


复旦大学数学科学学院
数学综合报告会

报告题目：Lipschitz free boundaries in the monopolist's problem

报告人：Robert McCann 教授 (University of Toronto)

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地点：光华东主楼2201室

报告摘要：

The principal-agent problem is an important paradigm in economic theory for studying the value of private information; the nonlinear pricing problem faced by a monopolist is one example; others include optimal taxation and auction design. For multidimensional spaces of consumers (i.e. agents) and products, Rochet and Chone (1998) reformulated this problem to a concave maximization over the set of convex functions, by assuming agent preferences combine bilinearity in the product and agent parameters with a (quasi)linear sensitivity to prices. This optimization corresponds mathematically to a convexity-constrained obstacle problem.

The solution is divided into multiple regions, according to the rank of the Hessian of the optimizer. We show the free boundary separating the highest rank regions to be locally Lipschitz. Combining our techniques with those of Rochet and Chone allows us to confirm conjectured aspects of the solution to their square example, and gives the first analytical description of an overlooked market segment.

This talk is based on work-in-progress with Cale Rankin (University of Toronto) and Kelvin Shuangjian Zhang (Fudan University).

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