

Bosonization of the Supersymmetric Ito equation

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Abstract

Based on the bosonization approach, the $N = 1$ supersymmetric Ito system is changed to a system of coupled bosonic equations. The approach can effectively avoid difficulties caused by intractable fermionic fields which are anticommuting. By solving the coupled bosonic equations, the traveling wave solutions of the sIto system are obtained with the mapping and deformation method. Some novel types of exact solutions for the supersymmetric system are constructed with the solutions and symmetries of the usual Ito equation. In the meanwhile, the similarity reduction solutions of the model are also studied with the Lie point symmetry theory.