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Title:	Role of coherence in non-equilibrium quantum Thermodynamics
Authors:	Mandal, Somnath.
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Abstract:	Quantum thermodynamics has opened a new world for us. It aims studying laws of thermodynamics in the quantum world. The study of open quantum systems is another benchmark that is being set in recent times. As we are inching towards making efficient quantum thermal machines, we have to encounter the problems that become dominant in quantum domain. Shortening the duration of a process leads to more power generation in the process and that introduces irreversibility in the evolution of the system. Our main interest in this thesis is to study the effects of quantum coherence in fast driving protocols, especially dividing the irreversible entropy production into two different components, coherent and non-coherent, and to study the coherent contribution in detail for different kind of driving Hamiltonians. In recent years, it has been found that the relative entropy of coherence is a useful measure of the amount of coherence generated in a system. In this thesis, we have measured relative entropy of coherence for different driving potential and studies its time dependence.
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