

Full statistics of erasure processes: Isothermal adiabatic theory and a statistical Landauer principle

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Abstract: We study driven finite quantum systems in contact with a thermal reservoir in the regime where the system changes slowly in comparison to the equilibration time. The associated isothermal adiabatic theorem allows us to control the full statistics of energy transfers in quasi-static processes.

With this approach, we extend Landauer's Principle on the energetic cost of erasure processes to the level of the full statistics and elucidate the nature of the fluctuations breaking Landauer's bound.

This is joint work with T. Benoist , M. Fraas and V. Jakšić.