

Abstract Submitted
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Entanglement and Confinement in a two dimensional system of interacting fermions.¹ ANDREW JAMES, University College London, ROBERT KONIK, Brookhaven National Laboratory — In light of recent results on the effect of confinement in quantum quenches in 1D, we examine the out-of-equilibrium dynamics of a system of interacting fermions in two spatial dimensions. Using numerical simulations with chain array matrix product states, and a Bethe-Salpeter analysis, we explore the role of bound states in this system, and their contribution to the post quench correlations and entanglement. In particular we see marked differences in the behaviour of these quantities between quenches in the ordered phase and quenches in the disordered phase of the 2D quantum Ising model.

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