

1. Record Nr.	UNINA9910828220403321
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Titolo	Markov processes, semigroups, and generators // Vassili N. Kolokoltsov
Pubbl/distr/stampa	Berlin ; ; New York, : De Gruyter, c2011
ISBN	1-283-16633-X 9786613166333 3-11-025011-X
Edizione	[1st ed.]
Descrizione fisica	1 online resource (448 p.)
Collana	De Gruyter studies in mathematics, , 0179-0986 ; ; 38
Classificazione	SK 820
Disciplina	519.2/33
Soggetti	Markov processes Semigroups Group theory - Generators
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	pt. 1. Introduction to stochastic analysis -- pt. 2. Markov processes and beyond.
Sommario/riassunto	Markov processes represent a universal model for a large variety of real life random evolutions. The wide flow of new ideas, tools, methods and applications constantly pours into the ever-growing stream of research on Markov processes that rapidly spreads over new fields of natural and social sciences, creating new streamlined logical paths to its turbulent boundary. Even if a given process is not Markov, it can be often inserted into a larger Markov one (Markovianization procedure) by including the key historic parameters into the state space. This monograph gives a concise, but systematic and self-contained, exposition of the essentials of Markov processes, together with recent achievements, working from the "physical picture" - a formal pre-generator, and stressing the interplay between probabilistic (stochastic differential equations) and analytic (semigroups) tools. The book will be useful to students and researchers. Part I can be used for a one-semester course on Brownian motion, Lévy and Markov processes, or on probabilistic methods for PDE. Part II mainly contains the author's research on Markov processes. From the contents: Tools from

Probability and Analysis Brownian motion Markov processes and martingales SDE, DE and martingale problems Processes in Euclidean spaces Processes in domains with a boundary Heat kernels for stable-like processes Continuous-time random walks and fractional dynamics Complex chains and Feynman integral

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