

Scattering of Small Solutions of the Cubic NLS with Short Range Potential

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We consider 1-D Hamiltonian Schrödinger equation with cubic nonlinearity $|u|^2u$ and even short range potential. Under the (crucial) assumption for absence of resonances at zero, we show that small odd data gives rise to global solutions, which scatter at infinity at the rate of the free solution. This is a joint work with Atanas Stefanov and Anna Rita Giammetta and solves an open problem in the area and improves upon an earlier result in [1], where the authors have obtained scattering for the problem with nonlinearity $|u|^{p-1}u, p > 3$.

References:

[1] Cuccagna S., Georgiev V., Visciglia N., *Decay and scattering of small solutions of pure power NLS in \mathbf{R} with $p > 3$ and with a potential*, preprint, to appear CPAM.