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Nota di contenuto	Chapter 1 Two-dimensional Linear Dynamical Systems -- Chapter 2 Single-variable Quadratic Systems with a Self-univariate Quadratic Vector Field -- Chapter 3 Single-variable Quadratic Systems with a Non-self-univariate Quadratic Vector Field -- Chapter 4 Variable-independent quadratic systems -- Chapter 5 Variable-crossing univariate quadratic systems -- Chapter 6 Two-univariate product quadratic systems -- Chapter 7 Product-bivariate Quadratic Systems with Self-univariate Vector Fields -- Chapter 8 Product-bivariate Quadratic Systems with Non-self-univariate Vector Fields.
Sommario/riassunto	This book focuses on the nonlinear dynamics based on the vector fields with univariate quadratic functions. This book is a unique monograph for two-dimensional quadratic nonlinear systems. It provides different points of view about nonlinear dynamics and bifurcations of the quadratic dynamical systems. Such a two-dimensional dynamical system is one of simplest dynamical systems in nonlinear dynamics, but the local and global structures of equilibriums and flows in such two-dimensional quadratic systems help us understand other nonlinear dynamical systems, which is also a crucial step toward solving the Hilbert's sixteenth problem. Possible singular dynamics of the two-dimensional quadratic systems are discussed in detail. The dynamics of equilibriums and one-dimensional flows in two-dimensional systems are presented. Saddle-sink and saddle-source bifurcations are discussed, and saddle-center bifurcations are presented. The infinite-

equilibrium states are switching bifurcations for nonlinear systems. From the first integral manifolds, the saddle-center networks are developed, and the networks of saddles, source, and sink are also presented. This book serves as a reference book on dynamical systems and control for researchers, students, and engineering in mathematics, mechanical, and electrical engineering.
