数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Xin Chen**

（ *University of Illinois at Urbana-Champaign* ）

报告题目：

Stochastic Optimization with Decisions Truncated by Random Variables and Its Applications

邀请人： 袁亚湘 院士

报告时间：2016 年 12 月 21 日（周三）

下午 **16:00-17:00**

报告地点： 数学院南楼二层

202 教室

Abstract：

A common technical challenge encountered in many operations management optimization models is that decision variables are truncated by some random variables and the decisions are made before these random variables are realized, leading to non-convex minimization problems due to the truncation. To address this challenge, we develop a powerful transformation technique which converts a non-convex minimization problem to an equivalent convex minimization problem. We show that the transformation enables us to establish the preservation of some desired structural properties, such as convexity, submodularity and L-Natural-convexity, under optimization operations, which are critical for deriving structures of optimal policies and developing efficient algorithms. We then apply our approach to several operations models: inventory control with random capacity, and revenue management using booking limits.

Bio:

Xin Chen is a professor, an Abel Bliss Faculty Scholar and the Jerry S. Dobrovolny Faculty Scholar at the University of Illinois at Urbana-Champaign. He obtained his PhD from MIT in 2003, MS from Chinese Academy of Sciences in 1998 and BS from Xiangtan University in 1995. His research interest lies in optimization, data analytics, revenue management and supply chain management. He received the Informs revenue management and pricing section prize in 2009. He is the coauthor of the book "The Logic of Logistics: Theory, Algorithms, and Applications for Logistics and Supply Chain Management (Second Edition & Third Edition, 2005 & 2014)".

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