Nonlinear Sciences > Exactly Solvable and Integrable Systems

A connection between HH3 and KdV with one source

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In the system made of Korteweg-de Vries with one source, we first show by applying the Painleve' test that the two components of the source must have the same potential. We then explain the natural introduction of an additional term in the potential of the source equations while preserving the existence of a Lax pair. This allows us to prove the identity between the travelling wave reduction and one of the three integrable cases of the cubic He'non-Heiles Hamiltonian system.

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