

Censored stable processes

Andreas Kyprianou

University of Bath

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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 Levy 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 Juan Carlos Pardo and Alex Watson.