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Multiple structures of two-dimensional nonlinear Rossby wave. (English) Zbl 1067.35071
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Summary: The elliptic equation is taken as a transformation and applied to solve the Zakharov-Kuznetsov equation, which has been derived by Gottwald as a two-dimensional model for nonlinear Rossby waves. It is shown that more kinds of solutions are derived, such as periodic solutions of rational form, periodic solutions and so on.

MSC:

35Q35 PDEs in connection with fluid mechanics

76B65 Rossby waves (MSC2010)

37K20 Relations of infinite-dimensional Hamiltonian and Lagrangian dynamical systems with algebraic geometry, complex analysis, and special functions

35C05 Solutions to PDEs in closed form

Cited in 9 Documents

Keywords:

[Zakharov-Kuznetsov equation; periodic solutions](#)

Full Text: [DOI](#)

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