The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar

Direct Parallel in Time Solvers for Two Inverse PDE Problems

By

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Abstract

In this talk, I will briefly introduce the diagonalization-based parallel in time (PinT) algorithms, which show promising parallel efficiency for solving time-dependent differential equations (ODEs and PDEs). However, such PinT algorithms were not applied to inverse PDE problems in literature. Within the framework of quasi-boundary value regularization methods, we will present direct PinT solvers for solving two classical inverse PDE problems: Backward Heat Conduction Problem and Inverse Source Problem. The novel idea is to maneuver the flexibility of regularization methods for better structured linear systems that enable direct PinT solvers. The high efficiency of the proposed algorithms is illustrated by 1D and 2D numerical examples.

Date: 16 October 2023 (Monday)
Time: 10:30-11:30 (Hong Kong Standard Time GMT +8)
Venue: V315
Speaker: Dr. Jun LIU, Southern Illinois University Edwardsville
Host: Prof. Buyang LI, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***