

Abstract Submitted
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An optically trapped mixture of alkali-metal and metastable helium atoms ADONIS FLORES, HARI PRASAD MISHRA, WIM VASSEN, STEVEN KNOOP, Vrije Univ (Free Univ) — Ultracold collisions between alkali-metal and metastable triplet helium (He^*) atoms provide the opportunity to study Feshbach resonances in the presence of a strong loss channel, namely Penning ionization, which strongly depends on the internal spin-states of the atoms. Recently we have realized the first optically trapped alkali-metal-metastable helium mixture. To prepare the ultracold $^{87}\text{Rb}+^4\text{He}^*$ mixture in a single beam optical dipole trap (ODT), we apply evaporative cooling in a strong quadrupole magnetic trap (QMT) for both species and subsequent transfer to the ODT via a hybrid trap [1,2]. We will present lifetime measurements of different spin-state mixtures, testing the application of the universal loss model [3] to this interesting multichannel collision system.
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[2] A. S. Flores, H. P. Mishra, W. Vassen, S. Knoop, *Appl. Phys. B* 121, 391 (2015)
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