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Application of the homotopy analysis method to solving nonlinear evolution equations.

(Chinese. English summary) [Zbl 1202.65130](#)

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Summary: We obtain a class of approximate periodic solutions for the $(2 + 1)$ -dimensional modified Zakharov-Kuznetsov equation by using the homotopy analysis method (HAM). The solutions we obtained agree with the exact solutions. The results indicate that the HAM is still valid for solving a class of higher dimensional evolution equations. We also made some efforts to extend the HAM to find the analytic solutions for more nonlinear evolution equations in an easier way.

MSC:

65M70 Spectral, collocation and related methods for initial value and initial-boundary value problems involving PDEs

35Q53 KdV equations (Korteweg-de Vries equations)

Cited in 4 Documents

Keywords:

homotopy analysis method; modified Zakharov-Kuznetsov equation; periodic solution

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