Preface

The 2011 SIAM Conference on Geometric and Physical Modeling, a joint event of the 2011 SIAM Conference on Geometric Design and the 2011 Annual Symposium on Solid and Physical Modeling, was held in Orlando, from October 24 to October 27, 2011.

The SIAM Geometric Design (GD) and the ACM Solid and Physical Modeling (SPM) communities have a shared heritage dating back to the early 1980s. This biennial joint conference (started in 2009) represents an effective union of these communities, their academic and industrial contributors, as well as their common intellectual research and development themes. Over the past twenty years the meetings of the SIAM Special Interest Activity Group on Geometric Design have been one of the main international conferences on geometric modeling and related areas, and well attended by mathematicians, computer scientists, and engineers alike, from academia, industry, and government. Since its inception in 1991, the ACM Symposium on Solid and Physical Modeling has been the primary international forum for disseminating research results and exchanging new ideas of applications complete with the relevant mathematical theory of solid modeling, physical modeling, geometric design, analysis, simulation and processing, and visualization.

In continuing the ACM-SPM tradition, the conference includes a track for submission of technical papers for those wishing rigorous peer review and published proceedings. In response to the call for papers, 76 technical papers were submitted and reviewed by an international program committee with 103 experts, with five committee members reviewing each paper. From these submissions, 22 papers were selected for plenary presentation and publication in this special issue. (Starting from this year, the SPM proceedings will be published as a special issue of Computer-Aided Design, available at the time of the conference. Our special thanks go to Kunwoo Lee, Imre Horvath, Nicholas Patrikalakis, and Gail Rodney at Computer-Aided Design for supporting this special arrangement with SPM.)

In addition, in the tradition of previous SIAM GD events, abstracts for minisymposia and contributed presentations/posters were solicited. Twelve minisymposia, 41 contributed presentations, and 11 posters have been selected from the received proposals.

There were six invited plenary talks by academic and industrial luminaries, Ken Clarkson (IBM Almaden Research Center), Tamal Dey (Ohio State University), Kai Hormann (University of Lugano, Switzerland), Thomas Hughes (University of Texas at Austin), Kunwoo Lee (Seoul National University, Korea), and Konrad Polthier (Freie Universität Berlin, Germany), spanning the multi-disciplines of GD and SPM.

The 2011 Pierre Bézier Award of the Solid Modeling Association was awarded at the conference to Christoph M. Hoffmann (Purdue University). Along with receiving the award, he presented the Pierre Bézier Award Lecture.

We would like to acknowledge the efforts and contributions of the many people who helped to make this conference a success. Members of the program committee spent countless hours carefully reading and reviewing the submitted papers. The conference general co-chairs, Nick Patrikalakis, Jörg Peters, Jarek Rossignac, and Timothy L. Strotman, put in a tremendous amount of time and effort into organizing the conference. The support from the SIAM staff, in particular Kirsten Wilden, was also indispensable in this regard. We also thank all the authors who submitted papers to this conference — their ongoing support made this conference a huge success. Last but not least, we are grateful to Siemens Corporation for sponsoring the Best Paper Awards.

Program Co-Chairs
Chandrayit Bajaj
Stefanie Hahmann
Myung-Soo Kim
Conference Organization

General Co-Chairs
Nick Patrikalakis (MIT, USA)
Jörg Peters (University of Florida, USA)
Jarek Rossignac (Georgia Institute of Technology, USA)
Timothy L. Strotman (Siemens PLM Software, USA)

Program Co-Chairs
Chandrajit Bajaj (University of Texas, USA)
Stefanie Hahmann (University Grenoble INP, France)
Myung-Soo Kim (Seoul National University, Korea)

Program Committee
Nina Amenta (University of California at Davis, USA)
Cecil Armstrong (Queen's University Belfast, UK)
Alexander Belyaev (Heriot-Watt University, UK)
Michel Bercovier (The Hebrew University of Jerusalem, Israel)
Luc Biard (University of Grenoble, France)
Jean-Daniel Boissonnat (INRIA Sophia-Antipolis, France)
George-Pierre Bonneau (GRAVIR-IMAG, France)
Mario Botsch (Bielefeld University, Germany)
Wim Bronsvoort (Delft University of Technology, Netherlands)
Frédéric Cazals (INRIA Sophia-Antipolis, France)
Falai Chen (University of Science and Technology, China)
Fuhua (Frank) Cheng (University of Kentucky, USA)
Elaine Cohen (University of Utah, USA)
Jonathan Corney (University of Strathclyde, UK)
Leila De Floriani (University of Genova, Italy)
Tamal Dey (Ohio State University, USA)
Tor Dokken (SINTEF, Norway)
Gershon Elber (Technion, Israel)
Ioannis Emiris (University of Athens, Greece)
Anath Fischer (Technion, Israel)
Shuming Gao (Zhejiang University, China)
Ron Goldman (Rice University, USA)
Thomas Grandine (The Boeing Company, USA)
Jens Gravesen (Technical University of Denmark, Denmark)
Markus Gross (ETH Zurich, Switzerland)
David Gu (Stony Brook University, USA)
Xiaohu Guo (University of Texas at Dallas, USA)
Balan Gurumoorthy (Indian Institute of Science, India)
Hans Hagen (University of Kaiserslautern, Germany)
Dan Halperin (Tel Aviv University, Israel)
Dianne Hansford (Arizona State University, USA)
Ying He (Nanyang Technological University, Singapore)
Christoph Hoffmann (Purdue University, USA)
Kai Hormann (University of Lugano, Switzerland)
Shi-Min Hu (Tsinghua University, China)
Thomas Hughes (University of Texas at Austin, USA)
Insung Ihm (Sogang University, Korea)
Horea Ilies (University of Connecticut, USA)
Ravi Janardan (University of Minnesota, USA)
Robert Joan-Arinyo (Universitat Politècnica de Catalunya, Spain)
Leo Joskowicz (The Hebrew University of Jerusalem, Israel)
Kenneth Joy (University of California at Davis, USA)
Tao Ju (Washington University at St. Louis, USA)
Bert Jüttler (Johannes Kepler Universität Linz, Austria)
David Kasik (The Boeing Company, USA)
Misha Kazhdan (Johns Hopkins University, USA)
Tae-wan Kim (Seoul National University, Korea)
Young J. Kim (Ewha Womans University, Korea)
Leif Kobbelt (RWTH Aachen, Germany)
Seungyong Lee (POSTECH, Korea)
Bruno Lévy (INRIA, France)
Jyh-Ming Lien (George Mason University, USA)