



Synergetic Phenomena in Active Lattices

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Book Condition: New. Publisher/Verlag: Springer, Berlin | Patterns, Waves, Solitons, Chaos | In this book, the authors deal with basic concepts and models, with methodologies for studying the existence and stability of motions, understanding the mechanisms of formation of patterns and waves, their propagation and interactions in active lattice systems, and about how much cooperation or competition between order and chaos is crucial for synergetic behavior and evolution. |
&1. Introduction: Synergetics and Models of Continuous and Discrete Active Media. Steady States and Basic Motions (Waves, Dissipative Solitons, etc.).- 1.1 Basic Concepts, Phenomena and Context.- 1.2 Continuous Models.- 1.3 Chain and Lattice Models with Continuous Time.- 1.4 Chain and Lattice Models with Discrete Time.- 2. Solitary Waves, Bound Soliton States and Chaotic Soliton Trains in a Dissipative Boussinesq-Korteweg-de Vries Equation.- 2.1 Introduction and Motivation.- 2.2 Model Equation.- 2.3 Traveling Waves.- 2.3.1 Steady States.- 2.3.2 Lyapunov Functions.- 2.4 Homoclinic Orbits. Phase-Space Analysis.- 2.4.1 Invariant Subspaces.- 2.4.2 Auxiliary Systems.- 2.4.3 Construction of Regions Confining the Unstable and Stable Manifolds Wu and Ws.- 2.5 Multiloop Homoclinic Orbits and Soliton-Bound States.- 2.5.1 Existence of Multiloop Homoclinic Orbits.- 2.5.2 Solitonic Waves, Soliton-Bound States and Chaotic Soliton-Trains.- 2.5.3 Homoclinic Orbits and Soliton-Trains. Some Numerical Results.- 2.6...



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