

abstract

ANALYSIS/MATHEMATICAL PHYSICS SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

As originally proposed by Anderson (1958), a quantum system of many local degrees of freedom with short-range interactions and static disorder may fail to thermally equilibrate, even with strong interactions and high excitation energy density. This is the phenomenon now being called "many-body localization"; it is a failure of ergodicity and (perhaps equivalently) the failure of such an infinite system to be a bath that can thermally equilibrate itself. There is a dynamical quantum phase transition between the ergodic phase that does thermally equilibrate and the localized phase that does not. This will be a physics talk; I will try to define and discuss these phenomena as precisely as I can, given the limited time, but there are no real proofs yet of any of this, that I know of. My collaborators: Arijeet Pal (Princeton) and Vadim Oganesyan (CUNY).