

**Institute for Advanced Simulation
Jülich Supercomputing Centre**

IAS Seminar

Topic: **Building Portable Peta-scale Applications with LibGeoDecomp**

Speaker: Andreas Schäfer, Department Informatik,
Friedrich-Alexander-Universität Erlangen-Nürnberg

Contents: With each generation of supercomputers the number of scientific applications that can efficiently harness the full scale of these machines shrinks. The Library for Geometric Decomposition codes (LibGeoDecomp) hides many of the complexities associated with porting a code to a given supercomputer. It has proven to yield good results with various models, ranging from stencil codes to short-ranged n-body codes, on some of the largest supercomputers, including TACC's Stampede, FZJ's JUQUEEN, and ORNL's Titan. In this talk, I will explain how we achieve efficiency without compromising portability.

Topic: **HPX - A generic parallel runtime system for C++**

Speaker: Thomas Heller, Department Informatik,
Friedrich-Alexander-Universität Erlangen-Nürnberg

Contents: The advent of increasingly heterogeneous multi- and many-core processors gives rise to new paradigms for parallel programming. This talk presents HPX, a general purpose parallel runtime system which exposes a uniform programming model for applications of any scale. I will give an introduction on how HPX easily handles parallel programming, dynamically changing workloads, scalability, and efficient utilization of system resources. The main focus will be on our close compliance to the C++11 standard and the extension of unifying local and remote operations. In addition, we are able to provide results from large scale runs running on the heterogeneous Stampede Supercomputer.

Time: Thursday, 30 January 2014, 13:00

Venue: Jülich Supercomputing Centre, Besprechungsraum 1, building 16.3, room 107

Anyone interested is cordially invited to participate in this seminar.

sgd Prof. Dr. Dr. Thomas Lippert