Quasi-closed-form solutions for some multidimensional derivatives

In this talk we present several results for path and non-path dependent financial derivatives in a multidimensional stochastic covariance setting. In particular we emphasize recent advances in the topic of closed-form expressions for $n$-dimensional Certificate and Barrier Options in cases with stochastic variance, simple stochastic covariances and stochastic interest rate. These solutions are found in terms of special well-known mathematical functions like Bessel, non-central Chi-Square and Confluent Hypergeometric.