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Data through the Computational Lens, Preface for ICCS 2016



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Welcome to the 16th Annual International Conference on Computational Science (ICCS) <http://www.iccs-meeting.org>, to be held on June 6-8, 2016 in San Diego, California, USA. San Diego is a city on the Pacific coast of California in the United States, known for its beaches, parks, warm climate and family friendly attractions. San Diego Supercomputer Center, an organizational research unit of University of California, San Diego, is a leading high-end computing and big data research center is a proud host of the conference to be held at the Catamaran Resort Hotel and Spa, a tropical hideaway in San Diego's Pacific Beach community on the sparkling shores of Mission Bay. ICCS 2016 is organized by the San Diego Supercomputer Center at the University of California, San Diego, University of Amsterdam, NTU Singapore and the University of Tennessee.

The International Conference on Computational Science is an annual conference that brings together researchers and scientists from mathematics and computer science as basic computing disciplines, researchers from various application areas who are pioneering computational methods in sciences such as physics, chemistry, life sciences, and engineering, as well as in arts and humanitarian fields, to discuss problems and solutions in the area, to identify new issues, and to shape future directions for research.

Since its inception in 2001, ICCS has attracted increasingly higher quality and numbers of attendees and papers, and this year is not an exception, with over 300 expected participants. The proceedings series have become a major intellectual resource for computational science researchers, defining and advancing the state of the art in this field.

ICCS 2016 in San Diego, California, will be the sixteenth in this series of highly successful conferences. For the previous fifteen meetings see: <http://www.iccs-meeting.org/iccs2016/previous-iccs/>

The theme for ICCS 2016 is "**Data through the Computational Lens**", to mark the increasing convergence of big data with computational sciences in tackling a myriad of problems and applications. The increased utilization of real-time and batch data in computational sciences combined with the best of mathematics, high-performance computing and big data management systems is a growing research area of computational sciences, confirmed by an increased investment in this area. This conference will be a unique event focusing on recent developments in: scalable scientific algorithms; advanced software tools; computational grids; advanced numerical methods; and novel application areas. These innovative novel models, algorithms and tools drive new science through efficient application in areas such as physical systems, computational and systems biology, environmental systems, finance, and others.

ICCS is well known for its excellent line up of keynote speakers. The keynotes for 2016 are:

- **Rommie Amaro**, University of California, San Diego, USA
- **Jackie Chen**, Sandia National Laboratories, USA
- **Slawomir Koziel**, Reykjavik University, Iceland
- **Larry Smarr**, University of California, San Diego, USA
- **Sauro Succi**, Istituto per le Applicazioni del Calcolo "Mauro Picone" (C.N.R.) and University of Roma, Italy and Harvard University, USA

In addition to our distinct keynote speakers, this year we had nearly 500 submissions, of which nearly 200 were submitted to the conference main track and 300 to the workshops. From the 500 submitted papers a total of 218 (44%) full papers were accepted. From the 200 submitted to the main track 62 (32%) full papers were accepted.

ICCS relies strongly on the vital contributions of our workshop organizers to attract high quality papers in many subject areas. We would like to thank all committee members for the main track and workshops for their contribution to ensure a high standard for the accepted papers. We would also like to thank Elsevier, as the conference is organized with their financial and administrative support.

We are proud to note that ICCS is an ERA 2010 A-ranked conference series.

We wish you a successful and enjoyable conference in San Diego.

June 2016

The ICCS 2016 Organizers:

Ilkay Altintas
Michael Norman
Michael Lees
Valeria V. Krzhizhanovskaya
Jack Dongarra
Peter M.A. Sloot

Local Organizing Committee in San Diego, California, USA

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Workshops and Organizers

Advances in High-Performance Computational Earth Sciences: Applications and Framework

Yifeng Cui, Kengo Nakajima

Advances in the Kepler Scientific Workflow System and Its Applications

Jianwu Wang, Marcin Plociennik

Agent-based Simulations, Adaptive Algorithms and Solvers

Robert Schaefer, Krzysztof Cetnarowicz, Maciej Paszynski, Victor Calo, David Pardo

Applications of Matrix Computational Methods in the Analysis of Modern Data

Kourosh Modarresi

Architecture, Languages, Compilation and Hardware Support for Emerging Manycore Systems

Aleksandar Dragojevic, Eric Petit, Antoniu Pop

Biomedical and Bioinformatics Challenges for Computer Science

Stefano Beretta, Mario Cannataro, Mauro Castelli

Bio-Inspired Algorithms for Complex Networks

Hongmei Chi, Andrei Petru

Bridging the HPC Talent Gap with Computational Science Research Methods

Nia Alexandrov, Vassil Alexandrov

Computational and Algorithmic Finance

Andrey Itkin, Jari Toivanen

Computational Chemistry and Its Applications

Ponnadurai Ramasami

Computational Finance and Business Intelligence

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Computational Flow and Transport: Modeling, Simulations and Algorithms

Shuyu Sun, Jianguo Liu, Meng-Huo Chen

Computational Optimization, Modelling and Simulation

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Data-Driven Computational Sciences

Craig Douglas, Abani Patra, Ana Cortés, Robert Lodder

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Large Scale Computational Physics

E. de Doncker, F. Yuasa

Mathematical Methods and Algorithms for Extreme Scale

Vassil Alexandrov

Modeling and Simulation of Large-scale Complex Urban Systems

Heiko Aydt, Bernhard Klein, Vaisagh Viswanathan

Multiscale Modelling and Simulation, 13th International Workshop

Derek Groen, Valeria Krzhizhanovskaya, Alfons Hoekstra, Tim Scheibe, Bartosz Bosak

Nonstationary Models of Pattern Recognition and Classifier Combinations

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Solving Problems with Uncertainties

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Teaching Computational Science

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Tools for Program Development and Analysis in Computational Science

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