van den Berg, G. J. B.; **Peletier, L. A.**; **Troy, W. C.**

Global branches of multi-bump periodic solutions of the Swift-Hohenberg equation. (English)

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The authors present new families of global branches of single- and multipump periodic solutions to the fourth-order equation

$$d^4u/dx^4 + qd^2u/dx^2 + u^3 - u = 0, q \in \mathbb{R},$$

arising in problems of pattern formation. They view the problem as a nonlinear eigenvalue problem with q as eigenvalue parameter. By means of analytical as well as numerical methods, branches of periodic solutions are investigated, both locally and globally.

Reviewer: Klaus R.Schneider (Berlin)

MSC:

34C25 Periodic solutions to ordinary differential equations
34L05 General spectral theory of ordinary differential operators
34B15 Nonlinear boundary value problems for ordinary differential equations
34C60 Qualitative investigation and simulation of ordinary differential equation models

Keywords:

global branches; multipump periodic solutions; pattern formation; nonlinear eigenvalue problem

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