1116-35-736 **Robert Buckingham*** (buckinrt@uc.edu), **Robert Jenkins** (rjenkins@math.arizona.edu) and **Peter Miller** (millerpd@umich.edu). *Forward scattering for the semiclassical three wave equation.*

The three-wave resonant interaction equations model the evolution of three electrical pulses in a dispersive medium with quadratic linearity. Typical phenomena include the interaction of two soliton waves in two separate channels leading to the creation and eventual annihilation of a pulse in the third channel. Since interactions in these materials can be induced more rapidly than in those with cubic nonlinearities, the model has sparked interest in alternate possibilities for designing feasible all-optical switching devices. We analyze the small-dispersion (or semiclassical) behavior using the inverse scattering formalism. We present analytic results on the WKB approximation of the scattering data, as well as a numerical study of exact solutions that suggests semiclassical behavior (i.e. approximation of solutions by modulated elliptic functions) similar to that seen in other nonlinear wave equations such as the KdV, NLS, and sine-Gordon equations. This work is joint with Robert Jenkins and Peter Miller. (Received September 11, 2015)