# 数学与系统科学研究院

# 计算数学所学术报告

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**报告题目：**

**On the moment model reduction for kinetic equation**

**邀请人：** 黄记祖 博士

**报告时间：** 2016 年 8 月 18 日（周四）

下午 **15:00-16:00**

**报告地点：** 科技综合楼三层

**301 小报告厅**

# Abstract：

Model reduction of kinetic equation turns a high dimensional problem to a low dimensional quasi-linear system, which not only provides further understanding of the problem, but also essentially improves the efficiency of the numerical simulation. As a quasi-linear system with Cauchy data, the well-posedness of the model deduced is required to be hyperbolic. In the existed models, some of them are hyperbolic, and some of them may be regularized to be hyperbolic, while there are seldom progress on the else models.

In this talk, I will start from Grad's moment method, and point out that all Grad's moment system are not hyperbolic even around the thermodynamic equilbrium, and then proposed a globally hyperbolic regularization for Grad's moment system to obtain the globally hyperbolic moment system. By exploring the essential of the regularization, we extend the regularization to a generic framework to moment model reduction for kinetic equation. The fascinating point is, with only routine calculation, symmetric hyperbolic models can always be deduced with any ansatz for generic kinetic equation by the framework we proposed. By this framework, existing models are re-presented and brand new models are discovered.

## 欢迎大家参加！