Contribution ID: 42

Type: Poster

Operatorial quasiparticle picture, from entanglement hamiltonians to projective measurements

The quasiparticle picture provides simplest and yet most effective way to study the out-of-equilibrium evolution of entanglement measures following a quantum quench at the ballistic scale. It has found applications in the study of Renyi entropies and negativities in free and interacting systems, reproducing the main known features of entanglement evolution.

I will present a novel point of view for this rather dated subject, in which the quasiparticle picture for free theories is interpreted as an operatorial statement. Although very simple, this new perspective allows to access the hydrodynamic scale description of operatorial measures of entanglement, such as the entanglement hamiltonian, which provides the most complete possible characterization of bipartite entanglement, both in one dimension and in higher dimensions.

Also, I will show how this approach allows to shed light on the extension of the quasiparticle picture to different contexts in which its application is not yet well understood; in particular dissipative systems and systems undergoing quench evolution combined with localized projective measurements.

I will finally comment on the possibility to extend the approach to interacting systems, which would provide a novel way to bridge the quasiparticle picture to generalized hydrodynamics.

Author: TRAVAGLINO, Riccardo (SISSA)

Co-authors: Mr RYLANDS, Colin (SISSA); Mr CALABRESE, pasquale (SISSA)

Presenter: TRAVAGLINO, Riccardo (SISSA)

Session Classification: Poster