

Abstract Submitted  
for the DAMOP19 Meeting of  
The American Physical Society

**Collisional Dynamics of NaLi Molecules in the Triplet Ground State** JULIANA PARK, Massachusetts Institute of Technology, HYUNGMOK SON, Harvard University, JIANGTIAN YAO, University of Toronto, MARTIN ZWIERLEIN, ALAN JAMISON, WOLFGANG KETTERLE, Massachusetts Institute of Technology — Ultracold gases of molecules allow us to study short-range chemical reactions, novel quantum phases, and quantum information processing. The NaLi molecule, the lightest bi-alkali molecule, in the triplet ground state has permanent electric and magnetic dipole moments and is predicted to have a small universal loss rate leading to long collisional lifetime. This enables us to investigate the complexity of chemical reactions by finding links to scattering theory. We have previously achieved the long-lived triplet ground state molecules in an optical dipole trap through a two-step process: formation of Feshbach molecules and stimulated rapid adiabatic passage. We report results of recent studies with our triplet state molecules including the observation of long lifetime of the molecules in a longer wavelength optical dipole trap and collisional properties of the molecules with sodium atoms.

Juliana Park  
Massachusetts Institute of Technology

Date submitted: 06 Feb 2019

Electronic form version 1.4