

Numerical methods for massively parallel computations

Organizers: Peter Arbenz (arbenz@inf.ethz.ch)
Erin Carson (carson@karlin.mff.cuni.cz)
Jakub Šístek (sistek@math.cas.cz)

Abstract:

The computational speed of supercomputers keeps growing at an exponential rate. This overwhelming pace is nowadays maintained by increasing concurrency at different hardware levels, especially increasing core counts of CPUs and incorporating accelerators, such as GPUs. These hardware developments pose new challenges to computational scientists aiming to exploit such machines, and many numerical algorithms need to be redesigned to reduce global synchronizations, communication, increase parallelism and to map well to heterogeneous hardware.

The minisymposium brings together researchers working on various aspects of numerical algorithms suitable for such supercomputers. We welcome presentations from a wide range of topics, including but not limited to, exploiting task-based programming models, developing high-performance Krylov subspace methods and preconditioners, improving scalability of domain decomposition methods, and parallel adaptive mesh refinement.