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Finite temperature quenches of fermions in an optical lattice IAN G. WHITE, RANDALL G. HULET, KADEN R. A. HAZZARD, Rice University — Although interaction quenches are known to drive interesting dynamics, much prior work has focused on quenches initiated from states that are well below the system's ordering temperature. Motivated by experiments with ultracold fermions in optical lattices, which are currently outside this regime, as well as recent work with condensed matter out of equilibrium, we study interaction quenches in the Fermi-Hubbard model starting from finite-temperature initial states. We show that interesting dynamics occur even under these conditions. In particular, we study quenches to noninteracting systems, which despite their simplicity have been the focus of recent work concerning integrability and prethermalization. Even in the limit where the initial temperature T is much greater than the tunneling t, we find that there is transient growth of intertwined two-site spin and charge correlations. We also study a case in which the initial system contains a single hole defect, and show that the propagation of this defect affects spin correlations even in the absence of interactions.

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