

1. Record Nr.	UNINA9910437866903321
Autore	Costa Oswaldo L. V
Titolo	Continuous-time Markov jump linear systems // Oswaldo L.V. Costa, Marcelo D. Fragoso, Marcos G. Todorov
Pubbl/distr/stampa	New York, : Springer, 2013
ISBN	1-283-94496-0 3-642-34100-4
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (294 p.)
Collana	Probability and its applications, , 1431-7028
Altri autori (Persone)	FragosoMarcelo D TodorovMarcos G
Disciplina	003.76
Soggetti	Stochastic control theory Stochastic systems Linear systems Control theory Markov processes
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	1.Introduction -- 2.A Few Tools and Notations -- 3.Mean Square Stability -- 4.Quadratic Optimal Control with Complete Observations -- 5.H2 Optimal Control With Complete Observations -- 6.Quadratic and H2 Optimal Control with Partial Observations -- 7.Best Linear Filter with Unknown $(x(t), (t))$ -- 8.H _∞ Control -- 9.Design Techniques -- 10.Some Numerical Examples -- A. Coupled Differential and Algebraic Riccati Equations -- B. The Adjoint Operator and Some Auxiliary Results -- References. - Notation and Conventions -- Index.
Sommario/riassunto	It has been widely recognized nowadays the importance of introducing mathematical models that take into account possible sudden changes in the dynamical behavior of high-integrity systems or a safety-critical system. Such systems can be found in aircraft control, nuclear power stations, robotic manipulator systems, integrated communication networks and large-scale flexible structures for space stations, and are inherently vulnerable to abrupt changes in their structures caused by component or interconnection failures. In this regard, a particularly interesting class of models is the so-called Markov jump linear systems

(MJLS), which have been used in numerous applications including robotics, economics and wireless communication. Combining probability and operator theory, the present volume provides a unified and rigorous treatment of recent results in control theory of continuous-time MJLS. This unique approach is of great interest to experts working in the field of linear systems with Markovian jump parameters or in stochastic control. The volume focuses on one of the few cases of stochastic control problems with an actual explicit solution and offers material well-suited to coursework, introducing students to an interesting and active research area. The book is addressed to researchers working in control and signal processing engineering. Prerequisites include a solid background in classical linear control theory, basic familiarity with continuous-time Markov chains and probability theory, and some elementary knowledge of operator theory.
