Preservation of Supermodularity and Convex-Like Properties under Optimization Operations with Applications to Inventory Models

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School of Physical and Mathematical Sciences

Supermodularity/submodularity and convex-like concepts such as k-convexity, quasi-k-convexity, symmetric k-convexity play important roles in the analysis of a variety of inventory models. One of their key features, critical in recursive analysis of dynamic programming formulations of stochastic inventory models, is that they can be preserved under certain optimization operations. We present some of these preservation properties and illustrate their applications to inventory models.

Speaker Biography

Xin Chen is an Assistant Professor 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 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)”.

Host: Prof. Chee Yeow Meng, Head, Division of Mathematical Sciences, School of Physical and Mathematical Sciences

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