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Titolo	Nonlinear Hydrodynamic Modeling: A Mathematical Introduction [[electronic resource] /] / edited by Hampton N. Shirer
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Nota di contenuto	Modeling: A strategy for understanding -- A simple nonlinear model of convection -- From the equations of motion to spectral models -- Linear stability analysis -- Bifurcation analysis of stationary solutions -- Typical branching forms: Stationary solutions -- The expected branching solution: Preferred wavelengths -- Identifying crucial parameters with contact catastrophe theory -- Hierarchies of transitions: Secondary branching -- Alexander-Yorke Continuation: Numerically finding all the stationary solutions in a spectral model -- Typical branching forms: Periodic solutions -- The expected branching solution: Preferred wavelengths and orientations -- On computing the branching direction of bifurcating periodic solutions -- Bifurcation analysis of periodic solutions -- The transition to turbulence -- Diagnosing the structures of attractors -- to topological hydrodynamics -- Modeling and metamodeling.