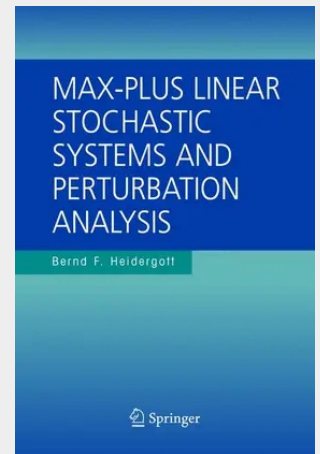


Max-Plus Linear Stochastic Systems and Perturbation Analysis

During the last decade, the area of stochastic max-plus linear systems has witnessed a rapid development, which created a growing interest in this area. This book provides a thorough treatment of the theory of stochastic max-plus linear systems. Max-plus algebra is an algebraic approach to discrete event systems (DES), like queuing networks that are prone to synchronization. Perturbation analysis studies the sensitivity of the performance of DES with respect to changes in a particular system parameter.

The first part of the book addresses modeling issues and stability theory for stochastic max-plus systems. The second part of the book treats perturbation analysis of max-plus systems: a calculus for differentiation of max-plus systems is developed. This calculus leads to numerical evaluations of performance indices of max-plus linear stochastic systems, such as the Lyapunov exponent or waiting times.

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