magna (CNR Catania, Italy), “Graphene Nano-device Design from First Principles Calculations”

Markus Pistauer (CISC Semiconductor GmbH, Austria), “High-Level Simulation of Cyber-Physical Systems”

Joost Rommes (Mentor Graphics, France), “Different Views on Model-Order Reduction for the Electronics Industry”

Sebastian Schöps (TU Darmstadt, Germany), “Iterative Schemes for Coupled Multiphysical Problems in Electrical Engineering”



Participants of the SCEE 2014 at Schloss Burg, Germany

The topics above are representative of the conference’s range. From Tuesday to Friday, we had a total of 30 oral presentations. And in two sessions, 24 posters were presented and discussed.

A special highlight of the SCEE 2014 was our conference excursion to the nearby Wupper valley. Starting at the “Müngstener Brücke” bridge, we went on a small hike, following the river to “Schloss Burg.” Visiting the charming residence of the “Counts of Berg,” we were told the history of the region “Bergisches Land” and enjoyed a joint dinner, where many ideas and new research directions were discussed.

The book in your hands collects the conference outcomes as proceeding papers. All these papers have successfully passed a standard peer review process. The contributions are divided into five parts, which reflect the main focus areas of the SCEE 2014:

- I Device Modeling, Electric Circuits, and Simulation
- II Computational Electromagnetics
- III Coupled Problems
- IV Model-Order Reduction
- V Uncertainty Quantification

In the end, we feel we have compiled a very useful and interesting collection. We wish to thank all the participants for their valued contributions to the SCEE 2014 and to this book.

Wuppertal, Germany
November 2015

Andreas Bartel
Markus Clemens
Michael Günther
E. Jan W. ter Maten

<http://www.springer.com/978-3-319-30398-7>

Scientific Computing in Electrical Engineering

SCEE 2014, Wuppertal, Germany, July 2014

Bartel, A.; Clemens, M.; Günther, M.; ter Maten, E.J.W.

(Eds.)

2016, XI, 256 p. 125 illus., 67 illus. in color., Hardcover

ISBN: 978-3-319-30398-7