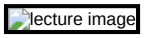

Computational Mathematics Seminar Series

Chebyshev Sparse Grid Method for High-dimensional PDEs

Haijun Yu, Chinese Academy of Sciences

Johnston Hall 338
March 06, 2012 - 03:30 pm

Abstract:
Sparse grid is a special discretization for high-dimensional problems. It was first introduced by S.A. Smolyak in 1960s for the integration and interpolation of tensor product functions. During the 1990s, C. Zenger et al. extended it to solve high-dimensional PDEs. The commonly used bases are Fourier bases for periodic problems and linear finite element bases for non-periodic problems. In this talk, we introduce Chebyshev sparse grid method for solving non-periodic PDEs and apply it to solve the electronic Schrodinger equation.

Speaker's Bio:
Haijun Yu is an assistant professor at the Institute of Computational Mathematics and Scientific/Engineering Computing of Chinese Academy of Sciences (http://icmsec.cc.ac.cn/). After graduated from Peking University in 2007, he spent almost four years at Princeton and Purdue University. His current research interests include numerical methods for high dimensional problems and modeling and simulation of complex fluids.

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