Large deviations for entropy production using Ruelle-Lanford functions: an elementary introduction

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We will discuss how the powerful method of Ruelle-Lanford functions can be used to prove the large deviation principle for entropy production. We will consider the case of invariant measures on shift spaces over a finite alphabet under some general decoupling conditions. Such conditions cover in particular irreducible (but possibly periodic) k-step Markov chains, Gibbs states with long-range (and possibly hard-core) interactions, and the statistics of some repeated quantum measurement processes. I will outline the main argument of the proof in a simple case.

This is based on jointwork with V. Jaksic, C.-A. Pillet et A. Shirikyan (arXiv:1712.09038).

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