Titel: Entanglement rates in open and closed systems

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Abstract:

Entanglement rate in a bipartite system is the maximal rate at which an entanglement can be generated in time. The goal is to upper bound this rate. I will quickly review the problem in closed ancilla-assisted systems, and provide a simple proof of one of the upper bounds. In open system the generator of irreversible dynamics consists of a Hamiltonian and dissipative terms in Lindblad form. The relative entropy of entanglement is chosen as a measure of entanglement in an ancilla-free system. I will prove an upper bound on the entangling rate that has a logarithmic dependence on a dimension of a smaller system in a bipartite cut. I will also investigate the rate of change of quantum mutual information in an ancilla-assisted system and provide an upper bound independent of dimension of ancillas.