

**SPEAKER:**

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**TITLE:**

Lyapunov stability of Ground States for focussing cubic NLS in 1-D

**ABSTRACT:**

We discuss orbital stability of ground state (equilibrium) solutions for a 1-D cubic nonlinear focussing Schrödinger equation,

$$iu_t + \Delta u - |u|^2 u = 0,$$

under perturbations of  $H^1(\mathbb{R})$  initial data. Stability of equilibrium solutions is an important condition for being able to use theoretical models in physical applications. Following a paper due to Michael I. Weinstein (1988), our method of proof is a generalization of Lyapunov stability theory for finite dimensional systems. We rely on long-time existence of a unique  $H^1(\mathbb{R})$  solution (Ginibre-Velo, 1977). The ground states, which are energy minimizing solutions, have soliton-like profiles.