数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Weizhu Bao**

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报告题目：

The random projection method for stiff detonation capturing

邀请人： 洪佳林 研究员

报告时间：**2017** 年 **10** 月 **17** 日（周二）

上午 **10:30-11:30**

报告地点： 数学院南楼六层

602 教室

Abstract:

In this talk, I review the random projection method for underresolved numerical simulation of stiff detonation waves in chemically reaction flows. In the problem, the chemical time scales may be orders of magnitude faster than the fluid dynamical time scales, making the problem numerically stiff. A classical spurious numerical phenomenon, the incorrect propagation speeds of discontinuities, occurs in underresolved numerical solutions. We introduce a random project method for the reaction term by replacing the ignition temperature with a uniformly distributed random variable. The statistical average of this method corrects the spurious shock speed, as will be proved with a scalar model problem and demonstrated by a wide range of numerical examples in inviscid detonation waves in both one and two space dimensions as well as for detonation with multispecies.

欢迎大家参加！