Mathematics, Statistics, and Computer Science **@ UIC**

Applied Mathematics Seminar

Long Range Scattering for the Klein-Gordon equation with variable coefficient nonlinearities

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Abstract: The asymptotic stability of coherent states , like kinks in one dimension, poses a great challenge. This is due to the long range nature of the dispersive equation. This talk will focus on one such problem. We study the 1D Klein-Gordon equation with quadratic and variable coefficient cubic nonlinearity. This problem exhibits a striking resonant interaction between the spatial frequencies of the nonlinear coefficients and the temporal oscillations of the solutions. We prove global existence and (in L-infinity) scattering as well as a certain kind of strong smoothness for the solution at time-like infinity; it is based on several new classes of normal-form transformations. The analysis also shows the limited smoothness of the solution, in the presence of the resonances.

Monday, April 20 at 4:00 PM in SEO 636