1.	Record Nr.	UNISA996466393303316
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	Titolo	Markov Renewal and Piecewise Deterministic Processes [[electronic resource] /] / by Christiane Cocozza-Thivent
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
	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.