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Cold N - NH Collisions in a Magnetic Trap MATTHEW HUMMON, Harvard University Physics Department, Cambridge, MA 02138, TIMUR TSCHERBUL[1], Harvard-MIT Center for Ultracold Atoms, Cambridge, Massachusetts 02138, JACEK KLOS, Department of Chemistry and Biochemistry, University of Maryland, College Park, Maryland 20742, HSIN-I LU, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02138, EDEM TSIKATA, Harvard University Physics Department, Cambridge, MA 02138, WESLEY CAMPBELL, Joint Quantum Institute, University of Maryland Department of Physics and NIST, College Park, MD 20742, ALEXANDER DALGARNO[2], Harvard-MIT Center for Ultracold Atoms, Cambridge, Massachusetts 02138, JOHN DOYLE, Harvard University Physics Department, Cambridge, MA 02138 — Direct cooling and deceleration techniques typically produce molecular samples with temperatures in the range of 10 to 500 mK. Sympathetic cooling of these molecular samples via collisions with a cotrapped atomic species may be a route to attaining temperatures below 1 mK. We present a combined experimental and theoretical study of cold collisions between magnetically trapped atomic nitrogen and NH at temperatures of $\sim$ 500 mK and discuss its implications for sympathetic cooling of molecules to ultracold temperatures.

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