

**Haragus, Mariana; Scheel, Arnd**

**Interfaces between rolls in the Swift-Hohenberg equation.** (English) Zbl 1169.35032  
Int. J. Dyn. Syst. Differ. Equ. 1, No. 2, 89-97 (2007).

Authors' abstract: We study the existence of interfaces between stripe or roll solutions in the Swift-Hohenberg equation. We prove the existence of two different types of interfaces: corner-like interfaces, also referred to as knee solutions, and step-like interfaces. The analysis relies upon a spatial dynamics formulation of the existence problem and an equivariant centre-manifold reduction. In this setting, the interfaces are found as heteroclinic and homoclinic orbits of a reduced system of ODEs.

Reviewer: [Nils Ackermann \(México\)](#)

**MSC:**

- [35K55](#) Nonlinear parabolic equations
- [35K57](#) Reaction-diffusion equations
- [37L10](#) Normal forms, center manifold theory, bifurcation theory for infinite-dimensional dissipative dynamical systems
- [35Q53](#) KdV equations (Korteweg-de Vries equations)
- [37G05](#) Normal forms for dynamical systems
- [76E06](#) Convection in hydrodynamic stability
- [34C37](#) Homoclinic and heteroclinic solutions to ordinary differential equations

Cited in **6** Documents

**Keywords:**

[interfaces](#); [roll solutions](#); [Swift-Hohenberg equation](#); [zigzag instability](#); [equivariant centre manifold reduction](#); [normal form](#)

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