COLLISION EXPERIEMNTS UTILIZING TRAPPED NEUTRAL OH MOLECULES

DAJUN WANG, BRIAN C. SAWYER, BENJAMIN K. STUHL, ENG HIANG YEO, *JILA, National Institute of Standards and Technology and the University of Colorado, Department of Physics, University of Colorado, Boulder, Colorado 80309-0440, USA*; BENJAMIN L. LEV, *Department of Physics, University of Illinois, Urbana, Illinois 61801-3080, USA*; JUN YE, *JILA, National Institute of Standards and Technology and the University of Colorado, Department of Physics, University of Colorado, Boulder, Colorado 80309-0440, USA*.

Using a novel magnetic quadrupole trap based on strong permanent magnets, we trap a 70 mK sample of ground-state OH molecules produced by a Stark decelerator. The trap center lies only 1 cm from the decelerator exit which enables a trapped molecule density of 10^6 cm^{-3}. Our magnetoelectrostatic trap (MET) design allows for the addition of an electric field of variable magnitude to the trapped sample to facilitate polar-molecule collision studies. We report progress toward collisional studies between trapped OH molecules and different atomic and molecular beams.