

Density and stability in ultracold dilute boson-fermion mixtures

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We analyze in detail recent experiments on ultracold dilute ^{87}Rb - ^{40}K mixtures in Hamburg [1] and in Florence [2, 3] within a mean-field theory. To this end we determine how the stationary bosonic and fermionic density profiles in this mixture depend in the Thomas-Fermi limit on the respective particle numbers. Furthermore, we investigate how the observed stability of the Bose-Fermi mixture with respect to collapse is crucially related to the value of the interspecies s-wave scattering length.

References

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