

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**Non-equilibrium exciton dynamics in model systems** AVINASH RUSTAGI, ALEXANDER KEMPER, North Carolina State Univ — Ultrashort laser pulses are used to observe time resolved dynamics in condensed matter systems. The typical time resolved measurements include reflection, transmission and absorption using pump-probe spectroscopy where a pump pulse excites the system into a non-equilibrium state and the subsequent probe pulse measures the dynamical relaxation of the system as a function of a delay time. We study the two-particle properties of a model interacting two-band Hamiltonian by solving the non-equilibrium Bethe-Salpeter equation for the correlation function. This allows us to study the dynamics of electron-hole bound states i.e. excitons, in model systems where the time translational invariance is broken by the pump pulse.

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Date submitted: 10 Nov 2016

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