On entropy production of repeated quantum measurements

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Abstract: We study entropy production (EP) in processes involving repeated quantum measurements of finite quantum systems.

Adopting a dynamical system approach, we develop a thermodynamic formalism for the EP and study fine aspects of irreversibility related to the hypothesis testing of the arrow of time. Under a suitable chaoticity assumption, we establish a Large Deviation Principle and a Fluctuation Theorem for the EP.

This is joint work with T. Benoist, Y. Pautrat, and C-A. Pillet