1035-60-203 **Alan L. Lewis*** (alanlewis@roadrunner.com), 983 Bayside Cove, Newport Beach, CA 92660.

Geometries and Smile Asymptotics for a Class of Stochastic Volatility Models. Preliminary report.

I discuss the small time-to-expiration (T) asymptotics in stochastic volatility models. A $T = 0$ implied volatility smile exists and may be computed using either (i) geodesics, (ii) the eikonal equation, or (iii) a characteristic function. The $T > 0$ smile admits a double series expansion in integer powers of T and the log-moneyness, and may be automated.

Running examples come from the class of models where the diffusion coefficient of the volatility process $V(t)$ is $V(t)^p$, where p is any real number. Geometries associated to the implied metrics are visualized. (Received August 16, 2007)