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Progress toward cold N-NH collisions in a magnetic trap MATTHEW HUMMON, Harvard University Physics Department, HSIN-I LU, Harvard University School of Engineering and Applied Sciences, EDEM TSIKATA, JOHN DOYLE, Harvard University Physics Department — We report progress toward the observation of cold collisions of atomic nitrogen (N) and imidogen (NH) in a deep (4 Tesla) magnetic trap. The atoms and molecules are loaded from a room temperature molecular beam into the magnetic trap using the cryogenic helium buffer gas technique. In previous NH trapping experiments using buffer gas loading, the $1/e$ lifetime of NH in the trap has been limited to $\tau < 1$ s due to collisions with background helium gas. Here, we implement a new large aperture trapping cell and cryogenic pulsed valved for introduction of the buffer gas. This leads to a lower density of background helium, and we observe NH trap lifetimes of $\tau > 3$ s and observation times of trapped NH greater than 10 s.

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