

数学与系统科学研究院

计算数学所学术报告

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报告题目:

**Preconditioning Techniques for
Toeplitz-like Matrices in Time-Dependent
Space-Fractional Diffusion Equations**

邀请人: 白中治 研究员

报告时间: 2015 年 12 月 19 日(周六)

上午 10:30~11:30

报告地点: 科技综合楼三层

311 报告厅

Abstract:

The fractional diffusion equation is discretized by an implicit finite difference scheme with the shifted Grunwald formula, which is unconditionally stable. The coefficient matrix is a sum of a scaled identity matrix and two diagonal-times-Toeplitz matrices. Standard circulant preconditioners may not work well for such Toeplitz-like matrices. In the talk, we consider the approximate inverse preconditioners. Theoretical results show that the spectra of the resulting preconditioned matrices are clustered around one. Numerical examples are given to demonstrate the effectiveness of the proposed preconditioner.

欢迎大家参加！