

数学与系统科学研究院

计算数学所学术报告

报告人: **Prof. Dongbin Xiu**

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报告题目:

**Numerical Strategies for Parametric
Epistemic Uncertainty Analysis**

邀请人: 周涛 博士

报告时间: **2013 年 7 月 25 日 (周四)**

下午 15:00-16:00

报告地点: 科技综合楼三层 **311**

计算数学所报告厅

Abstract:

Epistemic uncertainty refers to the uncertainty due to lack of knowledge and its analysis requires special attention. In this talk we discuss numerical analysis of parametric type epistemic uncertainty. The parameters may be physical parameters or hyper-parameters used in a certain mathematical/numerical model. Due to lack of knowledge, the precise information of the probability distribution of these parameters is not available. This presents a challenge, as the standard probabilistic/stochastic methods do not directly apply anymore. Here we present some numerical strategies to quantify the impact of this type of uncertainty. One method is to construct accurate stochastic approximation without using input probability functions, and the other seeks to compute both the upper and lower bounds of the solution statistics induced by the uncertainty in the input probability functions. In both methods we present their mathematical foundation, as well as highly efficient numerical implementation.

欢迎大家参加!