Abstract Submitted
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Optical Dipole Trapping of Holmium[1] CHRISTOPHER YIP, University of Wisconsin - Madison, DONALD BOOTH[2], Argonne National Laboratory, HUAXIA ZHOU, University of Wisconsin - Madison, JEFFREY COLLETT[3], Lawrence University, MARK SAFFMAN[4], University of Wisconsin - Madison — Neutral Holmium′s 128 ground hyperfine states, the most of any non-radioactive element, is a testbed for quantum control of a very high dimensional Hilbert space, and offers a promising platform for quantum computing. Its high magnetic moment also makes magnetic trapping a potentially viable alternative to optical trapping. Previously we have cooled Holmium atoms in a MOT on a 410.5 nm transition, characterized its Rydberg spectra, and made measurements of the dynamic scalar and tensor polarizabilities. We report here on progress towards narrow line cooling and magnetic trapping of single atoms.

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