

1136-60-218

Vasileios Maroulas and **Xiaoyang Pan*** (pan@math.utk.edu), Department of Mathematics, University of Tennessee, Knoxville, TN 37996, and **Jie Xiong**. *Large deviations for the optimal filter of nonlinear dynamical systems driven by Lévy noise.*

In this talk, we focus on the asymptotic behavior of the optimal filter where both signal and observation processes are driven by Lévy noises. Indeed, we study large deviations for the case where the signal-to-noise ratio is small by considering weak convergence arguments. To that end, we first prove the uniqueness of the solution of the controlled Zakai and Kushner-Stratonovich equations. For this, we employ a method which transforms the associated equations into SDEs in an appropriate Hilbert space. Next, taking into account the controlled analogue of Zakai and Kushner-Stratonovich equations, respectively, the large deviation principle follows by employing the existence, uniqueness and tightness of the solutions. (Received January 16, 2018)