Contents

Chaos Control

Preface V

Chaos Control

Targeting Control of Chaotic Systems 1
Erik M. Bollt

Chaotic Vibration of the Wave Equation with Nonlinear Feedback Boundary Control: Progress and Open Questions ... 25
Goong Chen, Sze-Bi Hsu, Jianxin Zhou

Time-delayed Impulsive Stabilization of Unstable Periodic Orbits in Chaotic Hybrid Systems 51
Yu-Ping Tian, Xinghuo Yu

Odd Number Limitation in Delayed Feedback Control 71
Shigeru Yamamoto, Toshimitsu Ushio

Introduction to Some Methods of Chaos Analysis and Control for PDEs 89
Yi Zhao

Chaos Synchronization

Chaotic Systems Synchronization 117
Johan Suykens, Mustak Yalçın, Joos Vandewalle

Neural Network Design for Chaos Synchronization 137
Edgar N. Sanchez, Jose P. Perez, Luis J. Ricalde

Chaos Anti-Control

Chaotification via Feedback: The Discrete Case 159
Guanrong Chen

Generating Chaos in Continuous-Time Systems via Feedback Control 179
Xiao Fan Wang

Applications

Formation Mechanisms and Control Methods of Beam Halo-Chaos in High-Current Ion Linacs 205
Jin-Qing Fang, Guanrong Chen, Xinghuo Yu

Chaos and Pseudo-Randomness 247
Ljupco Kocarev, Goce Jakimoski, Zarko Tasev

Applying Ergodic Theory to Improve Noise Performance of Differential Chaos Shift Keying 265
Henry Leung and Haiyang Yu

Control of Chaos Statistics for Optimization of DS-CDMA Systems 295
Gianluca Setti, Riccardo Rovatti, Gianluca Mazzini

Calculation and Control of Unstable Periodic Orbits in Piecewise Smooth Dynamical Systems 321
Tetsushi Ueta, Tohru Kawabe, Guanrong Chen, Hiroshi Kawakami

Control of Chaos Statistics for the Generation of Timing Signals with Improved EMC 341
Gianluca Setti, Riccardo Rovatti, Sergio Callegari, Michele Balestra