数学与系统科学研究院

计算数学所网络学术报告

报告人：Associate Prof. Xiaozhe Hu

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报告题目：

Some Advances in Multigrid Methods

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报告时间：2020 年 7 月 31 日（周五）

晚上 19:30-21:00

报告工具：腾讯会议（ID: 745 5959 6903）

直播地址：

https://meeting.tencent.com/s/YhGTJ2EY0JDj

Abstract：

Multigrid (MG) methods are important in scientific computing, especially in the field of numerical Partial Differential Equations (PDEs). In this talk, we discuss recent advances in improving the robustness of the MG methods, in particular, the algebraic multigrid (AMG) methods. We first introduce adaptive AMG and emphasize the essential role of the so-called smooth error. Then, using Graph Laplacian as an example, we derive a posteriori error estimator based on the Helmholtz decomposition on graphs and prove its reliability. In addition, based on the framework of the method of subspace correction, we introduce randomness to further improve the efficiency of the solving stage. Numerical experiments are presented throughout the talk to verify the theoretical results and demonstrate the effectiveness of the proposed algorithms.

欢迎大家参加！