数学与系统科学研究院

计算数学所学术报告

Speaker: Dr. Dali Zhang (National University of Singapore)

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

Time: 9:00-10:30,
Oct. 22nd (Friday)

Venue: Room 301, Lan-Bai Building

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 of the Speaker:

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！