1112-60-540 **Archil Gulisashvili**, **Frederi Viens** and **Xin Zhang*** (zhang407@purdue.edu), 150 N. University Street, West Lafayette, IN 47906. *Extreme-strike asymptotics for general Gaussian stochastic volatility models.*

We consider a stochastic volatility stock price model in which the volatility is a non-centered continuous Gaussian process with arbitrary prescribed mean and covariance. By exhibiting a Karhunen-Loève expansion for the integrated variance, and using sharp estimates of the density of a general second-chaos variable, we derive asymptotics for the stock price density and implied volatility in these models in the limit of large or small strikes. Our main result provides explicit expressions for the first three terms in the expansion of the implied volatility, based on three basic spectral-type statistics of the Gaussian process: the top eigenvalue of its covariance operator, the multiplicity of this eigenvalue, and the L^2 norm of the projection of the mean function on the top eigenspace. Strategies for using this expansion for calibration purposes are discussed. (Received August 11, 2015)