The Art of Computational Science, Bridging Gaps - Forming Alloys
Koumoutsakos, P.; Chatzi, E.; Krzhizhanovskaya, V.; Lees, M.H.; Dongarra, J.; Sloot, P.M.A.

Published in: Procedia Computer Science

DOI: 10.1016/j.procs.2017.05.281

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
International Conference on Computational Science, ICCS 2017, 12-14 June 2017,
Zurich, Switzerland

The Art of Computational Science,
Bridging Gaps – Forming Alloys.
Preface for ICCS 2017

Petros Koumoutsakos¹, Eleni Chatzi¹, Valeria V. Krzhizhanovskaya²,³, Michael Lees², Jack Dongarra⁴, Peter M.A. Sloot²,³,⁵

¹ETH Zürich, Switzerland
²University of Amsterdam, The Netherlands
³ITMO University, Russia
⁴University of Tennessee, USA
⁵Nanyang Technological University Singapore

Introduction

Welcome to the 17th Annual International Conference on Computational Science (ICCS - http://www.iccs-meeting.org), to be held on June 12-14, 2017 in Zürich, Switzerland. Located in central Europe close to the Alps, Zürich is Switzerland’s largest city and one of the world’s main financial hubs. In addition to the Swiss Federal Institute of Technology (or “Eidgenössische Technische Hochschule Zürich” (ETH) in German), one of the world’s most distinguished research institutions and the proud host of ICCS 2017, Zürich is home to many parks, museums and churches. The city stretches out on both sides of the Limmat river, which flows out of the beautiful Lake Zürich. ICCS 2017 is organized by ETH Zürich, 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.

© 2017 The Authors. Published by Elsevier B.V.
Peer-review under responsibility of the scientific committee of the International Conference on Computational Science.
ICCS 2017 in Zürich, Switzerland, will be the seventeenth in this series of highly successful conferences. For the previous sixteen meetings see: [http://www.iccs-meeting.org/iccs2017/previous-iccs/](http://www.iccs-meeting.org/iccs2017/previous-iccs/)

The theme for ICCS 2017 is "The Art of Computational Science. Bridging Gaps – Forming Alloys", 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 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 2017 are:

- **Anastasia Ailamaki**, École Polytechnique Fédérale de Lausanne, Switzerland
- **Efthimios Kaxiras**, Harvard University, USA
- **Michael Norman**, San Diego Supercomputer Center, UC San Diego, USA
- **Tomaso Poggio**, Eugene McDermott Professor, MIT, USA
- **Olga Sorkine-Hornung**, ETH Zürich, Switzerland
- **Rick L. Stevens**, Argonne National Laboratory, USA
- **Stefan Thurner**, Medical University of Vienna, Austria

This year we had 625 submissions (267 submissions to the main track and 358 to the workshops). In the main track, 74 full papers were accepted (28%). In the workshops, 151 full papers (42%). 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 organisers 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 to ensure a high standard for the accepted papers. We would also like to thank Elsevier and Intellegibilis for their 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 Zürich.

June 2017

The ICCS 2017 Organizers:
- Petros Koumoutsakos
- Eleni Chatzi
- Michael Lees
- Valeria V. Krzhizhanovskaya
- Jack Dongarra
- Peter M.A. Sloot
Local Organizing Committee in Zürich, Switzerland

Organizing Committee Chairs: Petros Koumoutsakos, Eleni Chatzi
Organizing Committee Members: Susanne Lewis, Maria Gião

Workshops and Organizers

Advances in High-Performance Computational Earth Sciences: Applications and Frameworks
Kengo Nakajima, Xing Cai

Agent-based Simulations, Adaptive Algorithms and Solvers
Maciej Paszynski, Robert Schaefer, 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
Stéphane Louise, Loïc Cudennec, Jeronimo Castrillon, Vania Marangozova-Martin, Martha Johanna Sepulveda Flores

Biomedical and Bioinformatics Challenges for Computer Science
Mario Cannataro, Giuseppe Agapito, Mauro Castelli, Riccardo Dondi, Italo Zoppis

Bridging the HPC Talent Gap with Computational Science Research Methods
Nia Alexandrov, Vassil Alexandrov

Computational Chemistry and Its Applications
Ponnadurai Ramasami

Computational Finance and Business Intelligence
Yong Shi, Shouyang Wang, Yingjie Tian

Computational Optimization, Modelling and Simulation
Xin-She Yang, Slawomir Koziel, Leifur Leifsson

Data-Driven Computational Sciences
Craig Douglas, Abani Patra, Ana Cortés, Robert Lodder

Environmental Computing Applications – State of the Art
Matti Heikkurinen, Dieter Kranzlmüller, Eric Yen

Large Scale Computational Physics
Elise de Doncker, Fukuko Yuasa, Tadashi Ishikawa

Mathematical Methods and Algorithms for Extreme Scale
Vassil Alexandrov, Jack Dongarra
Multiscale Modelling and Simulation
Derek Groen, Valeria Krzhizhanovskaya, Bosak Bartosz, Alfons Hoekstra, Petros Koumoutsakos

Simulations of Flow and Transport: Modeling, Algorithms and Computation
Shuyu Sun, Jianguo Liu

Solving Problems with Uncertainties
Vassil Alexandrov

Teaching Computational Science
Angela B. Shiflet, Alfredo Tirado-Ramos

Tools for Program Development and Analysis in Computational Science
Andreas Knüpfer, Arndt Bode, Karl Fürlinger, Dieter Kranzlmüller, Jens Volkert, Roland Wismüller

Urgent Computing
Alexander Boukhanovsky, Marian Bubak

Reviewers

David Abramson  Gebrail Bekdas  Mingyang Chen
Giuseppe Agapito  Adam Belloum  Siew Ann Cheong
Ram Akella  Stefano Beretta  Hongmei Chi
Elisabet Alberdi  Daniel Berrar  Davide Chicco
Marco Aldinucci  John Betts  S.F. Chien
Nia Alexandrov  Sanjukta Bhowmick  Svetlana Chuprina
Vassil Alexandrov  Anna Bilyatdinova  Adriano Cortes
H. Ali  Guillaume Blin  Ana Cortes
Gabrielle Allen  Alex Bokov  Enrique Costa-Montenegro
Ilkay Altintas  Tore Brinck  Camille Coti
Stanislaw Ambroszkiewicz  Marian Bubak  Carlos Cotta
Anand Amrit  Kris Bubendorfer  Hélène Coullon
Michael Antolovich  Marcin Budka  Attila Csikasz-Nagy
Joseph Antony  Jérémy Buisson  Loïc Cudennec
Hideo Aochi  Aleksander Byrski  Javier Cuenca
Hamid Arabnia  Xing Cai  Yifeng Cui
Tomasz Arodz  Mario Cannataro  Pawel Czarnul
Tomas Artes  Junwei Cao  Lisandro Dalcin
Ebrahim Bagheri  Mauro Castelli  Bhaskar Dasgupta
Bartosz Balis  Jeronimo Castrillon  Susumu Date
Krzysztof Banas  David Cavander  Raymond de Callafon
Bosak Bartosz  Eduardo Cesar  Elise de Doncker
Daniel Becker  Imen Chakroun  Kees de Graaf
Jörn Behrens  Eleni Chatzi  Quanling Deng
Adrian Bekasiewicz  Huangxin Chen  Xiaolong Deng