BENEMÉRITA UNIVERSIDAD AUTÓNOMA DE PUEBLA

INSTITUTO DE FÍSICA
"Luis Rivera Terrazas"

SEMINARIO
"DR. JESUS REYES CORONA"

"Quantum non-Markovianity and localization"

Dr. Carlos Francisco Pineda Zorrilla
Instituto de Física, UNAM

We study the behavior of non-Markovianity with respect to the localization of the initial environmental state. The "amount" of non-Markovianity is measured using divisibility and distinguishability as indicators, employing several schemes to construct the measures. In particular, we construct measures for the non-Markovianity of quantum evolution with a physically meaningful interpretation. We relate the proposed measures to the task of information screening. This shows that the non-Markovianity of a quantum process may be used as a resource. The system used is a qubit coupled to an environment modeled by an Ising spin chain kicked by ultra-short pulses of a magnetic field. In the integrable regime, non-Markovianity and localization do not have a simple relation, but as the chaotic regime is approached, simple relations emerge, which we explore in detail. We also study the non-Markovianity measures in the space of the parameters of the spin coherent states and point out that the pattern that appears is robust under the choice of the interaction Hamiltonian but does not have a KAM-like phase-space structure.

Auditorio-IFUAP
Viernes 01 de Marzo de 2019
13:00 Hrs.