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Nota di contenuto	Part I: Chaos and Dynamics -- 1. Weak Transient Chaos -- 2. Lorenz type attractor in electronic parametric generator and its transformation outside the parametric resonance -- 3. Time Rescaling of Lyapunov Exponents -- 4. Unraveling the Chaos-land and its organization in the Rabinovich System -- 5. Anomalous transport in steady plane viscous flows: simple models -- Part II: Synchronization and Networks -- 6. Coherence-incoherence transition and properties of dierent types of chimeras in a network of nonlocally coupled chaotic maps -- 7. Regular and Chaotic Transition to Synchrony in a Star Configuration of Phase Oscillators -- 8. Lotka–Volterra like Dynamics in Phase Oscillator Networks -- 9. Intrinsic Stability, Time Delays and Transformations of Dynamical Networks -- 10. Discovering, Constructing, and Analyzing Synchronous Clusters of Oscillators in a Complex Network using

Symmetries -- 11. When repulsive inhibition promotes synchrony of bursting neurons: Help from the enemy -- Part III: Brain -- 12. The variational principles of cognition -- 13. Olfactory computation in insects -- 14. Respiratory Neural Network: Activity and Connectivity -- 15. Dynamics of odor-evoked activity patterns in the olfactory system -- 16. Dynamics of Intermittent Synchronization of Neural Activity -- Part IV: Waves -- 17. Vortices termination in the cardiac muscle -- 18. KDV soliton gas: interactions and turbulence -- 19. Multi-lump structures in the Kadomtsev–Petviashvili equation.

Sommario/riassunto

This book focuses on recent progress in complexity research based on the fundamental nonlinear dynamical and statistical theory of oscillations, waves, chaos, and structures far from equilibrium. Celebrating seminal contributions to the field by Prof. M. I. Rabinovich of the University of California at San Diego, this volume brings together perspectives on both the fundamental aspects of complexity studies, as well as in applications in different fields ranging from granular patterns to understanding of the cognitive brain and mind dynamics. The slate of world-class authors review recent achievements that together present a broad and coherent coverage of modern research in complexity greater than the sum of its parts. Presents the most up-to-date developments in the studies of complexity Combines basic and applied aspects Links background nonlinear theory of oscillations and waves with modern approaches Allows readers to recognize general dynamical principles across the applications fields.