复旦大学数学科学学院

数学综合报告会

报告题目：　**Lévy driven financial models**

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摘要： Empirical analysis of financial data reveals that standard diffusion models do not generate sufficiently accurate return distributions. To reduce model risk, more powerful classes of driving processes are appropriate. In this survey exponential Lévy models and models driven by semimartingales in general are considered. Plain vanilla as well as exotic options are priced in the new model class. As a further application in risk management we show how estimates of the risk of a portfolio of securities can be improved.

In the second part we develop a Lévy term structure theory. Three basic approaches are introduced: the forward rate model, the forward process model, and the LIBOR or market model. Pricing formulas for interest rate derivatives as well as efficient numerical algorithms to evaluate these formulas are derived. The LIBOR model can be extended to a multi-currency and a credit setting. As an application pricing of cross-currency and a variety of credit derivatives is discussed.

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