

数学与系统科学研究院

计算数学所学术报告

报告人: **Dr. Dali Zhang**

(*National University of Singapore*)

报告题目:

**Stochastic Equilibrium Problems for
Energy Markets: Modeling and
Numerical Schemes**

邀请人: 袁亚湘研究员

报告时间: **2010 年 10 月 22 日 (周五)**

上午 9: 00 ~ 10: 30

报告地点: **科技综合楼三层 301**

计算数学所小报告厅

Abstract:

The study investigates generators' strategic behaviors in contract signing in the forward Market and power transaction in the electricity spot market. A stochastic equilibrium program with equilibrium constraints (SEPEC) model is proposed to characterize the interactions of generators' competition in the markets. In the theoretical analysis, we concern with the structure of a Nash-Cournot equilibrium in the forward-spot market, and establish some sufficient conditions for the existence of a Nash equilibrium in the forward-spot markets. On the other hand, in numerical schemes, we propose a Monte Carlo sampling method to approximate and solve the stochastic Nash equilibrium problem. The convergence analysis on the statistical estimators of stochastic Nash equilibria and Nash stationary points are provided. Finally, we present a gas-oil value/supply chain problem to illustrate our future development on the applications of stochastic equilibrium problems and Monte Carlo sampling methods in energy sectors.

Biography:

Dali Zhang received his Ph.D. degree in the University of Southampton, Southampton, U.K., in March 2010, and his B.Eng. and M. Eng. degrees in the Automation Department, University of Science and Technology of China, Hefei, China in 2006 and 2003, respectively. Since 11/2009, he is doing his Post-doc research at Department of Industrial and Systems Engineering, National University of Singapore.

His research interests are in the areas of stochastic equilibrium problem, Monte Carlo sampling methods and power systems.

欢迎大家参加!