1041-35-254   **Jeffery C DiFranco*** (`difranco@seattleu.edu`) and **Peter Miller**. *The Semiclassical Modified Nonlinear Schrödinger Equation: Spectral Analysis.*

Abstract: We study an integrable modification of the focusing nonlinear Schrödinger equation from the point of view of semiclassical asymptotics. We analyze the associated spectral problem and obtain bounds for the discrete spectrum, generalizing known results for the spectrum of the nonselfadjoint Zakharov-Shabat spectral problem. Additionally, we solve the this spectral problem in terms of special functions for a multiparameter family of initial data for all values of the semiclassical parameter. These results are viewed as part of an ongoing project analyzing the semiclassical asymptotics of modified nonlinear Schrödinger equation using the steepest descent techniques for oscillatory Riemann-Hilbert problems first developed by Deift and Zhou. (Received August 12, 2008)