Texas Tech University - Department of Mathematics and Statistics
Seminar in Applied Mathematics

Asymptotic stability of solitary waves in generalized Gross-Neveu model

TUOC PHAN

University of Tennessee, Knoxville

Monday, April 27, 2015
Room: MATH 111. Time: 4:00pm.

ABSTRACT. We explore the nonlinear Dirac equation in (1+1)D with scalar self-interaction (Gross-Neveu model), and with quintic or higher order nonlinearities. We prove that solitary wave solutions are asymptotically stable in the "even" subspace of perturbations. The approach is based on the spectral information about the linearization at solitary waves which we obtain numerically. For the proof, we develop the spectral theory for the linearized operators and obtain appropriate estimates in mixed Lebesgue spaces with and without weights.

The talk is based on the paper which is the joint work with Andrew Comech (Texas A&M University) and Atanas Stefanov (University of Kansas). The preprint can be found at `http://arxiv.org/abs/1407.0606`