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New (3 + 1)-dimensional nonlinear evolution equations with mKdV equation constituting its main part: multiple soliton solutions. (English) Zbl 1352.37181


Summary: In this work, we present two new (3 + 1)-dimensional nonlinear evolution equations where the modified KdV equation constituting its main part. We derive the dispersive relation and the phase shift for each model. We determine multiple soliton solutions for each new equation.

MSC:
37K40 Soliton theory, asymptotic behavior of solutions of infinite-dimensional Hamiltonian systems
35Q51 Soliton equations

Keywords:
(3 + 1)-dimensional nonlinear evolution equations; modified KdV equation; multiple soliton solutions

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References:
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Wazwaz, A. M., Two B-type Kadomtsev-Petviashvili equation of (2+1) and (3+1) dimensions: multiple soliton solutions and periodic solutions, Comput Fluids, 86, 357-362, (2013) · Zbl 1290.35028


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