

Speaker:

Jiaqi Liu, University of Kentucky

Title:

Global Existence for the Derivative Nonlinear Schrödinger Equation by the Method of Inverse Scattering

Abstract:

We develop inverse scattering for the derivative nonlinear Schrödinger equation (DNLS) on the line using its gauge equivalence with a related nonlinear dispersive equation. We prove Lipschitz continuity of the direct and inverse scattering maps from the weighted Sobolev spaces $H^{2,2}(\mathbb{R})$ to itself. These results immediately imply global existence of solutions to the DNLS for initial data in a spectrally determined (open) subset of $H^{2,2}(\mathbb{R})$. This is joint work with Peter Perry and Catherine Sulem.