

TOPIC 12 - ACCELERATOR COMPUTING FOR ADVANCED APPLICATIONS

CHAIRS

Global Chair

[Raphael Y. de Camargo](#)

Federal University of ABC, Brasil, Center for Mathematicis, Computation and Cognition

Local Chair

[Christian Plessl](#)

Paderborn University, Germany

Co-Chairs

[Pedro Diniz](#)

INESC-ID, Lisboa, Portugal

[Holger Fröning](#)

University of Heidelberg, Germany

[Francisco D. Igual](#)

Universidad Complutense de Madrid, Spain

[Miriam Leeser](#)

Northern Eastern University, USA

[Andy Nisbet](#)

University of Manchester, UK

DESCRIPTION

Hardware accelerators of various kinds offer a potential for achieving massive performance in applications that can leverage their high degree of parallelism and customization. Examples include graphics processors (GPUs), manycore co-processors, as well as more customizable devices, such as FPGA-based systems, and streaming data-flow architectures.

The research challenge for this topic is to explore new directions for actually realizing this potential. We encourage submissions in all areas related to accelerators: architectures, algorithms, languages, compilers, libraries, runtime systems, coordination of accelerators and CPU, and debugging and profiling tools. Application-related submissions that contribute new insights into fundamental problems or solution approaches in this domain are welcome as well, including big data, data analytics, and computational science/engineering.

Focus

- New accelerator architectures
- Programming models, languages, compilers, and runtime environments for accelerators
- Tools for debugging, profiling, and optimizing programs on accelerators
- Hybrid and heterogeneous computing mixing several, possibly different types of accelerators, and/or CPUs
- Parallel algorithms and applications for accelerators, even beyond what is considered suitable for current accelerator architectures
- Performance modeling and benchmarks for accelerators
- Library support for accelerators
- Power-aware/energy efficient solutions for accelerators

