

**Meeting:** 1001, Evanston, Illinois, SS 14A, Special Session on Nonlinear Waves

1001-35-408            **Vitali G Vougalter\*** (vougalter.1@nd.edu), 203-A Remington Court South Drive, Mishawaka, IN 46545. *Spectra of Positive and Negative Energies in the Linearized NLS Problem.*

We study the spectrum of the linearized NLS equation in three dimensions in association with the energy spectrum. We prove that unstable eigenvalues of the linearized NLS problem are related to negative eigenvalues of the energy spectrum, while neutrally stable eigenvalues may have both positive and negative energies. The nonsingular part of the neutrally stable essential spectrum is always related to the positive energy spectrum. We show how the negative index of the problem can be reduced by going to the proper constrained subspace. (Received August 31, 2004)