

Abstract Submitted
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Conservation of helicity in superfluids HRIDESH KEDIA, DUSTIN KLECKNER, University of Chicago, DAVIDE PROMENT, University of East Anglia, WILLIAM T.M. IRVINE, University of Chicago — Helicity arises as a special conserved quantity in ideal fluids, in addition to energy, momentum and angular momentum. As a measure of the knottedness of vortex lines, Helicity provides an important tool for studying a wide variety of physical systems such as plasmas and turbulent fluids. Superfluids flow without resistance just like ideal (Euler) fluids, making it natural to ask whether their knottedness is similarly preserved. We address the conservation of helicity in superfluids theoretically and examine its consequences in numerical simulations.

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