1030-35-204 **Eduard Kirr*** (`ekirr@math.uiuc.edu`), Department of Mathematics, University of Illinois at Urbana-Champaign, 1409 W. Green Street, Urbana, IL 61801, and **M. I. Weinstein**, **P. Kevrekidis** and **E. Shlizerman**. *Symmetry Breaking of Ground States in Nonlinear Schroedinger Equation.*

The talk will focus on recent results regarding existence and stability of periodic solutions for NLS with double well potentials. It has been known that the equation admits periodic in time, symmetric in space, stable solutions (ground states) with small L^2 norms. In the case of attractive Hartree nonlinearity these solutions become unstable for large L^2 norms and are replaced by asymmetric ground states. The new results show that the same phenomena is present in the case of more general attractive nonlinearity. This is true even when the ground states are no longer minimizers of the energy functional. Moreover, we estimate the critical L^2 norm at which the asymmetric ground states bifurcate and relate it to the separation between the wells of the potential. (Received August 02, 2007)