

Invitation to Participate

Supercomputing Frontiers Europe 2018

Interdisciplinary Centre for Mathematical and Computational Modelling,
University of Warsaw (ICM)
invites to

Supercomputing Frontiers Europe 2018

which will take place in Warsaw, Poland, on March 12-15, 2018.

Supercomputer Frontiers Europe 2018 will be the fourth edition of the annual conference which run in Singapore in 2015-2017. The 2018 edition of the conference will be organized for the first time in Warsaw, Poland. The conference provides a platform for the thought leaders from both academia and industry to interact and discuss the visionary ideas, the most important global trends and substantial innovations in supercomputing. The earlier editions keynote speakers included Gordon Bell, Alessandro Curioni, Thom H. Dunning, Jr., Haohuan Fu, Bronis de Supinski, Horst Simon, Aluru Srinivas, and Dame Susan Greenfield, Thomas Sterling, Satoshi Matsuoka, Robert Harrison, Rick Stevens, Jack Dongarra, Alan Gara and John Gustafson.

Keynote Speakers:

Thomas Sterling, Indiana University, USA; Simultac Fonton

Dimitri Kusnezov, Department of Energy, USA; Precision Medicine as an Accelerator
for Next Generation Supercomputing

Karlheinz Meier, Heidelberg University, Germany; Neuromorphic computing –
From biology to user facilities

Invited speakers:

Tobias Becker, Maxeler Technologies, USA; Computing with Data Flow Engines:
The Next Step for Supercomputing

Bob Bishop, EMU Technology Inc., USA; In an era of big data, is it time to update
scientific content, software code and hardware architecture in one
fell swoop? — the advent of processor-in-memory architecture

Benoit Dupont de Dinechin, Kalray, France; Manycore Accelerators beyond
GPU Architecture

Robert Ewald, D-Wave, USA; The Start of the Journey from Digital to Quantum Computing

Nicola Ferrier, Argonne National Laboratory, USA; Topic: Internet of Things

Petros Koumoutsakos, ETH Zurich, Switzerland; (Super)Computing for all Humankind

Baojiu Li, Durham University, UK; Topic: Cosmology

Ronald Luijten, IBM Zurich Research Laboratory, Switzerland; Objective, innovation and impact of the energy-efficient DOME MicroDataCenter

Joanna Sułkowska, University of Warsaw, Poland; Tentative Title: Advanced theoretical techniques to overcome drug-resistant bacteria

The themes being considered of **Supercomputing Frontiers Europe 2018** are:

- Supercomputing applications in domains of critical impact in scientific, economic and human terms, and especially those requiring computing resources approaching Exascale;
- Cryptography and HPC: classical, quantum and post-quantum; blockchain, DLT etc.;
- Big data science merging with supercomputing with associated issues of I/O, high bandwidth networking, storage, workflows, real time processing, graph methods;
- Architectural complexity of Exascale systems with special focus on new and special purpose processor architectures, supercomputing interconnects, interconnect topologies and routing;
- Cosmology, Astrophysics – Big Data and Big Iron;
- Genomics, Proteomics, Metabolomics and Connectomics;
- Any other topic that pushes the boundaries of supercomputing to exascale and beyond.

Additionally, on the 15th March there will be several half-day and full day workshops:

1. D-Wave Systems: An introduction to Programming a quantum computer
 2. Introduction to Numerical Computing with Julia (Julia Computing & SGH)
 3. Advanced scientific visualization with VisNow platform (ICM)
 4. High Performance Computing and Big Data analytics with PCJ and Java (ICM)
 5. New ARM hardware (ATOS-Bull)
 6. Dataflow programming (Maxeler)
- and several others.

Selected contributed papers from the previous editions of SCF were published in three special editions of Supercomputing Frontiers and Innovations, Vol 2, No 3 (2015); Vol 3, No 2 (2016); Vol 4, No 2 (2017).