THE UNIVERSITY   **OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

Numerical Analysis Seminar

A new frame work to quantify the uncertainty in general inverse problems

Dr. Wenlong Zhang

Southern University of Science and Technology,
China

Abstract

In this work, we investigate the regularized solutions and their finite element solutions to the inverse source problems governed by partial differential equations, and establish the stochastic convergence and optimal finite element convergence rates of these solutions, under pointwise measurement data with random noise. The regularization error estimates and the finite element error estimates are derived with explicit dependence on the noise level, regularization parameter, mesh size, and time step size, which can guide practical choices among these key parameters in real applications. The error estimates also suggest an iterative algorithm for determining an optimal regularization parameter. Numerical experiments are presented to demonstrate the effectiveness of the analytical results.

Date:	December 21, 2021 (Tuesday)
Time:	4:00 – 5:00pm (Hong Kong Time)
Venue:	Room 210, Run Run Shaw Bldg., HKU and ZOOM: https://hku.zoom.us/j/ Meeting ID: 913 6532 3891 Password: 310656

Attendance limited
Register Now

All are welcome