Bivariate Bernstein-Gamma functions and asymptotic behaviour of exponential functionals on deterministic horizon

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For almost thirty years, researchers have been studying the properties of classical exponential functionals of Lévy processes. In this presentation, we will introduce the Bernstein-Gamma functions, which are intricately connected to exponential functionals through their Mellin transform. We will explore this connection to obtain asymptotic results on deterministic horizon, which is a crucial concept in probability theory that refers to a fixed time period.

While previous research has focused on the behavior of these entities as the horizon tends to infinity, there appears to be no unified approach to the study of these objects. Our approach aims to address this issue by investigating this problem more broadly. We will utilize a range of techniques, including Mellin inversion, Tauberian theorems (including de Haan theory), and the exploration of bivariate Bernstein-Gamma function properties.

This is a joint work with Mladen Savov.