

## Financial Mathematics Seminar

Friday, Sept. 22, 2006

1:30pm–2:30pm

Nelson 1206

### ***Professor Jean–Pierre Fouque***

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Title: Perturbations Methods in Default Modeling

Abstract: Stochastic volatility has played a central role in modeling equity derivative markets. In the recent years the market in credit-linked derivative products has grown tremendously and had generated a need for more sophisticated models of default. We show that stochastic volatility incorporated in first passage models can create reasonable default probabilities over a wide range of maturities. To achieve that, one has to carefully calibrate the time scales of volatility. Regular and singular perturbation techniques associated to slow and fast time scales can be used to make this approach tractable. We then address the multi-name case and we show that default correlations created by stochastic volatility give interesting loss distributions. Perturbation techniques are again used to compute these distributions and the related CDO tranche prices.