Special Issue

Exit Problems for Lévy and Markov Processes with One-Sided Jumps and Related Topics

Message from the Guest Editor

It has long been well-known that exit problems for one-dimensional Lévy processes are easier when there are jumps in one direction only. In the last few years, this intuition became more precise: a great variety of identities for exit problems of spectrally-negative Lévy processes may be ergonomically expressed in terms of two "q-harmonic functions" (or scale functions, or positive martingales) W and Z. The proofs typically require not much more than the strong Markov property and hold in principle for the wider class of spectrally-negative strong Markov processes. Motivated by these considerations, this Special Issue aims to review and push further the state-of-the-art on the following topics:

- W, Z formulas for exit problems of the Lévy and diffusion classes (including drawdown problems)
- W, Z formulas for quasi-stationary distributions
- Asymptotic results
- Extensions to random walks, Markov additive processes, Omega models, processes with Parisian reflection or absorbtion, processes with state-dependent drift, etc.
- Optimal stopping, dividends, real options, etc
- Numeric computation of the scale functions

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Risks is published in an open access format; research articles, reviews, and other content are released on the internet immediately after acceptance. Specifically, *Risks* welcomes submissions that (a) contribute with insight, outlook, understanding, and overview; (b) show creativity in terms of pedagogical methods and techniques; (c) help the transfer of theoretical and applied research into applications in the public and private domains; and (d) show responsibility for the impact on society. The scientific and the general public have unlimited free access to the content as soon as it is published.

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