

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)

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报告题目:

**Iterative methods for transmission
eigenvalues**

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下午 4:00~5:00

报告地点: **科技综合楼三层 311**

计算数学所报告厅

Abstract : **Transmission eigenvalues have**

important applications in inverse scattering theory. They can be used to obtain useful information of the physical properties, such as the index of refraction, of the scattering target. Despite considerable effort devoted to the existence and estimation for the transmission eigenvalues, their numerical treatment is very limited. Since the problem is non-standard, classical finite element methods result in non-Hermitian matrix eigenvalue problems.

In this talk, we present iterative methods to compute a few lowest transmission eigenvalues which are of practical importance. We use a fourth order reformulation of the transmission eigenproblem to construct functions involving an associated generalized eigenvalue problem. The roots of these functions are the transmission eigenvalues. Then we propose two iterative methods to compute the transmission eigenvalues. We show the convergence of the numerical schemes. The effectiveness of the methods is demonstrated using various numerical examples.

欢迎大家参加!