

Abstract Submitted
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Thermalization in Quenched Spinor Condensates¹ RYAN BARNETT, University of Maryland, ANATOLI POLKOVNIKOV², Boston University, MUKUND VENGALATTORE, Cornell University — Motivated by recent experiments, we consider the dynamics of spin-one spinor condensates after a quantum quench from the polar to ferromagnetic state. We apply the truncated Wigner approximation to the spinor system with all spatial and spin degrees of freedom. This involves propagating the Gross-Pitaevskii equation averaged over an initial noise distribution provided by the Wigner function. For short times, we find agreement with the linearized Bogoliubov analysis. For this, we show that the longitudinal magnetization grows with twice the gain exponent of the transverse magnetization. For long times (where the linearized theory fails) we provide evidence of thermalization. We interpret the results for large quenches, as a dynamical Berezinsky-Kosterlitz-Thouless transition resulting from the unbinding of vortices in the spin and charge degrees of freedom.

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