



Physical Sciences Seminar

How quantum dynamics wins against thermodynamics

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Host: Maksym Serbyn

The out-of-equilibrium dynamics of interacting many-body systems presents one of the most challenging problems in modern physics with implications ranging from thermalization dynamics over the formation of order to questions at the heart of quantum complexity and quantum information processing. Traditionally, however, out-of-equilibrium dynamics was mostly confined to short transients, since typical systems will eventually relax back into well-understood thermal states, thereby scrambling all quantum information present in the initial state. In this talk, I will demonstrate that synthetic many-body systems such as ultracold atoms offer access to intrinsically non-ergodic dynamics, where a quantum non-equilibrium system can beat thermodynamics and never relax to a thermal state. I will present our experimental realization of Many-Body Localization of interacting fermions in the presence of quasi-periodic disorder in 1D and 2D and discuss the effects of driving and dissipation as well as their critical dynamics.

Monday, December 10, 2018 02:00pm - 03:00pm

IST Austria Campus Big Seminar room Ground floor / Office Bldg West (I21.EG.101)



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: http://ist.ac.at/fileadmin/user_upload/pdfs/IST_shuttle_bus.pdf The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.