Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Measurement of Intensity-Dependent Trap Loss in a Rb-Ar* MOT M.K. SHAFFER, E.M. AHMED, H.C. BUSCH, C.I. SUKENIK, Department of Physics, Old Dominion University, Norfolk, Virginia — We have measured the intensity dependence of the inter-species trap loss rate coefficients in collisions between ultracold rubidium (Rb) and ultracold metastable argon (Ar*) simultaneously confined in a dual species magneto-optical trap (MOT). Using a modified residual gas analyzer as a quadrupole mass spectrometer, we identify both heteronuclear Penning ionization and heteronuclear associative ionization as trap loss mechanisms. We have also made trap loss measurements in the Ar* MOT alone, where both Penning and associative ionization are observed as well. We will present our findings and discuss plans for future studies of the interaction between Rb and Ar* at ultracold temperatures. Support provided by the National Science Foundation and the Office of Naval Research.

Charles Sukenik
Old Dominion University

Date submitted: 22 Jan 2006 Electronic form version 1.4