The NITheP and the Quantum Research group cordially invite you to a seminar by:

Professor Stephane Attal

_Camille Jordan Institute, University of Lyon_

Date: Wednesday, 18\textsuperscript{th} February 2015
Time: 14h15 – 15h15
Venue: NITheP Seminar Room, H-Block, 3\textsuperscript{rd} Floor

**TITLE:** “Entanglement of bipartite systems driven by repeated quantum interactions”

**ABSTRACT:** We consider a non-interacting bipartite quantum system A-B undergoing repeated quantum interactions with an environment modeled by a chain of independent quantum systems interacting one after the other with the bipartite system. The interactions are made so that the pieces of environment interact first with A and then with B. Even though the bipartite systems are not interacting, the interactions with the environment create an entanglement. We show that, in the limit of short interaction times, the environment creates an effective interaction Hamiltonian between the two systems. This interaction Hamiltonian is explicitly computed and we show that it keeps track of the order of the successive interactions with A and B. Particular physical models are studied, where the evolution of the entanglement can be explicitly computed. We also show the property of return of equilibrium and thermalization for a family of examples.

_Coffee and biscuits will be served after the talk_