数学与系统科学研究院

计算数学所学术报告

(定期学术报告)

<u>报告人:</u> 胡齐芽研究员 (ICMSEC) <u>报告题目:</u>

A Weighted Helmholtz Decomposition and Applications to Domain Decomposition for Saddle–point Maxwell Systems

<u>报告时间:</u> 2008年4月3日(周四)

下午4:00—5:00

<u>报告地点:</u>科技综合楼三层 311 计算数学所报告厅

<u>Abstract :</u>

We shall establish a discrete weighted

Helmholtz decomposition in edge element spaces, which is stable uniformly with respect to the jumps in the discontinuous weight function. The stable decomposition is then applied to show that the preconditioned edge element system for solving saddle-point Maxwell equations by a non-overlapping domain decomposition preconditioner developed in Hu and Zou 2004 is nearly optimal, i.e., its condition number grows only as the logarithm of the dimension of the local subproblem associated with an individual subdomain; more importantly, the condition number is also independent of the jumps of coefficients across the interfaces between any two subdomains.

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