

Abstract Submitted
for the DAMOP11 Meeting of
The American Physical Society

Cold Metastable NH molecules MAYA FABRIKANT, TRAVIS BRILES, NOAH FITCH, HEATHER LEWANDOWSKI, JILA, University of Colorado Boulder — We report progress towards producing samples of cold trapped NH molecules using a stark decelerator. The NH molecule has a metastable state ($a_1\Delta$) approximately 1.5 eV above the ground state and a lifetime of several seconds. We create of a beam of cold NH molecules almost entirely in the $a_1\Delta$ state by supersonic expansion and in situ photolysis of HNCO. We determine the rotational and translation temperatures of the beam using 2+1 resonance enhanced multi-photon ionization spectroscopy. The NH molecules are then slowed in a stark decelerator and trapped using static electric fields. Once the molecules are trapped, we will overlap a magnetic trap of ultracold rubidium atoms to study near-resonant quenching of metastable NH.

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Date submitted: 07 Feb 2011

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