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Nota di contenuto	Nonlinear Science -- Nonlinear Coherent Phenomena in Continuous Media -- Perturbation Theories for Nonlinear Waves -- Josephson Devices -- Josephson Flux-Flow Oscillators in Microwave Fields -- Coupled Structures of Long Josephson Junctions -- Stacked Josephson Junctions -- Dynamics of Vortices in Two-Dimensional Magnets -- Nonlinear Optics -- Spatial Optical Solitons -- Nonlinear Fiber Optics

-- Self-Focusing and Collapse of Light Beams in Nonlinear Dispersive Media -- Coherent Structures in Dissipative Nonlinear Optical Systems -- Solitons in Optical Media with Quadratic Nonlinearity -- Lattice Dynamics and Applications -- Nonlinear Models for the Dynamics of Topological Defects in Solids -- 2-D Breathers and Applications -- Scale Competition in Nonlinear Schrödinger Models -- Demonstration Systems for Kink-Solitons -- Quantum Lattice Solitons -- Noise in Molecular Systems -- Biomolecular Dynamics and Biology -- Nonlinear Dynamics of DNA -- From the FPU Chain to Biomolecular Dynamics -- Mutual Dynamics of Swimming Microorganisms and Their Fluid Habitat -- Nonlinearities in Biology: The Brain as an Example.

Sommario/riassunto

Nonlinear science is by now a well established field of research at the interface of many traditional disciplines and draws on the theoretical concepts developed in physics and mathematics. The present volume gathers the contributions of leading scientists to give the state of the art in many areas strongly influenced by nonlinear research, such as superconduction, optics, lattice dynamics, biology and biomolecular dynamics. While this volume is primarily intended for researchers working in the field care, has been taken that it will also be of benefit to graduate students or nonexpert scientist wishing to familiarize themselves with the current status of research.
