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Interactions of Rubidium and Metastable Argon at Ultracold Temperatures M.K. SHAFFER, E.M. AHMED, H.C. BUSCH, C.I. SUKENIK, Old Dominion University, Norfolk, Virginia — We are investigating the interaction between ultracold rubidium (Rb) and ultracold metastable argon (Ar*) simultaneously confined in a dual species magneto-optical trap (MOT). We will report on recent quantitative measurements of the inter-species trap loss coefficients and present our preliminary results on photoassociative spectra of the Rb-Ar* complex. We will also report on studies of Penning and associative ionization in the MOT using a modified residual gas analyzer (RGA) as a detector. Finally, we will discuss the prospects for producing and spatially confining ultracold ground state RbAr, a weakly-bound van der Waals molecule. Support provided by the National Science Foundation and the Office of Naval Research.

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