1. Record Nr. UNICAMPANIASUN0125735

Titolo	Industrial Applications of Poly(lactic acid) / Maria Laura Di Lorenzo, René Androsch editors
Pubbl/distr/stampa	VII, 228 p., : ill. ; 24 cm
Edizione	[Cham : Springer, 2018]
Descrizione fisica	Pubblicazione in formato elettronico
Disciplina	540 620.11 620.192 610.28
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr. UNINA9910827211303321

Autore	Simiu Emil
Titolo	Chaotic transitions in deterministic and stochastic dynamical systems : applications of Melnikov processes in engineering, physics, and neuroscience / / Emil Simiu
Pubbl/distr/stampa	Princeton, New Jersey : , : Princeton University Press, , 2002 ©2002
ISBN	0-691-05094-5 1-4008-3250-0
Descrizione fisica	1 online resource (244 p.)
Collana	Princeton Series in Applied Mathematics
Disciplina	515/.352
Soggetti	Differentiable dynamical systems Chaotic behavior in systems Stochastic systems
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.

Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front matter -- Contents -- Preface -- Chapter 1. Introduction -- PART 1. FUNDAMENTALS -- Chapter 2. Transitions in Deterministic Systems and the Melnikov Function -- Chapter 3. Chaos in Deterministic Systems and the Melnikov Function -- Chapter 4. Stochastic Processes -- Chapter 5. Chaotic Transitions in Stochastic Dynamical Systems and the Melnikov Process -- PART 2. APPLICATIONS -- Chapter 6. Vessel Capsizing -- Chapter 7. Open-Loop Control of Escapes in Stochastically Excited Systems -- Chapter 8. Stochastic Resonance -- Chapter 9. Cutoff Frequency of Experimentally Generated Noise for a First-Order Dynamical System -- Chapter 10. Snap-Through of Transversely Excited Buckled Column -- Chapter 11. Wind-Induced Along-Shore Currents over a Corrugated Ocean Floor -- Chapter 12. The Auditory Nerve Fiber as a Chaotic Dynamical System -- Appendix A1 Derivation of Expression for the Melnikov Function -- Appendix A2 Construction of Phase Space Slice through Stable and Unstable Manifolds -- Appendix A3 Topological Conjugacy -- Appendix A4 Properties of Space 2 -- Appendix A5 Elements of Probability Theory -- Appendix A6 Mean Upcrossing Rate u-1 for Gaussian Processes -- Appendix A7 Mean Escape Rate -1 for Systems Excited by White Noise -- References -- Index
Sommario/riassunto	The classical Melnikov method provides information on the behavior of deterministic planar systems that may exhibit transitions, i.e. escapes from and captures into preferred regions of phase space. This book develops a unified treatment of deterministic and stochastic systems that extends the applicability of the Melnikov method to physically realizable stochastic planar systems with additive, state-dependent, white, colored, or dichotomous noise. The extended Melnikov method yields the novel result that motions with transitions are chaotic regardless of whether the excitation is deterministic or stochastic. It explains the role in the occurrence of transitions of the characteristics of the system and its deterministic or stochastic excitation, and is a powerful modeling and identification tool. The book is designed primarily for readers interested in applications. The level of preparation required corresponds to the equivalent of a first-year graduate course in applied mathematics. No previous exposure to dynamical systems theory or the theory of stochastic processes is required. The theoretical prerequisites and developments are presented in the first part of the book. The second part of the book is devoted to applications, ranging from physics to mechanical engineering, naval architecture, oceanography, nonlinear control, stochastic resonance, and neurophysiology.