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*IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

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Lorena Bociu · Jean-Antoine Désidéri  
Abderrahmane Habbal (Eds.)

# System Modeling and Optimization

27th IFIP TC 7 Conference, CSMO 2015  
Sophia Antipolis, France, June 29 – July 3, 2015  
Revised Selected Papers

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# Preface

This volume comprises selected contributions to the 27th Conference on System Modelling and Optimization that took place from June 29 to July 3, 2015, on the SophiaTech Campus, Sophia Antipolis, France.

These articles encompass broad aspects of system modelling and optimization, such as modelling and analysis of systems governed by partial differential equations (PDEs) or ordinary differential equations (ODEs), control of PDEs/ODEs, nonlinear optimization, stochastic optimization, multi-objective optimization, combinatorial optimization, industrial applications, and numerics of PDEs. These themes are the focus of the IFIP TC7 community.

The conference was co-organized by two local institutions, Inria Sophia Antipolis Méditerranée and Université Côte d'Azur jointly with North Carolina State University, (visit <http://ifip2015.inria.fr>).

This scientific event was attended by more than 250 participants, from about 30 different countries. The conference program was composed of eight plenary talks, and 26 invited mini-symposia, plus three sessions of refereed contributed papers, resulting in a total of 62 sessions, and altogether 230 presentations.

The 48 refereed contributions included in the present proceedings cover the latest progress in their respective areas, and give a flavor of the wide range and exciting topics discussed at the meeting.

We warmly thank the members of the Scientific Committee and our solicited reviewers for their valuable contributions.

January 2017

Lorena Bociu  
Jean-Antoine Désidéri  
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Inria, the French National Institute for computer science and applied mathematics, promotes scientific excellence for technology transfer and society. Graduates from the world’s top universities, Inria’s 2,700 employees rise to the challenges of digital sciences. Research at Inria is organized in project teams that bring together researchers with complementary skills to focus on specific scientific projects. With this open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. The source of many innovations that add value and create jobs, Inria transfers expertise and research results to companies (start-ups, SMEs, and major groups) in fields as diverse as health care, transport, energy, communications, security and privacy protection, smart cities, and the factory of the future.

### NC State University

NC State is a pre-eminent research enterprise that excels in science, technology, engineering, math, design, textiles, and veterinary medicine, and consistently rates as one of the best values in higher education. NC State students, faculty, and staff take problems in hand and work with industry, government, and nonprofit partners to solve them. The institution’s 34,000-plus high-performing students apply what they learn in the real world by conducting research, working in internships and co-ops, and performing acts of world-changing service.

### UCA

The Mathematics Laboratory Jean-Alexandre Dieudonné LJAD is a mixed research unit — UMR No. 7351 — dependent on the two organizations: the National Center for Scientific Research (CNRS) and the Université Côte d’Azur (UCA). The laboratory is structured into six teams: (1) Algebra, Geometry and Topology, (2) Geometry, Analysis and Dynamic, (3) PDEs and Numerical Analysis, (4) Numerical Modeling and Fluid Dynamics, (5) Probability and Statistics, and, (6) Interfaces of Mathematics and Complex Systems. Bringing together 134 researchers and teacher-researchers, 13 administrative staff and support engineers to research, and 70 doctoral and post-doctoral students, the laboratory also has joint laboratories with Inria Sophia Antipolis and CEA (Commissariat of Atomic Energy) within the RSC Fusion.

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