数学与系统科学研究院

计算数学所定期学术报告

报告人：　　**A. P. Jun Hu**

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报告题目：

Constructing both Lower and Upper Bounds for the Eigenvalues of the Elliptic Operators by the nonconforming finite element methods

邀请人：　　戴小英 副研究员

报告时间：**2012** 年 **5** 月 **10** 日（周四）

下午 **16：00-17：00**

（**15：30~16：00** 茶歇）

报告地点：　科技综合楼三层 **311**

计算数学所报告厅

Abstract:

This talk presents a method of constructing the nonconforming finite element methods which can produce the lower bounds for the eigenvalues of the elliptic operators. Based on such nonconforming discrete eigenfunctions, we propose a simple method to produce the upper bounds of the eigenvalues. More precisely, we construct a conforming approximation of the exact eigenfunction by the projection average interpolation of the nonconforming discrete eigenfunction. After showing the approximation property of the projection average interpolation, we prove that the Rayleigh—quotient of the aforementioned conforming approximation is convergent to the exact eigenvalues from above. Finally, we combine the lower and upper bounds of the eigenvalues to obtain a high accuracy approximation of the eigenvalues. Numerical examples verify our theoretical results.

欢迎大家参加！