On optimal estimation of certain random quantities associated with Lévy processes

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Abstract. In this talk we present new ideas on optimality of statistical estimates of certain random quantities of stochastic processes, such as supremum or local times. Despite the existing results on estimation of such objects through high frequency observations, the question of optimality is rarely discussed. We will demonstrate some optimal estimation methods for the supremum and local times of the Brownian motion in the L^2 and L^1 sense. In the second part of the talk we will investigate how the main ideas can be extended towards the class of Lévy processes and continuous diffusion models.

Joint work with Jevgenijs Ivanovs.