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Nota di contenuto	Preface -- Acknowledgments -- Chapter 1 Introduction -- Chapter 2 Delay Induced Nonlinear Dynamics -- Chapter3 Perturbation-Incremental Scheme and Integral Equation Method for Solving Time Delay Systems -- Chapter 4 Inverse Problem of Systems with Time Delay -- Chapter 5 Time-delayed Control of Vibration -- Chapter 6 Effects of Time Delay on Manufacturing -- Chapter 7 Effect of Time Delay on Network Dynamics -- Chapter 8 Delay Effect in Biology -- Chapter 9 Impact of Time Delay on Traffic Flow -- Chapter 10. Nonlinear Dynamics of Car-following Model Induced by Time Delay and Other Parameters.
Sommario/riassunto	This book presents research advancements in the dynamics of systems with time delay conducted by the group led by Professor Jian Xu. Addressing the challenges arising from the joint impact of time delay and nonlinearity, novel theoretical approaches are developed to formulate the nonlinear response of the system. This facilitates the classification of complex nonlinear dynamics, especially the non-

resonant and resonant double Hopf bifurcation. In contrast to systems without time delay, time delay systems require specific considerations when identifying system parameters, particularly the time delay. Consequently, inverse problems of systems with time delay are also explored in this book. Moreover, detailed investigations on vibration suppression methods and experimental prototypes based on time delay, such as time delay isolators with quasi-zero stiffness, are conducted. Simultaneously, this book is enriched with a large number of case studies ranging from manufacturing, network science, biology, and public transportation, illuminating the mechanisms of delay-induced nonlinear dynamics in practical applications. This book is suitable for graduate students and researchers who are eager to understand the delay-induced nonlinear dynamics, or technical personnel in whose projects small variations of time delay may cause significant changes in system responses. .
