

Abstract Submitted
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Superfluid internal convection in dilute Bose-Einstein condensates JAMES ANGLIN, LUKAS GILZ, TU Kaiserslautern — We apply quantum kinetic theory to heat transport in a Bose-condensed gas coupled collisionally to two spatially separated reservoir gases at different temperatures. We show that in the collisionless kinetic regime, where a Bogoliubov expansion is applicable, heat is transported by counter-propagating steady currents of condensate and non-condensate fractions, with the condensate flowing towards the source of greater heat. We derive explicit formulas for the steady state energy current and differential particle currents (with zero net particle flux). We estimate that the effect should be cleanly observable in currently feasible experiments: the condensate and thermal fraction should separate in ballistic expansion.

James Anglin
TU Kaiserslautern

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