

概率论系列报告

报告题目 (Title): **Stable Lévy processes in a cone**

报告人 (Speaker): **Andreas Kyprianou (University of Bath)**

时间 (Time): 2月22日(周五) 上午 10:00-11:00

地点 (Venue): 北京大学理科一号楼 1303

摘要 (Abstract): Bañ los and Bogdan (2004) and Bogdan, Palmowski and Wang (2016) analyse the asymptotic tail distribution of the first time a stable (**Lévy**) process in dimension $d \geq 2$ exists a cone. We use these results to develop the notion of a stable process conditioned to remain in a cone as well as the notion of a stable process conditioned to absorb continuously at the apex of a cone (without leaving the cone). As self-similar Markov processes we examine some of their fundamental properties through the lens of its Lamperti-Kiu decomposition. In particular we are interested to understand the underlying structure of the Markov additive process that drives such processes. As a consequence of our interrogation of the underlying MAP, we are able to provide an answer by example to the open question: If the modulator of a MAP has a stationary distribution, under what conditions does its ascending ladder MAP have a stationary distribution? We show how the two forms of conditioning are dual to one another. Moreover, we construct the null-recurrent extension of the stable process killed on exiting a cone, showing that it again remains in the class of self-similar Markov processes.

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