
Andreev-Bashkin effect in superfluid cold-gases mixtures

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Abstract

We study a mixture of two superfluids with density-density and current-current (Andreev-Bashkin) interspecies interactions. Coupled superfluids undergo a dynamical instability for some values of the relative superfluid velocity. Within the fluiddynamic framework, we find that the Andreev-Bashkin interaction perturbs the onset of the dynamical instability and the frequencies of out of phase low energy modes. Due to the recent advancements in the realisation and control of Bose-Bose and Bose-Fermi cold gases, the corrections due to the Andreev-Bashkin effect have good chances to be measurable with present technology.

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