



Contribution ID: 5

Type: 20 Min Talk

Entanglement Hamiltonian in the Domain Wall melting

Thursday, 6 July 2023 11:30 (30 minutes)

The domain wall melting offer a paradigmatic example of an out-of-equilibrium problem. In the past years the application of many techniques has made possible to investigate the entanglement properties of this problem, by allowing the computation of the entanglement entropies. In this work we move forward, by deriving the Entanglement Hamiltonian (the logarithm of the reduced density matrix) in the melting of a domain wall in the free Fermi chain. With respect to other measures of entanglement, the Entanglement Hamiltonian offer a more complete, operatorial characterisation. We conduct an exact numerical study on the lattice, showing how to recover the field theoretical prediction with the use of a careful limiting procedure.

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Track Classification: Participants Talks