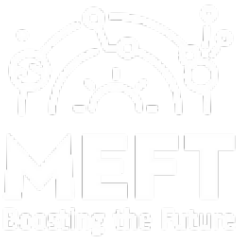

Contribution ID: **27** Type: **not specified**

Entanglement Signatures of Random Quantum Circuits

Wednesday 5 February 2020 12:49 (11 minutes)

Systems in equilibrium, whose observables are time independent, are generally well understood. For quantum systems out of equilibrium, the time evolution is highly complex and so there is no general method nor as many tools available. Due to the lack of theoretical approaches, it is of fundamental importance to find universal properties and systematic ways to describe non-equilibrium dynamics. The dynamics of systems with many degrees of freedom is of particular interest, having technological applications such as quantum computers.
Quantum dynamics generates complex highly entangled states hard to treat analytically without introducing additional structure, such as conservation laws. Random quantum circuits provide a minimally structured model for generic quantum dynamics, allowing to probe universal behaviours and scaling forms. A random quantum circuit consists of a discrete set of local operations, involving only a few degrees of freedom, that are applied randomly both in space and time.
The general goal of this thesis on "Entanglement Signatures of Random Quantum Circuits"is to understand generic features of universal and non-universal quantum dynamics. This is going to be done by considering quantum circuits as toy models for quantum dynamics, with random and Clifford gates respectively for the universal and non-universal cases.

Author: DIAS, Beatriz

Presenter: DIAS, Beatriz