Abstract Submitted
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Quantum Turbulence: Generation and Evolution in Bosonic and Fermionic Superfluids[1] KHALID HOSSAIN, Washington State University, MICHAEL FORBES, Washington State University, University of Washington, KONRAD KOBUSZEWSKI, Warsaw University of Technology, PIOTR MAGIERSKI, GABRIEL WLAZLOWSKI, Warsaw University of Technology, University of Washington — Interactions between quantized vortices govern the generation and decay of quantum turbulence. Accurate simulation of the vortex dynamics employing models like time-dependent Superfluid Local Density Approximation (TDSLDA) can be computationally quite expensive for a macroscopically large Fermionic sample. To understand these interactions and the instabilities inherent to the turbulent regimes, we propose using Extended Thomas Fermi (ETF) model, similar to the Gross-Pitaevskii (GPE) with a finite temperature extension. In this work, we investigate the role of temperature in the evolution of turbulence in the Unitary Fermi Gas (UFG) and validate against TDSLDA.

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