1121-35-153 **Efstathios Georgios Charalampidis*** (charalamp@math.umass.edu), Department of Mathematics and Statistics, Lederle Graduate Research Tower, 710 N. Pleasant Street, Amherst, MA 01003-9305, and **Panayotis G. Kevrekidis**, **Boris Malomed** and **Dimitri J. Frantzeskakis**. *Multi-component nonlinear waves in one and two dimensional coupled nonlinear Schrödinger (NLS) systems: Theory and Numerical Computations.*

In this talk, we will present a two-component NLS system in one and two spatial dimensions with equal, repulsive cubic interactions and different dispersion coefficients in the two components. We will consider states that support a dark solitary wave (or, its 2D sibling called a vortex) in the one-component, and explore the possibility of the formation of bright solitonic bound states in the second component. Bifurcation points are identified by studying the underlying linear limit and nonlinear states can be formed by performing parametric continuation over the system's parameters. Then, regimes of potential stability (or instability) of the reported states will be identified by means of the Bogoliubov-de Gennes analysis. Furthermore, and for unstable states, we will demonstrate results on direct numerical simulations and discuss the dynamics of the instability. Finally, we will present future directions which are currently in progress including the application of a deflated continuation approach for the numerical computation of nonlinear states if time permits.

This is joint work with Panayotis G. Kevrekidis, Boris A. Malomed, Dimitri J. Frantzeskakis and Patrick Farrell. (Received July 17, 2016)