

数学与系统科学研究院

计算数学所学术报告

报告人: Prof. Zhiqiang Cai
(Purdue University)

报告题目:

Recovery-Based A Posteriori Error
Estimators for Interface Problems

邀请人: 周爱辉研究员

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计算数学所报告厅

Abstract: Estimators of the recovery type possess a number of attractive features: their ease of implementation, generality, and

asymptotical exactness, that have led to their popularity in the engineering community. However, it is well-known that for interface problems with large jumps, existing estimators of the recovery type over-refine regions where there are no errors and, hence, fail to reduce the global error. In this talk, I will first explain why they fail and how to fix this structural failure. I will then introduce new recovery-based estimators for conforming, nonconforming, mixed, and discontinuous Galerkin elements. It is shown theoretically and numerically that these estimators are robust with respect to the jumps of diffusion coefficients. Moreover, these estimators do not require triangulation being aligned with physical interfaces, which is essential for their applications to nonlinear interface problems of practical interest.

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