Regularity of solutions and scattering for the nonlinear Schrödinger equation

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Abstract

In this talk we briefly discuss some regularity issues that appear in the study of the nonlinear Schrödinger equation. We also discuss their relation to the scattering problem for this model equation. Then, under some assumptions, we prove the existence of scattering for the NLS equation with any scattering-supercritical nonlinearity. In the case of scattering-critical nonlinearities, we prove the existence of modified-scattering and we present the long-time asymptotics for the solutions to the NLS equation