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Bifurcation approach to analysis of travelling waves in nonlocal hydrodynamic-type models.

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Summary: The paper considers the nonlocal hydrodynamic-type systems which are two-dimensional travelling wave systems with a five-parameter group. We apply the method of dynamical systems to investigate the bifurcations of phase portraits depending on the parameters of systems and analyze the dynamical behavior of the travelling wave solutions. The existence of peakons, compactons, and periodic cusp wave solutions is discussed. When the parameter n equals 2, namely, let the isochoric Gruneisen coefficient equal 1, some exact analytical solutions such as smooth bright solitary wave solution, smooth and non-smooth dark solitary wave solution, and periodic wave solutions, as well as uncountably infinitely many breaking wave solutions, are obtained.

MSC:

[35Q35](#) PDEs in connection with fluid mechanics

[35B10](#) Periodic solutions to PDEs

[35C07](#) Traveling wave solutions

[35C08](#) Soliton solutions

Cited in **1** Review
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