

Large Deviations and Quantum Non-equilibrium

Title:

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When: Thursday, February 08, (2018), 12:00.

Place: Department of Theoretical Condensed Matter Physics, Faculty of Science, Module 5, Seminar Room (5th Floor).

Speaker: Juan P. Garrahan, University of Nottingham, United Kingdom.

I will review recent developments in applying dynamical large deviations (LD) to quantum systems. I will consider in particular open quantum systems - quantum systems interacting with an environment - which in many cases can be described in terms of quantum Markovian dynamics. LD methods provide a "thermodynamic" framework for understanding the statistical properties of dynamics, revealing the existence of dynamical phases and phase transitions, often associated to intermittent emission patterns. Problems of interest include interacting atomic ensembles, quantum glasses, and systems where there is an interplay between coherent transport and dissipation. I will describe concepts relating to quantum trajectory ensemble equivalence, prediction and "retrodiction", matrix product states, and quantum Doob transforms. Time permitting, I will also discuss the connection to ideas about slow quantum relaxation and metastability.