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# Computational Science – ICCS 2018

18th International Conference  
Wuxi, China, June 11–13, 2018  
Proceedings, Part III

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# Preface

Welcome to the proceedings of the 18th Annual International Conference on Computational Science (ICCS: <https://www.iccs-meeting.org/iccs2018/>), held during June 11–13, 2018, in Wuxi, China. Located in the Jiangsu province, Wuxi is bordered by Changzhou to the west and Suzhou to the east. The city meets the Yangtze River in the north and is bathed by Lake Tai to the south. Wuxi is home to many parks, gardens, temples, and the fastest supercomputer in the world, the Sunway TaihuLight. ICCS 2018 was jointly organized by the University of Chinese Academy of Sciences, the National Supercomputing Center in Wuxi, the 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 was no an exception, with over 350 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 2018 in Wuxi, China, was the 18th in this series of highly successful conferences. For the previous 17 meetings, see: <http://www.iccs-meeting.org/iccs2018/previous-iccs/>.

The theme for ICCS 2018 was “Science at the Intersection of Data, Modelling and Computation,” to highlight the role of computation as a fundamental method of scientific inquiry and technological discovery tackling problems across scientific domains and creating synergies between disciplines. This conference was 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 2018 were:

- Charlie Catlett, Argonne National Laboratory|University of Chicago, USA
- Xiaofei Chen, Southern University of Science and Technology, China
- Liesbet Geris, University of Liège|KU Leuven, Belgium
- Sarika Jalan, Indian Institute of Technology Indore, India
- Petros Koumoutsakos, ETH Zürich, Switzerland
- Xuejun Yang, National University of Defense Technology, China

This year we had 405 submissions (180 submissions to the main track and 225 to the workshops). In the main track, 51 full papers were accepted (28%). In the workshops, 97 full papers (43%). A high acceptance rate in the workshops is explained by the nature of these thematic sessions, where many experts in a particular field are personally invited by workshop organizers to participate in their sessions.

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 toward ensuring a high standard for the accepted papers. We would also like to thank Springer, Elsevier, Intellegibilis, Beijing Vastitude Technology Co., Ltd. and Inspur for their support. Finally, we very much appreciate all the local Organizing Committee members for their hard work to prepare this conference.

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

June 2018

Yong Shi  
Haohuan Fu  
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**Computational Optimization, Modelling, and Simulation – COMS 2018**

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