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Nota di contenuto	Synchronization Phenomena in Coupled Hyperchaotic Hidden Oscillators using a Nonlinear Open Loop Controller -- A Chaotic Hyperjerk System Based on Memristive Device -- A Novel Hyperjerk System with Two Cubic Nonlinearities and Its Adaptive Control -- A Novel Conservative Jerk Chaotic System with Two Cubic Nonlinearities and Its Backstepping Control -- Adaptive Backstepping Control, Synchronization and Circuit Simulation of a Novel Jerk Chaotic System with a Quartic Nonlinearity -- A Seven-Term Novel Jerk Chaotic System and Its Adaptive Control -- Adaptive Control and Circuit Simulation of a Novel 4-D Hyperchaotic System with Two Quadratic Nonlinearities -- Analysis, Adaptive Control and Synchronization of a Novel 3-D Highly Chaotic System -- Qualitative Analysis and Adaptive Control of a Novel 4-D Hyperchaotic System -- Global Chaos Control and Synchronization

of a Novel Two-Scroll Chaotic System with Three Quadratic Nonlinearities -- A Novel 3-D Circulant Chaotic System with Labyrinth Chaos and Its Adaptive Control -- A 3-D Novel Jerk Chaotic System and Its Application in Secure Communication System and Navigation Mobile Robot -- On the Verification for Realizing Multi-Scroll Chaotic Attractors with High Maximum Lyapunov Exponents and Entropy -- Chaotic Synchronization of CNNs in Small-World Topology Applied to Data Encryption -- Fuzzy Adaptive Synchronization of Incommensurate Fractional-Order Chaotic Systems -- Implementing of a Laboratory-Based Educational Tool for Teaching Nonlinear Circuits and Chaos -- Control of Shimizu-Morioka Chaotic System with Passive Control, Sliding Mode Control and Backstepping Design Methods: A Comparative Analysis -- Generalized Projective Synchronization of a Novel Chaotic System with a Quartic Nonlinearity via Adaptive Control -- A Novel 4-D Hyperchaotic Chemical Reactor System and its Adaptive Control -- A Novel 5-D Hyperchaotic System with a Line of Equilibrium Points and its Adaptive Control.-Analysis, Control and Circuit Simulation of a Novel 3-D Finance Chaotic System -- A Novel Highly Hyperchaotic System and its Adaptive Control -- Sliding Mode Controller Design for the Global Stabilization of Chaotic Systems and Its Application to Vaidyanathan Jerk System -- Adaptive Control and Synchronization of a Rod-Type Plasma Torch Chaotic System via Backstepping Control Method -- Analysis, Adaptive Control and Synchronization of a Novel 3-D Chaotic System with a Quartic Nonlinearity. .

Sommario/riassunto

This book reports on the latest advances and applications of chaotic systems. It consists of 25 contributed chapters by experts who are specialized in the various topics addressed in this book. The chapters cover a broad range of topics of chaotic systems such as chaos, hyperchaos, jerk systems, hyperjerk systems, conservative and dissipative systems, circulant chaotic systems, multi-scroll chaotic systems, finance chaotic system, highly chaotic systems, chaos control, chaos synchronization, circuit realization and applications of chaos theory in secure communications, mobile robot, memristors, cellular neural networks, etc. Special importance was given to chapters offering practical solutions, modeling and novel control methods for the recent research problems in chaos theory. This book will serve as a reference book for graduate students and researchers with a basic knowledge of chaos theory and control systems. The resulting design procedures on the chaotic systems are emphasized using MATLAB software.