

Local existence in the sub-critical cases and conservation laws for the nonlinear Schrödinger equation

Vo Van Au

Institute of Fundamental and Applied Sciences, Duy Tan University, Ho Chi Minh City,
Vietnam
vovanau@duytan.edu.vn

Abstract

In this paper, we discuss an initial value problem for the nonlinear Schrödinger equation. The local existence in the L^2 and H^1 sub-critical cases are considered. In addition, the conservation laws in the sense of $L^2(\mathbb{R}^N)$ and $H^s(\mathbb{R}^N)$ are presented.