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**

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报告题目：

M-Natural-Convexity and Its Applications in Operations

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报告时间：**2020 年 1 月 8 日（周三）**

下午 15:00-16:00

报告地点： 科技综合楼三层

311 报告厅

Abstract：

M-natural-convexity, one of the main concepts in discrete convex analysis, possesses many salient structural properties and allows for the design of efficient algorithms. In this talk, we discuss several new fundamental properties of M-natural-convexity and introduce its extension: S(ubsitute)-convexity. In particular, we show that in a parametric minimization model, the optimal solution is nonincreasing in the parameters when the objective function is S-convex and the constraint is a box. We then utilize our results to analyze two important operations models: a classical multi-product dynamic stochastic inventory model, and a portfolio contract model where a buyer reserves capacities in blocks from multiple competing suppliers.

We illustrate that looking from the lens of M-natural-convexity allows to simplify the complicated analysis in the literature for each model and extend the results to more general settings.

欢迎大家参加！