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Descrizione fisica	1 online resource (XLI, 282 p. 109 illus., 86 illus. in color.)
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction, Concepts and Preliminaries -- ZG Tracking Control of a Class of Chaotic Systems -- ZG Synchronization of Lu and Chen Chaotic Systems -- ZG Tracking Control of Modified Lorenz Nonlinear System -- ZG Tracking Control of Brockett Integrator -- ZG Tracking Control and Simulation of DI System -- ZG Tracking Control of MI Systems -- ZD and ZG Control of Simple Pendulum System -- Cart Path Tracking Control of IPC System -- Pendulum Tracking Control of IPC System -- GD-Aided IOL Tracking Control of AFN System -- ZG Trajectory Generation of Van der Pol Oscillator -- ZD, ZG and IOL Controllers for AFN System -- PDBZ and TDBZ Problems Solving and Comparing -- ZG Output Tracking of TVL System with DBZ Handled -- ZG Stabilization of TVL System with PDBZ Shown -- ZG Output Tracking of TVL and TVN Systems.
Sommario/riassunto	This book introduces readers to using the simple but effective Zhang-gradient (ZG) method to solve tracking-control problems concerning

various nonlinear systems, while also highlighting the applications of the ZG method to tracking control for practical systems, e.g. an inverted-pendulum-on-a-cart (IPC) system and a two-wheeled mobile robot (showing its potential applications). In addition to detailed theoretical analyses of ZG controllers, the book presents a wealth of computer simulations to demonstrate the feasibility and efficacy of the controllers discussed (as well as the method itself). More importantly, the superiority of ZG controllers in overcoming the division-by-zero (DBZ) problem is also illustrated. Given its scope and format, the book is well suited for undergraduate and graduate students, as well as academic and industrial researchers in the fields of neural dynamics/neural networks, nonlinear control, computer mathematics, time-varying problem solving, modeling and simulation, analog hardware, and robotics.