Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Cold collision of co-trapped ND$_3$ molecules and Rb atoms NOAH FITCH, PAUL PARAZZOLI, HEATHER LEWANDOWSKI — Interest in cold molecular collisions has increased in recent years due to the development of new techniques that allow for a high level of control over both the internal and external degrees of freedom of molecular beams. Our chosen technique for creating and controlling cold molecules is Stark deceleration. This technique utilizes time-varying inhomogenous electric fields to slow a beam of polar molecules for subsequent trapping. After deceleration, our ND$_3$ molecules are loaded into a trap consisting of a static quadrupole electric field. A magnetic trap of Rb atoms is then physically superimposed with the molecular trap where collisions between the two species can be studied. We report on studies using both $^{14}$ND$_3$ and $^{15}$ND$_3$ with collision partners consisting of $^{87}$Rb$_{F=1}$, $^{87}$Rb$_{F=2}$, $^{85}$Rb$_{F=2}$, and $^{85}$Rb$_{F=3}$.

Noah Fitch

Date submitted: 22 Jan 2010

Electronic form version 1.4