

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:

**Preconditioned Iterative Methods for
Toeplitz-plus-diagonal Matrices**

邀请人: 白中治研究员

报告时间: **2011 年 8 月 5 日 (周五)**

上午 9: 30-10: 30

报告地点: **科技综合楼四层 401**

计算数学所教室

Abstract:

We will talk about the preconditioned methods for Toeplitz-plus-diagonal systems. Unlike the case of Toeplitz systems, no fast direct solvers have been developed for solving this kind of system. In this talk, we will employ the preconditioned conjugate gradient method to solve such systems. The proposed preconditioner can be constructed and implemented efficiently using fast Fourier transforms. We will show that if the entries of Toeplitz decay away exponentially from the main diagonals, the preconditioned conjugate gradient method applied to the preconditioned system converges very quickly. Finally, numerical examples including spatial regularization for image deconvolution application are given to illustrate the effectiveness of our preconditioner.

欢迎大家参加!