Application of the Riemann-Hilbert approach to the derivative nonlinear Schrodinger hierarchy

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September 30, 2020

Abstract

In this paper, the main work is to study the N-soliton solutions for the derivative nonlinear Schrodinger hierarchy. Then, the matrix Riemann-Hilbert problem is constructed for this integrable hierarchy by analyzing the spectral problem of the Lax pair. Based on the scattering relationship, the N-soliton solutions for this system are given explicitly.

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