

Stationary Fix-Caginalp equation with non-local term

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Abstract

The Fix-Caginalp model is a system of partial differential equations describing the non-isothermal solid-liquid phase transition. We study the stationary solutions of the system with homogeneous Neumann boundary condition in respect of the order parameter which denotes the phase. This physically closed stationary state is realized as a nonlinear eigenvalue problem with non-local term. Some results on multiple existence, stability, and bifurcation structure are proved.