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SUPERSYMMETRIC SOLITONS AND INTEGRABILITY

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ABSTRACT

Construction and dynamics of $N = 1$ supersymmetric solitons which belong to super-Korteweg de Vries (KdV) hierarchy and super-Sine Gordon equation are presented. Our starting point is the bilinear transcription of the latter using the super-bilinear operators. We show explicitly the form of two- and three-soliton solution and give the procedure for constructing the higher ones. The main difference of those solitons with the classical case is that their fermionic part is getting dressed through the interaction. Our approach allows us to compute this dressing in an explicit way. Singularity analysis (Painleve test) for the super Sine-Gordon case is presented as well.

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