

Seminar of Probability and Stochastic Process

Thursday, 15th November, from 11h15 to 12h30

[GCA 1416](#), EPFL, Ecublens

[Prof. Andreas Kyprianou](#)

The University of Bath

Censored Stable Processes

Abstract:

We look at a general two-sided jumping strictly alpha-stable process where alpha is in $(0,2)$. By censoring its path each time it enters the negative half line we show that the resulting process is a positive self-similar Markov Process. Using Lamperti's transformation we uncover an underlying driving Lévy process and, moreover, we are able to describe in surprisingly explicit detail the Wiener-Hopf factorization of the latter. Using this Wiener-Hopf factorization together with a series of spatial path transformations, it is now possible to produce an explicit formula for the law of the original stable processes as it first "enters" a finite interval, thereby generalizing a result of Blumenthal, Gettoor and Ray for symmetric stable processes from 1961.

This is joint work with Alex Watson (Bath) and JC Pardo (CIMAT)

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