Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

Collisions of co-trapped cold OH molecules with ultracold rubidium YOMAY SHYUR, TRAVIS BRILES, HEATHER LEWANDOWSKI, JILA, University of Colorado Boulder — Controlling interactions between cold molecules using external fields can elucidate the role of quantum mechanics in molecular collisions. We report progress on collisions between ultracold rubidium atoms and cold OH molecules. The OH molecules are slowed in a stark decelerator and trapped using static electric fields. Once the molecules are trapped, they are overlapped with a magnetic trap of ultracold rubidium atoms to study collisions. The post-collision OH molecules are detected using a state selective ionization scheme by first resonantly exciting the molecule on the $A^2\Sigma^+$-$X^2\Pi$ (1,0) band near 282nm and then ionizing the molecule with a 118.2nm (10.49 eV) photon. This detection method greatly increases the signal to noise ratio of OH density measurements over traditional laser-induced fluorescence methods and allows for greater precision in determining collision dynamics.

Yomay Shyur
JILA, University of Colorado Boulder

Date submitted: 25 Jan 2013 Electronic form version 1.4