Modeling and Computing Multiscale Systems

Subtopic of this year: Distributed Computing

http://www.computationalscience.nl/MCMS2013

10th International Workshop

in conjunction with the International Conference on Computational Science

June 5 - 7, 2013
Barcelona, Spain

Introduction

The modeling and computation of multiphysics and multiscale systems constitutes a grand challenge in computational science, and is widely applied in fields such as astrophysics, chemical engineering, plasma physics, materials science, biomedical science, and aerospace and automotive engineering. Most of the real-life systems encompass interactions within and between a wide range of physical phenomena, each of which may operate on different time and length scales. They require the development of sophisticated numerical models and computational techniques to accurately simulate the diversity and complexity of multiscale and multiphysics problems, and to effectively capture the wide range of relevant physical phenomena within these simulations. Additionally, these multiscale models frequently need large scale computing capabilities as well as dedicated software and services that enable the exploitation of existing and evolving e-infrastructures. This workshop aims to provide a forum for multiscale application modelers, framework developers and experts from the distributed infrastructure communities to identify and discuss challenges in, and possible solutions for, modeling multiscale systems, as well as their execution on distributed e-infrastructures.

Topics

Specific topics include (but are not limited to):

- Modeling of multiphysics and/or multiscale systems.
- Multiphysics and/or multiscale modeling of biological or biomedical systems.
- Novel approaches to combine different models and scales in one problem solution;
- Challenging applications in industry and academia;
- Advanced numerical methods for solving multiphysics multiscale problems;
- Environments and frameworks for simulation of multiscale models;
- Cloud-based support for multiscale computing;
- e-infrastructure for distributed multiscale computing (computing, storage, networking);
- Dedicated services required for distributed multiscale computing;

Papers

We cordially invite you to submit a paper presenting the results of original research or innovative practical application in the area of modeling and simulation of multiphysics and multiscale systems. Papers of up to **10 pages**, written in English and complying with the Procedia format, should be submitted electronically through the ICCS submission engine. While submitting please don't forget to select the workshop (last field): MODELING AND COMPUTING MULTISCALE SYSTEMS.

All papers will be peer reviewed. Accepted papers will be published by Elsevier in the open-access Procedia Computer Science series. The proceedings will be available at the conference. At least one author of an accepted paper must register and present the paper at the workshop. A selected number of (extended) papers will be invited to the special issue of the Journal of Computational Science after the conference.

Important dates

Full paper submission:	December 31, 2012
Notification of acceptance:	February 10, 2013
Camera-ready papers:	March 1, 2013

Program Committee

Sacha van ALBADA, Research Center Julich, Germany
Joerg BERNSDORF, German Research School, Germany
Sergey BOBASHEV, Ioffe Physical Technical Institute, Russia
Bruce BOGHOSIAN, Tufts University, USA
Batrosz BOSAK, PSNC, Poznan, Poland
Alfonso CAIAZZO, University of Amsterdam, The Netherlands
Bastien CHOPARD, University of Geneva, Switzerland
Vince ERVIN, Clemson University, USA
Sergey GIMELSHEIN, University of Southern California, USA
Pulin GONG, University of Sydney, Australia
Yuriy GORBACHEV, Geolink Systems LLC, Russia
Derek GROEN, University College London, UK
Martin van der HOEF, University Twente, The Netherlands
Alfons HOEKSTRA, University of Amsterdam, The Netherlands
Chris KLEIJN, Delft University of Technology, The Netherlands
Héctor KLÍE, University of Texas, USA
Manfred KRAFCZYK, Technical University Braunschweig, Germany
Valeria KRZHIZHANOVSKAYA, University of Amsterdam
Antonio LAGANA, University of Perugia, Italy
Jonas LATT, Tufts University, USA
Hyesuk LEE, Clemson University, USA
Eric LORENZ, University of Amsterdam, The Netherlands
Scott MACLACHLAN, Tufts University, USA
Matthijs van der MEER, University of Minnesota, USA
Roderick MELNIK, Wilfrid Laurier University, Canada
John MICHOPOULOS, US Naval Research Laboratory, USA
Tinsley ODEN, The University of Texas at Austin, USA
Francois ROGIER, Onera-Cert, France
Francois-Xavier ROUX, Onera, France
Peter SLOOT, University of Amsterdam, The Netherlands
Ruud van der SMAN, Wageningen University, The Netherlands
Dominik SZCZERBA, Swiss Federal Institute of Technology, Switzerland
Katarzyna RYCERZ, ICS and CYFRONET, AGH, Krakow, Poland
Tao TANG, The Hong Kong Baptist University
Ali TURAN, The University of Manchester, UK
Jordi VILLA I FREIXA, IMIM-UPF, Spain
Alexander ZHMAKIN, SoftImpact Ltd, Russia

Workshop Organizers

Workshop chairs: **Valeria Krzhizhanovskaya** and **Alfons Hoekstra** e-mail: SMMS@list.uva.nl
University of Amsterdam, The Netherlands

Co-chairs: **Eric Lorenz,** University of Amsterdam, The Netherlands
Derek Groen, University College London, UK
Katarzyna Rycerz, Institute of Coputer Science and CYFRONET, AGH, Krakow, Poland
Bartosz Bosak PNSC, Poznan, Poland