MATH-EX?2018 - Mathematical Methods and Algorithms for Extreme Scale

The workshop aims to serve as a forum for Computational Scientists to discuss the mathematical and algorithmic challenges and approaches towards increasingly larger systems.

Key science applications using HPC systems require novel mathematics and mathematical modelling approaches together with scalable scientific algorithms. This is especially true as HPC systems continue to scale up in compute node and processor core count. These novel mathematical methods can lead to scalable scientific algorithms which can hide network and memory latency, have very high computation/communication overlap and minimal communication and fewer synchronization points.

The workshop solicits strategic and position papers presenting Domain Applications and Case Studies in the context of the Computational Science/ HPC ecosystem covering but not limited to the following topics:

- Novel scientific algorithms that improve performance, scalability, resilience, and power efficiency
  - Naturally fault tolerant, self-healing, or fault oblivious scientific algorithms
  - Scientific algorithms that can exploit extreme concurrency
- Novel Mathematical methods and mathematical modelling approaches that possess scalability properties:
  - Mathematical and algorithmic approaches to resolve the challenges of increased scale of HPC systems.
  - Crosscutting approaches, e.g. mathematical methods and algorithmic approaches addressing scalability challenges

Important dates:

- Paper submission deadline: **February 15, 2018**
- Notification of acceptance: March 15, 2018 Camera-ready papers: 30 March 2018
- Author registration: 12 March – 30 March 2018
- Conference: 11-13 June 2018

Program Committee:

- Vassil Alexandrov, ICREA-BSC, Spain
- Jack Dongarra, University of Tennessee/ORNL, USA
- Al Geist, ORNL, USA
- Mike Heroux, Sandia National Lab, USA
How to Submit:

1. Prepare the manuscripts in *Springer Lecture Notes in Computer Science (LNCS)* format (no more than 10 pages).
2. Log-in to ICCS 2018 submission site in EasyChair
3. You will need to create an account if you do not have an existing account in EasyChair.

1. Specify (select) the workshop name as **MATH-EX’2018 - Mathematical Methods and Algorithms for Extreme Scale**

Authors are invited to submit manuscripts describing original, unpublished research and recent developments as well as position and strategic papers in the remit of the Workshop.

All accepted papers will be included in the *Springer Lecture Notes in Computer Science (LNCS)* series and indexed by Scopus, EI Engineering Index, Thomson Reuters Conference Proceedings Citation Index (included in ISI Web of Science), and several other indexing services..

The submitted paper must be camera-ready and formatted according to the rules of *Springer Lecture Notes in Computer Science (LNCS)*, not exceeding 10 pages. Submission implies the willingness of at least one of the authors to register and present the paper.

Papers must be based on unpublished original work and must be submitted to ICCS only.

After the conference, selected papers will be invited for a special issue of the *Journal of Computational Science*.

I am looking forward to seeing you at the workshop and ICCS2018.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación