1. Record Nr. UNINA9910139519603321

Autore	Anisimov V. V (Vladimir Vladislavovich)
Titolo	Switching processes in queueing models [[electronic resource] /] / Vladimir V. Anisimov
Pubbl/distr/stampa	London ; ; ISTE ; ; Hoboken, NJ, : John Wiley & Sons, 2008
ISBN	1-282-16515-1 9786612165153 0-470-61134-0 0-470-39395-5
Descrizione fisica	1 online resource (347 p.)
Collana	ISTE ; ; v.47
Disciplina	519.8/2 519.82
Soggetti	Telecommunication - Switching systems - Mathematical models Telecommunication - Traffic - Mathematical models Queuing theory Electronic books.
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	Switching Processes in Queueing Models; Contents; Preface; Definitions; Chapter 1. Switching Stochastic Models; 1.1. Random processes with discrete component; 1.1.1. Markov and semi-Markov processes; 1.1.2. Processes with independent increments and Markov switching; 1.1.3. Processes with independent increments and semi-Markov switching; 1.2. Switching processes; 1.2.1. Definition of switching processes; 1.2.2. Recurrent processes of semi-Markov type (simple case); 1.2.3. RPSM with Markov switching; 1.2.4. General case of RPSM; 1.2.5. Processes with Markov or semi-Markov switching Chapter 3. Processes of Sums of Weakly-dependent Variables3.1. Limit theorems for processes of sums of conditionally independent random variables; 3.2. Limit theorems for sums with Markov switching; 3.2.1. Flows of rare events; 3.2.1.1. Discrete time; 3.2.1.2. Continuous time; 3.3. Quasi-ergodic Markov processes; 3.4. Limit theorems for non-homogenous Markov processes; 3.4.1. Convergence to Gaussian processes; 3.4.2. Convergence to processes with independent

increments; 3.5. Bibliography; Chapter 4. Averaging Principle and Diffusion Approximation for Switching Processes; 4.1. Introduction 4.2. Averaging principle for switching recurrent sequences4.3. Averaging principle and diffusion approximation for RPSMs; 4.4. Averaging principle and diffusion approximation for recurrent processes of semi-Markov type (Markov case); 4.4.1. Averaging principle and diffusion approximation for SMP; 4.5. Averaging principle for RPSM with feedback; 4.6. Averaging principle and diffusion approximation for switching processes; 4.6.1. Averaging principle and diffusion approximation for processes with semi-Markov switching; 4.7. Bibliography
Chapter 5. Averaging and Diffusion Approximation in Overloaded Switching Queueing Systems and Networks

Sommario/riassunto

Switching processes, invented by the author in 1977, is the main tool used in the investigation of traffic problems from automotive to telecommunications. The title provides a new approach to low traffic problems based on the analysis of flows of rare events and queuing models. In the case of fast switching, averaging principle and diffusion approximation results are proved and applied to the investigation of transient phenomena for wide classes of overloading queuing networks. The book is devoted to developing the asymptotic theory for the class of switching queuing models which covers mode