

1125-VC-1971 **Katelyn Leisman*** (plaisk@rpi.edu), **Gregor Kovacic** and **David Cai**. *The Effectively Linear Behavior of the Nonlinear Schrödinger Equation.*

The linear part of the Nonlinear Schrödinger Equation (NLS) ($iq_t = q_{xx}$) has dispersion relation $\omega = k^2$. We don't expect solutions to the fully nonlinear equation to behave nicely or have any kind of effective dispersion relation like this. However, I have seen that solutions to the NLS are actually weakly coupled and are often nearly sinusoidal in time with a dominant frequency, often behaving similarly to modulated plane waves. In fact, highly nonlinear solutions behave more and more effectively linearly. (Received September 19, 2016)