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ISBN	3-030-70447-5
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XIV, 252 p. 16 illus., 4 illus. in color.)
Collana	Probability Theory and Stochastic Modelling, , 2199-3149 ; ; 100
Disciplina	519.233
Soggetti	Markov processes Computer science - Mathematics Mathematical statistics Markov Process Probability and Statistics in Computer Science Processos de Markov Estadística matemàtica Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Tools -- Markov renewal processes and related processes -- First steps with PDMP -- Hitting time distribution -- Intensity of some marked point pocesses -- Generalized Kolmogorov equations -- A martingale approach -- Stability -- Numerical methods -- Switching Processes -- Tools -- Interarrival distribution with several Dirac measures -- Algorithm convergence's proof.
Sommario/riassunto	This book is aimed at researchers, graduate students and engineers who would like to be initiated to Piecewise Deterministic Markov Processes (PDMPs). A PDMP models a deterministic mechanism modified by jumps that occur at random times. The fields of applications are numerous : insurance and risk, biology, communication networks, dependability, supply management, etc. Indeed, the PDMPs studied so far are in fact deterministic functions of CSMPs (Completed Semi-Markov Processes), i.e. semi-Markov processes completed to become Markov processes. This remark leads

to considerably broaden the definition of PDMPs and allows their properties to be deduced from those of CSMPs, which are easier to grasp. Stability is studied within a very general framework. In the other chapters, the results become more accurate as the assumptions become more precise. Generalized Chapman-Kolmogorov equations lead to numerical schemes. The last chapter is an opening on processes for which the deterministic flow of the PDMP is replaced with a Markov process. Marked point processes play a key role throughout this book.