

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 Technique for  
Solving Fractional Diffusion  
Equations**

邀请人: 白中治 研究员

报告时间: **2018 年 7 月 4 日 (周三)**

**晚上 20:00-21:00**

报告地点: **数学院南楼七层**

**702 教室**

## **Abstract:**

The fractional diffusion equation is discretized by the implicit finite difference scheme with the shifted Grunwald formula. The scheme is unconditionally stable and the coefficient matrix possesses the Toeplitz-like structure. Several preconditioners are sequentially proposed to solve the resulting systems for more and more difficult cases. Meanwhile, the fast Toeplitz matrix-vector multiplication is utilized to lower the computational cost with only  $O(N \log N)$  complexity, where  $N$  is the number of grid points. Numerical experiments are given to demonstrate the efficiency of the proposed methods.

**欢迎大家参加！**