

Breather-wave, multi-wave and interaction solutions for the (3+1)-dimensional generalized breaking soliton equation

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Abstract

Under investigation is a (3+1)-dimensional generalized breaking soliton equation in nonlinear media. The interaction solution between lump wave and N-soliton ($N = 2, 3, 4$) are derived. The interaction solution between lump wave and periodic waves is also studied. Breather-wave and multi-wave solutions are obtained. The dynamical behavior is demonstrated by some 3D graphics and density plots. By means of mathematical induction, we also obtain the exact solution containing three arbitrary functions.

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