1035-91-1368   **Jean-Pierre Fouque**, **George Papanicolaou** and **Ronnie Sircar*** (`sircar@princeton.edu`), ORFE Department, Princeton University, E-Quad, Princeton, NJ 08544, and **Knut Solna**.
Multiscale Stochastic Volatility Diffusion Models.

We discuss empirical motivations for long and short time scales in models of stochastic volatility based on diffusion processes. These have applications for pricing equity derivatives, interest rate products and credit derivatives, and calibrating implied volatilities, yield curves and credit spreads. A combination of singular and regular perturbation techniques, higher order terms in the expansion, and a periodic maturity cycle, leads to convenient asymptotic approximations which we illustrate from financial data. (Received September 19, 2007)