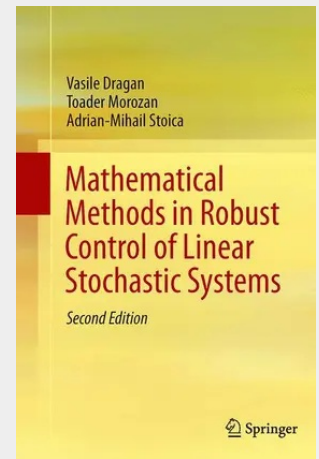


## Mathematical Methods in Robust Control of Linear Stochastic Systems

This second edition of Mathematical Methods in the Robust Control of Linear Stochastic Systems includes a large number of recent results in the control of linear stochastic systems. More specifically, the new results presented are: - A unified and abstract framework for Riccati type equations arising in the stochastic control - Stability and control problems for systems perturbed by homogeneous Markov processes with infinite number of states - Mixed  $H_2$  /  $H_\infty$  control problem and numerical procedures - Linear differential equations with positive evolution on ordered Banach spaces with applications for stochastic systems including both multiplicative white noise and Markovian jumps represented by a Markov chain with countable infinite set of states - Kalman filtering for stochastic systems subject both to state dependent noise and Markovian jumps -  $H_\infty$  reduced order filters for stochastic systems The book will appeal to graduate students, researchers in advanced control engineering, finance, mathematical systems theory, applied probability and stochastic processes, and numerical analysis. From Reviews of the First Edition: This book is concerned with robust control of stochastic systems. One of the main features is its coverage of jump Markovian systems. ... Overall, this book presents results taking into consideration both white noise and Markov chain perturbations. It is clearly written and should be useful for people working in applied mathematics and in control and systems theory. The references cited provide further reading sources. (George Yin, Mathematical Reviews, Issue 2007 m) This book considers linear time varying stochastic systems, subjected to white noise disturbances and system parameter Markovian jumping, in the context of optimal control ... robust stabilization, and disturbance attenuation. ... The material presented in the book is organized in seven chapters. ... The book is very well written and organized. ... is a valuable reference for all researchers and graduate students in applied mathematics and control engineering interested in linear stochastic time varying control systems with Markovian parameter jumping and white noise disturbances. (Zoran Gajic, SIAM Review, Vol. 49 (3), 2007)

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