

Multisoliton solutions to the lattice Boussinesq equation

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Abstract:

In this talk we will first introduce the concept of multi-dimensional consistency for discrete systems. Then we will consider the lattice Boussinesq equation (BSQ) which is a three-component difference equation defined on an elementary square of the 2D lattice, with 3D consistency. We construct its background solution and 1-soliton solution through Bäcklund transformation. The lattice BSQ can then be bilinearized into 4 equations. Since there is a parameter δ in the solutions we can derive out a generalized lattice BSQ with δ . Relation between the lattice BSQ and δ -lattice BSQ is also discussed. Finally solutions in Casoratian form are given.

References:

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