

1093-60-174

Martin Larsson* (martin.larsson@epfl.ch), Swiss Finance Institute, Ecole Polytechnique Fédérale de Lausanne, 1022 Lausanne, Switzerland. *Polynomial preserving diffusions and applications in Finance.*

Polynomial preserving processes is a class of multivariate Markov processes extending the important class of affine processes. They are defined by the property that the semigroup leaves the space of polynomials of degree at most n invariant, for each n , which has significant consequences for the tractability of models based on these processes. In this talk I will indicate how such models can be constructed, and then focus on existence and uniqueness of polynomial preserving diffusions via SDE methods. As in the affine case, a key difficulty is that the coefficients of the SDE become degenerate at the boundary of the state space. In the context of PDE based pricing in finance, this reinforces the need for methods capable of dealing with the boundary degeneracies. *This research is joint work with Damir Filipović, funded by the European Union's Seventh Framework Programme (FP/2007-2013) / ERC Grant Agreement n. 307465-POLYTE.* (Received August 13, 2013)