

数学与系统科学研究院
计算数学所网络学术报告

报告人: 曾闽丽 教授

(莆田学院)

报告题目:

**Scaled Diagonal-Times-Toeplitz
Splitting Iteration Methods for
Solving Discretized Spatial
Fractional Diffusion Equations**

邀请人: 白中治 研究员

报告时间: 2021 年 10 月 23 日(周六)

晚上 18:30-19:30

报告工具: 腾讯会议 ID: (826 984 216)

Abstract:

In this talk, we will propose a scaled diagonal-times-Toeplitz splitting (SDTS) iteration method for solving the discretization system from one-dimensional spatial fractional diffusion equations of variable coefficients. The SDTS iteration methods can be used to solve the one-dimensional spatial fractional diffusion equations of both anisotropic and isotropic, while the respectively scaled HSS (RSHSS) iteration method can be used only to solve anisotropic spatial fractional diffusion equations. Therefore, the SDTS iteration method is of wider range of applications than the RSHSS iteration method. Furthermore, the SDTS iteration method will naturally lead to a scaled diagonal-times-circulant splitting (SDCS) preconditioner. Theoretical analysis shows that the eigenvalues of the corresponding preconditioned matrix are clustered around 1. Numerical experiments are shown to demonstrate the feasibility and effectiveness of the SDCS preconditioned GMRES method for solving the proposed examples.

欢迎大家参加！