

DEPARTMENT OF PHYSICS & ASTRONOMY  
**CONDENSED MATTER SEMINAR**

**Lea Santos**

Physics Department  
Yeshiva University

**Time Scales and Manifestations of Chaos  
in Many-Body Quantum Dynamics**

A major open question in studies of nonequilibrium quantum dynamics is the identification of the time scales involved in the relaxation process of isolated quantum systems that have many interacting particles. While there is consensus on what equilibration and thermalization in isolated systems are, there is no agreement on how long it takes for these systems to reach equilibrium and how this time depends on system size. To answer this question, we look for dynamical manifestations of spectral correlations, which take place at long times, when the dynamics resolve the discreteness of the spectrum. Based on this analysis, we are able to find two very-long time scales: a generalization of the Thouless time to interacting systems and the relaxation time. We show numerically and analytically that both times increase exponentially with system size.

Tuesday, December 3, 2019

JFB 334

4:00 pm

Refreshments will be served in JFB 334 at 3:45 pm