

QUANTUM STOCHASTIC THERMODYNAMICS

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ABSTRACT

In the last decades, the formalism of stochastic thermodynamics have been successfully applied to describe small nonequilibrium systems where fluctuations become important, giving important insights about the nature of irreversibility and the second law. In this talk I will discuss the extension of stochastic thermodynamics to open quantum systems that are continuously monitored using the formalisms of quantum trajectories [1]. This framework allows the derivation of universal fluctuation relations, from the famous "fluctuation theorems" for entropy production to more advanced relations based on Martingale theory [2, 3]. These allow us to split entropy production into classical and quantum contributions and can be used in applications with first passage times such as in quantum clocks [4].

REFERENCES

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