

Mathematical Methods in Robust Control of Linear Stochastic Systems

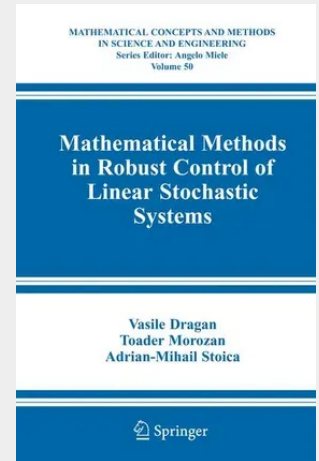
Linear stochastic systems are successfully used to provide mathematical models for real processes in fields such as aerospace engineering, communications, manufacturing, finance and economy. This monograph presents a useful methodology for the control of such stochastic systems with a focus on robust stabilization in the mean square, linear quadratic control, the disturbance attenuation problem, and robust stabilization with respect to dynamic and parametric uncertainty. Systems with both multiplicative white noise and Markovian jumping are covered.

Key Features:

- Covers the necessary pre-requisites from probability theory, stochastic processes, stochastic integrals and stochastic differential equations
- Includes detailed treatment of the fundamental properties of stochastic systems subjected both to multiplicative white noise and to jump Markovian perturbations
- Systematic presentation leads the reader in a natural way to the original results
- New theoretical results accompanied by detailed numerical examples
- Proposes new numerical algorithms to solve coupled matrix algebraic Riccati equations.

The unique monograph is geared to researchers and graduate students in advanced control engineering, applied mathematics, mathematical systems theory and finance. It is also accessible to undergraduate students with a fundamental knowledge in the theory of stochastic systems.

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