Table of contents

High Performance Computing in Physics

Wednesday 09 February 2011

<u>Finding selected eigenvalues of the lattice Dirac operator using the Lanczos algorithm with selective re-orthogonalization</u> - AG-66 (14:15-15:45)

An implementation and modification of the LANSO (Lanczos Algorithm with Selective re-Orthogonalization) of Parlett and Scott, for which we just use the (Hermitean) lattice Dirac operator as an example of a useful large sparse (Hermitean) operator. The talk would really be about Krylov spaces, the Lanczos algorithm in floating-point arithmetic, and how to avoid spurious repeated eigenvalues. It would also touch upon the Kaniel-Paige theory of convergence of Ritz pairs to actual eigenpairs, and some possibly new results on the rate of convergence of inner eigenvalues. The work is being done in collaboration with Chris Johnson (EPCC) using the UK's Cray XT5h system Hector at EPCC.

time	title	presenter
14:15	Finding selected eigenvalues of the lattice Dirac operator using the Lanczos algorithm with selective re-orthogonalization	