



Numerical Analysis Seminar

A parallel-in-time algorithm for a high-order BDF discretization for diffusion and subdiffusion equations

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Abstract

In this talk, I will present a parallel-in-time algorithm for approximately solving parabolic equations. We apply the k-step backward differentiation formula, and then develop an iterative solver by using the waveform relaxation technique. Each resulting iterate represents a periodic-like system, which could be further solved in parallel by using the diagonalization technique. The convergence of the waveform relaxation iteration is theoretically examined by using the generating function method. The argument could be further applied to the time-fractional subdiffusion equation, whose discretization shares common properties of the standard BDF methods due to the nonlocality of the fractional differential operator.

Date: January 19, 2022 (Wednesday)

Time: 4:30 - 5:30pm (Hong Kong Time)

Venue: Room 309, Run Run Shaw Bldg., HKU
and

ZOOM: <https://hku.zoom.us/j/>

Meeting ID: 913 6532 3891

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Attendance limited
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