THE UNIVERSITY OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

Numerical Analysis Seminar

A Spectral Generalized Finite Element Method for Multiscale Problems

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Abstract

Multiscale partial differential equations, featuring heterogeneous coefficients oscillating across possibly non-separated scales, pose computational challenges for standard numerical techniques. In this talk, I will first review multiscale numerical methods that enable the efficient solution of such problems. Then, I will introduce a multiscale spectral generalized finite element method that builds low-dimensional local approximation spaces based on the singular value decomposition of certain compact operators. Applications of the method to Helmholtz and linear elasticity problems will be presented.

Date:	Jan. 25, 2024 (Thursday)
Time:	2:00pm – 3:00pm
Venue:	ZOOM: https://hku.zoom.us/j/ Meeting ID: 913 6532 3891 Password: 310656

All are welcome