
A new quantum gas apparatus for studying multi-species superfluids

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Abstract

We report on the development of a new apparatus for producing ultracold K-Rb mixtures, with tunable interspecies interactions. The new set-up provides a large optical access for setting a high-resolution optical system for both imaging and imprinting of engineered optical potentials. We plan to study two-species Bose-Einstein condensates in mesoscopic ring traps, realized with state-of-art devices, like DMDs (Digital Micromirror Devices). We aim to investigate the fundamental quantum phenomena enabled by the interplay between multi-species supercurrents and interactions.