

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**

(*Department of Mathematics, Purdue University*)

报告题目:

**Uncertainty Analysis for Complex
Systems: Algorithms beyond
Polynomial Chaos**

邀请人: 石钟慈院士

报告时间: **2011 年 7 月 14 日 (周四)**

下午 15: 00-16: 00

报告地点: **科技综合楼三层 301**
计算数学所小报告厅

Abstract:

The field of uncertainty quantification has received increasing amount of attention recently. Extensive research efforts have been devoted to it and many novel numerical techniques have been developed. These techniques aim to conduct stochastic simulations for large-scale complex systems. In this talk we will review one of the most widely approaches -- generalized polynomial chaos (gPC). The gPC methods employ orthogonal polynomials in random space and take advantage of the solution smoothness (whenever possible). The features of various gPC numerical schemes will be reviewed. Furthermore, we will discuss some of the highly efficient algorithms that are based on gPC and effective for simulations beyond uncertainty propagation. These algorithms are applicable for problems such as inverse inference, data assimilation, reliability analysis, etc.

欢迎大家参加!