

March 25, 2013
KAP 414
2:15 PM – 3:15 PM

Prof. Qingshuo Song
(City University of Hong Kong)

“Is Quantile Hedging always Equivalent to the Hypothesis Testing?”

We study the portfolio problem of maximizing the outperformance probability over a random benchmark through dynamic trading with a fixed initial capital. Under a general incomplete market framework, this stochastic control problem can be formulated as a composite pure hypothesis testing problem. We analyze the connection between this pure testing problem and its randomized counterpart, and from latter we derive a dual representation for the maximal outperformance probability. Moreover, in a complete market setting, we provide a closed-form solution to the problem of beating a leveraged exchange traded fund. For a general benchmark under an incomplete stochastic factor model, we provide the Hamilton-Jacobi-Bellman PDE characterization for the maximal outperformance probability. It's a joint work with Tim Leung and Jie Yang.