Abstract Submitted
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Work Distributions far from Equilibrium in Quantum Spin Chaines[1] SVEN DORORSZ, Virginia Polytechnic Institute and State University — We are investigating the non equilibrium steady state for different quantum spin chaines by an exact numerical calculation. The systems, initially in a canonical state, are driven out of equilibrium by a periodic external force which couples to each site. Motivated by the Jarzynski relation and the fluctuation theorem for quantum systems we analyze in detail the probability distribution P(W). Both finite and infinite temperatures are discussed. General properties independent of the nature of the interaction are identified and we observe two dynamic regimes in the limit of small and large frequencies. The intermediate regime is caracterized by resonance peaks in the distribution. The moments of the distribution can be exploited to discuss the possible definitions of a Jarzynski-operator for quantum systems.

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