



Quantum Information Group Seminars

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TITLE: Dynamical Control of Open Quantum System.

ABSTRACT:

In the real quantum world, a system interacts with its surrounding environment. The quantum resources such as coherence and entanglement are very fragile with respect to this interaction and rapidly decay. Some approaches have been developed such as quantum error correction, quantum feedback control and optimal coherence control to protect these resources from destructive effects of interaction. We shall propose another approach to decrease these effects based on optimal control theory. First we derive a dynamical equation for the process matrix (this matrix contains all information about the dynamic of an open quantum system) under some approximations such as Born-Markov approximation. Then by using this equation and optimal control theory, an optimal field has been designed to guide the dynamic of open quantum system to a unitary evolution at a predetermined time. It is shown numerically optimal control is only able to decouple such system from its surrounding environment partially.

Place: Council Room

Date: Tuesday 11th of Ordibehesht, 3:00 pm.

