THE UNIVERSITY OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

Numerical Analysis Seminar

Flow-based domain-decomposition approaches for uncertainty quantification

Professor Qifeng Liao
ShanghaiTech University, China

Abstract

The domain decomposition uncertainty quantification method (DDUQ) provides a decomposed strategy to conduct uncertainty analysis for complex engineering systems governed by PDEs. In DDUQ, uncertainty analysis on each local component is independently conducted in an "offline" phase, and global uncertainty analysis results are assembled using precomputed local information in an "online" phase through importance sampling. The performance of DDUQ relies on the coupling surrogates and probability density estimation during the importance sampling procedure. Since coupling surrogates can give high-dimensional interface parameters, we in this work develop flow based interface coupling strategy, which dramatically improve the efficiency of DDUQ.

Date:	March 30, 2022 (Wednesday)
Time:	2:00 – 3:00pm (Hong Kong Time)
Venue:	ZOOM: https://hku.zoom.us/j/
	Meeting ID: 913 6532 3891
	Password: 310656

All are welcome