

MATHEMATICS COLLOQUIUM

On the asymptotic stability of solitary waves to NLS in the energy space

DR. TETSU MIZUMACHI

Department of Mathematics

Kyushu University & Carnegie Mellon University

Abstract: A solitary wave is known to play an important role in solutions of nonlinear dispersive equations such as KdV equation and nonlinear Schrodinger equation and so on. Based on variation arguments, orbital (Liapunov) stability of the ground states was proved in 1980's. Since the pioneering works of Soffer and Weinstein and Buslaev and Perelman, there appeared a lot of results on the asymptotic stability of ground states of NLS. I will show that a symmetric finite energy solution close to stable ground states converges to a sum of a ground state and dispersive waves as $t \rightarrow \infty$ assuming the so called Fermi Golden Rule (FGR) hypothesis (a joint work with Scipio Cuccagna). I will also explain that in the one and two dimensional cases, a so called local smoothing estimates are useful to prove the asymptotic stability of solitary waves to NLS.

Date: Monday, **November 19, 2007**
Time: 3:00 pm – 4:00 pm
Place: J. Wiener Lecture Hall, MAGC 1.302

Refreshments will be served at 2:50pm.

For further information or for special accommodations, contact Dr. Karen Yagdjian at 381-2145, via email at yagdjian@utpa.edu, or visit www.math.panam.edu/colloquia.html