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# Dynamics of charge fluctuations and symmetry-resolved entanglement

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Due to its probabilistic nature, a measurement process produces a distribution of possible outcomes. This distribution —or its Fourier transform known as full counting statistics (FCS) —contains much more information than say the mean value of the measured ob- servable and accessing it is sometimes the only way to obtain relevant information about the system.
In fact, the FCS is the limit of an even more general family of observables —the charged moments —that characterise how quantum entanglement is split in different symmetry sectors in the presence of a global symmetry. In the talk I will consider the evolution of the FCS and of the charged moments of a U (1) charge truncated to a finite region after a global quantum quench. For large scales these quantities take a simple large-deviation form, showing two different regimes as functions of time: while for times much larger than the size of the region they approach a stationary value set by the local equilibrium state, for times shorter than region size they show a non-trivial dependence on time. I will show that the leading order in time of FCS and charged moments in the out-of-equilibrium regime can be determined by means of a space-time duality. Namely, it coincides with the stationary value in the system where the roles of time and space are exchanged. This observation can be used to find some general properties of FCS and charged moments out-of-equilibrium, and to derive an exact expression for these quantities in interacting integrable models.

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