

Dynamical bifurcation and stability for phase transition equations

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In this talk, we consider the dynamical bifurcation of phase transition equations and determine the stability of the bifurcated attractors. As the control parameter crosses a critical value, it is shown that an equation bifurcates from a trivial solution to an attractor which determines the long time dynamics of the system. We start from the finite dimensional case and extend the idea to the infinite dimensional cases. The main tool is the center manifold analysis which reduces the equations to a finite dimensional dynamical system. We provide several applications of this approach.