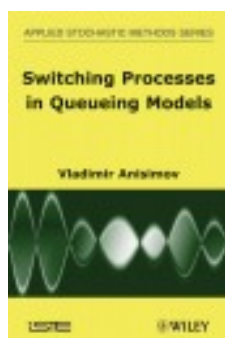


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Switching Processes in Queueing Models

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Description

The book is devoted to developing the asymptotic theory for the class of switching queueing models which covers state-dependent models in a Markov or semi-Markov environment, models under the influence of flows of external or internal perturbations, unreliable and hierarchic networks, etc.

Switching processes, invented by the author in 1977, are the main tools used in the investigation. Asymptotic results for processes with rare switching provide a new approach to low traffic problems, to the analysis of flows of rare events and asymptotic aggregation of state space in queueing 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 queueing Markov and semi-Markov systems and networks and hierarchic models in different time scales.

Some theoretical results are illustrated by the examples of simulation in R.

Contents

1. Switching Stochastic Models.
2. Switching Queueing Models.
3. Processes of Sums of Weakly-dependent Variables.
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8. Asymptotic Aggregation of State Space.
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About the Authors

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