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Phase transition and pattern formation of the n -dimensional Swift-Hohenberg equation.

I will talk about fourth order model equations in non-equilibrium physics. The main focus of this talk would be on the phase transition and pattern formation of the n -dimensional Swift-Hohenberg equation. In particular, I will discuss the n -dimensional Swift-Hohenberg equation with the odd-periodic and periodic boundary conditions. Two main issues will be addressed rigorously. The first is on the central manifold reduction, leading to a detailed bifurcation and stability analysis of the system; and the second is on the asymptotic behavior of solutions. (Received January 23, 2007)