SEMPARIS – Séminaires en région parisienne

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Seminaire du LPTENS

Jeudi 17 Mai 2018, 14 :00
LPTENS, ENS Conf IV
Domaines : cond-mat

Titre : *Solution of a Minimal Model for Many-Body Quantum Chaos*

Orateur : **Andrea De Luca (Oxford)**

Résumé : *I will present a minimal model for quantum chaos in a spatially extended many-body system. It consists of a chain of sites with nearest-neighbour coupling under Floquet time evolution. Quantum states at each site span a q-dimensional Hilbert space and the time evolution is specified as a random circuit, which is random in space but periodic in time (Floquet). Each site is coupled via a random matrix to its neighbour on one side during the first half of the evolution period, and to its neighbour on the other side during the second half of the period. I will introduce a diagrammatic formalism useful to average the many- body dynamics over realisations of the random matrices. This approach leads to exact expressions in the large-q limit and sheds light on the universality of random matrices in many-body quantum systems and the ubiquitous entanglement growth in out-of-equilibrium dynamics. I will also discuss universal behaviour which goes beyond random matrix theory and the role played by space dimensionality which emerges through a mapping into the classical Potts model, exact at large q.*