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Nota di contenuto	Handbook of Chaos Control; Contents; Preface; List of Contributors; Part I Basic Aspects and Extension of Methods; 1 Controlling Chaos; 1.1 Introduction; 1.2 The OGY Chaos Control; 1.3 Targeting-Steering Chaotic Trajectories; 1.3.1 Part I: Finding a Proper Trajectory; 1.3.2 Part II: Finding a Pseudo-Orbit Trajectory; 1.3.3 The Targeting Algorithm; 1.4 Applying Control of Chaos and Targeting Ideas; 1.4.1 Controlling an Electronic Circuit; 1.4.2 Controlling a Complex System; 1.5 Conclusion; References; 2 Time-Delay Control for Discrete Maps; 2.1 Overview: Why Study Discrete Maps? 2.2 Theme and Variations2.2.1 Rudimentary Time-Delay Feedback; 2.2.2 Extending the Domain of Control; 2.2.3 High-Dimensional Systems; 2.3 Robustness of Time-Delay Stabilization; 2.4 Summary; Acknowledgments; References; 3 An Analytical Treatment of the Delayed Feedback Control Algorithm; 3.1 Introduction; 3.2 Proportional Versus Delayed Feedback; 3.3 Controlling Periodic Orbits Arising from a Period Doubling Bifurcation; 3.3.1 Example: Controlling the Rossler

System; 3.4 Control of Forced Self-Sustained Oscillations; 3.4.1 Problem Formulation and Averaged Equation
3.4.2 Periodic Orbits of the Free System3.4.3 Linear Stability of the System Controlled by Delayed Feedback; 3.4.4 Numerical Demonstrations; 3.5 Controlling Torsion-Free Periodic Orbits; 3.5.1 Example: Controlling the Lorenz System at a Subcritical Hopf Bifurcation; 3.6 Conclusions; References; 4 Beyond the Odd-Number Limitation of Time-Delayed Feedback Control; 4.1 Introduction; 4.2 Mechanism of Stabilization; 4.3 Conditions on the Feedback Gain; 4.4 Conclusion; Acknowledgments; Appendix: Calculation of Floquet Exponents; References; 5 On Global Properties of Time-Delayed Feedback Control
5.1 Introduction5.2 A Comment on Control and Root Finding Algorithms; 5.3 Codimension-Two Bifurcations and Basins of Attraction; 5.3.1 The Transition from Super- to Subcritical Behavior; 5.3.2 Probing Basins of Attraction in Experiments; 5.4 A Case Study of Global Features for Time-Delayed Feedback Control; 5.4.1 Analytical Bifurcation Analysis of One-Dimensional Maps; 5.4.2 Dependence of Sub- and Supercritical Behavior on the Observable; 5.4.3 Influence of the Coupling of the Control Force; 5.5 Conclusion; Acknowledgments; Appendix A Normal Form Reduction
Appendix B Super- and Subcritical Hopf Bifurcation for MapsReferences; 6 Poincare-Based Control of Delayed Measured Systems: Limitations and Improved Control; 6.1 Introduction; 6.1.1 The Delay Problem-Time-Discrete Case; 6.1.2 Experimental Setups with Delay; 6.2 Ott-Grebogi-Yorke (OGY) Control; 6.3 Limitations of Unmodified Control and Simple Improved Control Schemes; 6.3.1 Limitations of Unmodified OGY Control in the Presence of Delay; 6.3.2 Stability Diagrams Derived by the Jury Criterion; 6.3.3 Stabilizing Unknown Fixed Points: Limitations of Unmodified Difference Control
6.3.4 Rhythmic Control Schemes: Rhythmic OGY Control

Sommario/riassunto

This long-awaited revised second edition of the standard reference on the subject has been considerably expanded to include such recent developments as novel control schemes, control of chaotic space-time patterns, control of noisy nonlinear systems, and communication with chaos, as well as promising new directions in research. The contributions from leading international scientists active in the field provide a comprehensive overview of our current level of knowledge on chaos control and its applications in physics, chemistry, biology, medicine, and engineering. In addition, they show the ove