Institute for Advanced Simulation
Jülich Supercomputing Centre

IAS Seminar

Topic: **EigenExa: High Perfomance Eigenvalue Solver**

Speaker: Dr. Toshiyuki Imamura, RIKEN Advanced Institute for Computational Science, Kobe, Japan

Contents: EigenExa is a high performance and high scalable eigenvalue solver for dense matrices on a peta-scale parallel supercomputer system. EigenExa is used as a powerful mathematical tool and a building block for parallel numerical simulations such as quantum physics, quantum chemistry, drug design, statistical data analysis, and so on. From the latest benchmark, EigenExa successfully solves full diagonalization of a one million dimension matrix taking advantage of the full-nodes (82,944 processors) of K computer within one hour. The performance records 1.7 PFLOPS (16% of K computer's theoretical peak performance). It is the world largest scale and highest performance for solving an eigenvalue problem of a dense matrix. This presentation reports the review of modern parallel eigenvalue solvers and the trend of the parallel algorithms for high performance numerical libraries. We will also discuss an impact of such a challenging eigenvalue computation to Exa-scale computing.

Time: Monday, 7 July 2014, 14:00

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