

Abstract: "Local risk-minimization for Lévy markets"

Locally risk-minimizing, a well-known hedging method for contingent claims in a quadratic way, is discussed by using Malliavin calculus, and some examples are introduced. We consider a financial market composed of one riskless asset and one risky asset. The risky asset price process is given by a solution to an SDE driven by a Levy process. By using a Clark-Ocone type formula under change of measure, we represent locally risk-minimizing with Malliavin derivatives of the claim to hedge. We illustrate, in this talk, how to calculate Malliavin derivatives of call options, Asian options and lookback options. Besides, we give concrete expressions of locally risk minimizing of these options for the case where the coefficients of the SDE are deterministic. The Ornstein-Uhlenbeck type stochastic volatility model (Barndorff-Nielsen Shephard model) is also discussed as a typical example of models with random coefficients.

This talk is based on a joint work with Ryoichi Suzuki (Keio University).