1081-62-202 **Brent Bundick** and **Yong Zeng*** (zengy@umkc.edu), 5100 Rockhill Road, UMKC Dept of Math and Stat, Kansas City, MO 64110. *Bayes Estimation via Filtering Equation for Partially-observed Heston Stochastic Volatility Model with Marked Point Process Observations.* Preliminary report.

Heston's stochastic volatility (SV) model has been well studied and is regarded as a benchmark model in finance literature. Time-stamped transactions price data are marked point process (MPP) observations. This talk first reviews a general partially-observed framework of Markov processes with MPP observations recently proposed for UHF data; the posterior distribution and the filtering equation, which is a stochastic partial differential equation(SPDE) with recursiveness; and the Bayes Estimation via Filtering Equation (BEFE).

In the past few years, Graphics Processing Units (GPUs) evolved from rendering graphics (linear algebra-like computations) for electronic games and video applications to becoming low-cost and green supercomputing units. With harnessing the newly available GPU supercomputing power in mind and targeting the SV model, we develop a new uniformly consistent recursive algorithm via BEFE for propagating and updating the joint posterior distributions. We show that the recursive algorithm is well suited for GPU computing and we present a simulation result to demonstrate that the recursive algorithm works. Real time volatility track and feed is made possible. (Received February 11, 2012)