Drexel University Partial Differential Equations and Applied Mathematics Seminar

PRESENTS:

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A system of ODEs for a Perturbation of a Minimal Mass Soliton.

Abstract: In this work we study soliton solutions to the nonlinear Schrödinger equation with a saturated nonlinearity. It is known that these nonlinearities have minimal-mass soliton solutions. We consider a small perturbation of the minimal mass soliton, and provide analysis to nd a system of ODEs which model the behavior of the perturbation for short times. We then provide numerical evidence that under this system of ODEs a generic initial perturbation tends to the stable side of the soliton curve. This provides some initial evidence that even though the minimal mass soliton itself is known to be unstable, small initial perturbations of the minimal mass soliton do tend to approach a stable soliton over time.

Monday, November 2, 2:00PM. Korman Center, Room 245.
Drexel University. Philadelphia, PA 19104.

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