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B. Böttcher, R. Schilling, J. Wang

Lévy Matters III

Lévy-Type Processes: Construction, Approximation and Sample Path Properties

Series: Lévy Matters, Vol. 2099

- ▶ Over the past 10-15 years, we have seen a revival of general Lévy process theory, as well as a burst of new applications. There is a lively and growing research community in this area
- ▶ Expository articles help to disseminate important theoretical and applied research, especially to young researchers like PhD students and postdocs
- ▶ The respective chapters will appeal to various target groups
- ▶ Presents a unique blend of analysis and stochastics, with many findings appearing for the first time in a monograph

This volume presents recent developments in the area of Lévy-type processes and more general stochastic processes that behave locally like a Lévy process. Although written in a survey style, quite a few results are extensions of known theorems, and others are completely new. The focus is on the symbol of a Lévy-type process: a non-random function which is the counterpart of the characteristic exponent of a Lévy process. The class of stochastic processes which can be associated with a symbol is characterized, various schemes constructing a stochastic process from a given symbol are discussed, and it is shown how one can use the symbol in order to describe the sample path properties of the underlying process. Lastly, the symbol is used to approximate and simulate Levy-type processes.

This is the third volume in a subseries of the Lecture Notes in Mathematics called Lévy Matters. Each volume describes a number of important topics in the theory or applications of Lévy processes and pays tribute to the state of the art of this rapidly evolving subject with special emphasis on the non-Brownian world.



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