Title: Poisson process and sharp constants in $L^p $ and Schauder estimates for a class of degenerate Kolmogorov operators.

Abstract: This is a joint work with S. Menozzi (Evry) and L. Marino (IMPAN). We consider a possibly degenerate Kolmogorov Ornstein-Uhlenbeck operator of the form $L= Tr(BD^2) + \langle Az,D \rangle $, where A, $B $ are $N\times N $ matrices, $z \in R^N$, $N\ge 1 $, which satisfy the Kalman condition which is equivalent to the hypoellipticity condition. We prove the following stability result: the Schauder and Sobolev estimates associated with the corresponding parabolic Cauchy problem remain valid, with the same constant, for the parabolic Cauchy problem associated with a second order perturbation of L, namely for $L+{ Tr}(S(t) D^2) $ where $S(t)$ is a non-negative definite $N\times N $ matrix depending continuously on $t \in [0,T]$. Our approach relies on the perturbative technique based on the Poisson process introduced in [N.V. Krylov and E. Priola 2017]