

# CAMBRIDGE SCIENTIFIC PUBLISHERS

## AN INTERNATIONAL BOOK SERIES STABILITY OSCILLATIONS AND OPTIMIZATION OF SYSTEMS

### **Advances in Chaotic Dynamics and Applications**

*Stability, Oscillations and Optimization of Systems: Volume 4*  
432+xxii pp., 2009 ISBN 978-1-904868-57-6 J55/\$110/€87

**C. Cruz-Hernández** (Ed.)

*Department of Electronics and Telecommunications,  
Scientific Research and Advanced Studies Center of Ensenada (CICESE),  
Ensenada, México.*

**A.A. Martynyuk** (Ed.)

*Institute of Mechanics, National Academy of Sciences of Ukraine, Kiev, Ukraine*

This volume presents the latest investigations in chaotic dynamics and its interrelated problems in diverse disciplines, from theoretical and practical viewpoints, incorporating the main engineering applications. The volume provides new trends for future promising researches in chaotic dynamics and its applications. Some issues covered in the volume include:

- chaotic characterization: chaos in hybrid systems, entropy and chaos of star maps
- chaos theory: strange attractors, analysis of transitions to chaotic vibrations in mechanical systems, coupled mechanical and electrical fields in piezoceramic media
- chaos control: inverted pendulum, bouncing ball, and convective loop systems
- chaos synchronization: continuous and discrete-time systems through filtering, model-matching, Hamiltonian forms, and observer design
- chaos and complexity: studies on oscillations of a star in the field of a galaxy
- calculation of Lyapunov exponents from time series observations of chaotic time varying systems
- applications: chaotic encryption and secure chaotic communication

The **Advances in Chaotic Dynamics and Applications** may be useful for graduate students and researchers in applied mathematics and physics, control, nonlinear science, and engineering.

#### CONTENTS

**Preface to the series • Preface • Contributors • An Overview • Chaotic dynamics characterization • Chaos theory • Chaos control • Chaos synchronization • Chaos and complexity • Engineering applications • Index**

---

Please send order form to:

**Cambridge Scientific Publishers**

PO Box 806, Cottenham, Cambridge CB24 8RT Telephone: +44 (0) 1954 251283

Fax: +44 (0) 1954 252517 Email: [janie.wardle@cambridgescientificpublishers.com](mailto:janie.wardle@cambridgescientificpublishers.com)

Or buy direct from our secure website: [www.cambridgescientificpublishers.com](http://www.cambridgescientificpublishers.com)

---