

数学与系统科学研究院

计算数学所学术报告

报告人: 白中治研究员(ICMSEC)

报告题目:

On Hermitian and skew-Hermitian
splitting iteration methods

报告时间: 2007 年 5 月 17 日(周四)

上午 10:00—11:00

报告地点: 科技综合楼三层 311

计算数学所报告厅

Abstract:

The Hermitian and skew-Hermitian splitting (HSS)

iteration scheme is an efficient and practical method

for solving large sparse non-Hermitian system of

linear equations. In this talk, after reviewing the HSS

iteration method and its basic convergence theory for non-Hermitian positive definite matrices, we give a sufficient and necessary condition for guaranteeing its convergence for nonsingular and non-Hermitian positive semidefinite matrices. We then discuss the semi-convergence property of the HSS iteration method and derive a sufficient and necessary convergence condition for singular and non-Hermitian positive semidefinite matrices. According to the optimal iteration parameter involved, we first compute it exactly for real two-by-two matrices, and then compute it exactly for special block two-by-two matrices. These formulas are used to give estimation for the optimal iteration parameter of HSS iteration method for general non-Hermitian matrices. Finally, some numerical results are used to examine the effectiveness of the HSS iteration method with the exact or the estimated optimal iteration parameter.

欢迎大家参加！