Multi-soliton, multi-positon, multi-negaton, and multi-periodic solutions of a coupled Volterra lattice system and their continuous limits

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Abstract:

In this talk, we aim to find new explicit solutions including multi-soliton, multi-positon, multi-negaton, and multi-periodic for a coupled Volterra lattice system. This coupled lattice system is an integrable discrete version of the coupled KdV equation which has many physical applications. The dynamical properties of these new solutions are discussed in detail. We also show that the theory of the coupled Volterra lattice system including the Lax pair, the Darboux transformation, and explicit solutions yield the corresponding theory of the coupled KdV equation in the continuous limit.

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