



Istituto Nazionale di Fisica Nucleare

Bologna Workshop on:

## CFT AND INTEGRABLE MODELS

and their applications from gauge/gravity dualities to statistical mechanics and quantum information



Contribution ID: 85

Type: **Talk (20 min)**

## Nonequilibrium Full Counting Statistics and Symmetry-Resolved Entanglement in integrable models

*Wednesday, 6 September 2023 12:00 (20 minutes)*

Due to its probabilistic nature, a measurement process in quantum mechanics 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 observable 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 charge moments that characterise how quantum entanglement is split in different symmetry sectors in the presence of a global symmetry. In this talk I 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. Using the recently developed space-time duality approach I will show it is possible to obtain explicit TBA formulae for the quench dynamics of the charged moments. I will discuss several checks of this result and present a number of applications including to the quantum Mpemba effect in the XXZ model, which describes anomalously fast relaxation from certain initial states.

**Primary author:** RYLANDS, Colin (SISSA)

**Presenter:** RYLANDS, Colin (SISSA)

**Session Classification:** Bologna Workshop CFT-IM