

TOPIC 10 - THEORY AND ALGORITHMS FOR PARALLEL COMPUTATION AND NETWORKING

CHAIRS

Global Chair

Frédéric Vivien

Inria, Le Chesnay, France

Local Chair

Henning Meyerhenke

Humboldt-Universität zu Berlin, Germany

Co-Chairs

Kamer Kaya

Sabanci University, Turkey

Fanny Pascual

Sorbonne Université, France

Cynthia Phillips

Sandia National Labs, Albuquerque, NM, USA

Peter Sanders

Karlsruhe Institute of Technology (KIT), Germany

DESCRIPTION

Parallel computing is everywhere, on smartphones, laptops; at online shopping sites, universities, computing centers; behind the search engines. Efficiency and productivity at these scales and contexts are only possible by scalable parallel algorithms using efficient communication schemes, routing and networks.

Theoretical tools enabling scalability, modeling and understanding parallel algorithms, and data structures for exploiting parallelism are more important than ever.

High quality, original papers are solicited on this general topic of theory and algorithms for parallel computation including communication and network algorithms.

Focus

The focus is on, but not limited to, the **theoretical aspects** of the following:

- Theoretical and algorithmic aspects of packing, scheduling, and resource management
- Combinatorial and graph algorithms
- Power/energy-aware algorithms
- Fault tolerance and error resilient algorithms
- Algorithms on GPUs and accelerators
- Approximation, online and streaming algorithms for parallel processing
- Data structures for parallel algorithms
- Foundations, complexity theory, models, and emerging paradigms for parallel, distributed, and network computation
- Algorithms and models for Big Data/data-intensive parallel computing
- Algorithms for routing and information dissemination, communication networks
- Lower bounds for parallel computation
- Algorithms for Cloud computing
- Algorithmic Game Theory
- Algorithms for Computational and Collaborative Learning
- Algorithms for Social Networks

