

Demonstration of Inverse Scattering Transform for DNLS Equation

YANG Chun-Nuan, YU Jia-Lu, WANG Qu-Quan, and HUANG Nian-Ning

Department of Physics, Wuhan University, Wuhan 430072, China
(Received: 2006-12-20; Revised:)

Abstract: Since the Jost solutions of the DNLS equation does not tend to the free Jost solutions as $|\lambda| \rightarrow \infty$, the usual inverse scattering transform (IST) must be revised. Beside the Kaup and Newell's approach, we propose a simple revision in constructing the equations of IST, where the usual Zakharov-Shabat kern is revised by multiplying λ^{-2} or λ^{-1} . To justify the revision we show that the Jost solutions obtained do satisfy the pair of compatibility equations.

PACS: 05.45.Yv, 42.65.-k, 42.50.Md

Key words: inverse scattering transform, soliton solutions, Liouville theorem

[\[Full text: PDF\]](#)

Close