

Abstract Submitted
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Prethermalized states of quenched spinor condensates¹ SRIVATSAN CHAKRAM, YOGESH SHARAD PATIL, MUKUND VENGALATTORE, Cornell University — Due to the interplay between spin and charge degrees of freedom, spinor Bose condensates exhibit a rich tapestry of magnetically ordered phases and topological defects. The non-equilibrium properties of these fluids have been the topic of recent interest. We have previously shown that quenched spinor condensates exhibit robust prethermalized states characterized by asymptotic correlations that differ from thermodynamic predictions [1]. These non-equilibrium states arise due to the disparate energy scales between the phonon and magnon excitations. The identification of a microscopic origin of prethermalization makes this system a promising platform for studies of prethermalization and possible universal scaling relations that characterize these nonequilibrium many-body states. We elaborate on our studies of prethermalized spinor condensates and the prospects of observing a dynamical Kosterlitz-Thouless transition in this system.

[1] R. Barnett, A. Polkovnikov, and M. Vengalattore, Phys. Rev. A 84, 023606 (2011)

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