



SEMINAR ANNOUNCEMENT

High-dimensional finite elements for elliptic problems with multiple scales

Prof. Hoang Viet Ha

Division of Mathematical Sciences
School of Physical and Mathematical Sciences
Nanyang Technological University



Date : 18 March 2009 (Wednesday)
Time : 3.30pm – 4.30pm
Venue: SPMS-Executive Classroom 1, MAS-03-06
School of Physical and Mathematical Sciences

Abstract Elliptic homogenization problems in a domain $\Omega \in \mathbb{R}^d$ with $n + 1$ separate scales are reduced to elliptic problems in dimension $(n + 1)d$. These one-scale problems are discretized by a sparse tensor product finite element method (FEM). We prove that this sparse FEM has accuracy, work, and memory requirements comparable to those in a standard FEM for single-scale problems in Ω , while it gives numerical approximations of the correct homogenized limit as well as of all first-order correctors, throughout the physical domain with performance independent of the physical problem's scale parameters.

Host: Mathematical Imaging and Vision Research Group, Division of Mathematical Sciences, School of Physical and Mathematical Sciences

Website: <http://www1.spms.ntu.edu.sg/~image>

SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES

NANYANG TECHNOLOGICAL UNIVERSITY
SPMS-MAS-03-01, 21 NANYANG LINK, SINGAPORE 637371
FAX: +65 6515 8213 TEL: +65 6513 7423