

New Exact Travelling Wave Solutions for Generalized Zakharov-Kuzentsov Equations Using General Projective Riccati Equation Method

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Abstract: Applying the generalized method, which is a direct and unified algebraic method for constructing multiple travelling wave solutions of nonlinear partial differential equations (PDEs), and implementing in a computer algebraic system, we consider the generalized Zakharov-Kuzentsov equation with nonlinear terms of any order. As a result, we can not only successfully recover the previously known travelling wave solutions found by existing various tanh methods and other sophisticated methods, but also obtain some new formal solutions. The solutions obtained include kink-shaped solitons, bell-shaped solitons, singular solitons, and periodic solutions.

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Key words: projective Riccati equation method, generalized Zakharov-Kuzentsov equation, exact solutions

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