Abstract Submitted
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Universal nonequilibrium physics with spinor Bose condensates in the strongly coupled regime[1] HIL F. H. CHEUNG, YOGESH SHARAD PATIL, AIRLIA SHAFFER, HUIYAO Y. CHEN, MUKUND VENGALATTORE, Cornell University — A rich tapestry of magnetically ordered phases and topological defects arise in spinor condensates due to the interplay between their spin and charge degrees of freedom. While studies in such spinor condensates have been limited to regimes of weak spin-charge coupling [1], a range of novel phases and unexplored nonequilibrium phenomena arise in strongly interacting spinor gases. We identify the ^{7}Li F=1 spinor gas as an experimental candidate with strong spin dependent interactions and describe its spinor phase diagram. We address the stability of its various topological defects and the role of these defects in its nonequilibrium dynamics, a topic of intense study in presence of strong interactions. We explore the universal scalings in the dynamics of these non-equilibrium states and attempt to generically understand if such nonequilibrium behavior can be described by generalized Gibbs ensembles.

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

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