



Department of Applied Mathematics Seminar

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Topic

High-performance numerical methods and software for fusion of physics and learning

Date | Time

9 April 2025 (Wednesday) | 10:00 – 11:00 (HK Time)

Venue

TU717

Abstract:

The numerical solution of partial differential equations (PDEs) remains a cornerstone of computational physics, with applications spanning computational fluid dynamics (CFD), density functional theory (DFT), computational micromagnetics, and more. In this seminar, I introduce my work on designing high-performance numerical methods and developing AFEPack, a C++ numerical software, to enhance the efficiency and accuracy of PDE solvers. By integrating mechanism-based simulations with data-driven learning, I demonstrate how this fusion accelerates computations, improves predictive capabilities, and addresses complex practical challenges. This talk explores the synergy of physics and learning, offering insights into next-generation computational tools and their potential to solve real-world problems.

ALL ARE WELCOME