

Abstract Submitted
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Cold Collisions in a K-Rb two species dipole trap¹ CARLOS MENEGATTI, BRUNO MARANGONI, LUIS MARCASSA, University of Sao Paulo — Several experiments involving cold collisions and cold heteronuclear molecules rely on large and dense atomic samples. In our experiment, we have trapped cold K atoms and Rb atoms in a two species crossed broadband optical dipole trap. Our crossed beam configuration uses 25 W of power (at 1064 nm, bandwidth of 2 nm) in each beam with about 50 μm waist radius at the focus and a depth of about 700 μK . The dipole trap is loaded from a standard mixed species MOT. In the dipole trap, we have about 2×10^6 K atoms, 7×10^6 Rb atoms, and an average temperature of 20 μK and a density of about 10^{12} atoms/cm³ for both species. We have observed that the K atom population presents an exponential decay with a lifetime of about 200 ms in the absence of Rb atoms. When we add the Rb population in the dipole trap, the K atom population presents a non-exponential decay. We believe that such observation suggests that the mixed sample is photoassociated by the 1064 nm laser, forming an excited state KRb molecule, which further decays forming KRb in the electronic ground state. More results will be discussed during the presentation.

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