Abstract Submitted
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Interaction quantum quenches in the one-dimensional Fermi-Hubbard model[1] FABIAN HEIDRICH-MEISNER, ANDREAS BAUER, FLORIAN DORFNER, LUIS RIEGGER, LMU Munich, GIULIANO ORSO, Universite Paris-Diderot — We discuss the nonequilibrium dynamics in two interaction quantum quenches in the one-dimensional Fermi-Hubbard model. First, we study the decay of the Néel state as a function of interaction strength [1]. We observe a fast charge dynamics over which double occupancies are built up, while the long-time decay of the staggered moment is controlled by spin excitations, corroborated by the analysis of the entanglement dynamics. Second, we investigate the formation of Fulde-Ferrell-Larkin-Ovchinnikov (FFLO) correlations in a spin-imbalanced system in quenches from the noninteracting case to attractive interactions [2]. Even though the quench puts the system at a finite energy density, peaks at the characteristic FFLO quasimomenta are visible in the quasi-momentum distribution function, albeit with an exponential decay of s-wave pairing correlations. We also discuss the imprinting of FFLO correlations onto repulsively bound pairs and their rapid decay in ramps. [1] Bauer, Dorfner, Heidrich-Meisner, Phys. Rev. A 91, 053628 (2015) [2] Riegger, Orso, Heidrich-Meisner, Phys. Rev. A 91, 043623 (2015)

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