Abstract Submitted
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Magneto-optical trapping of Holmium atoms[1] JINLU MIAO, JAMES HOSTETTER, GEORGIOS STRATIS, MARK SAFFMAN, University of Wisconsin — We present the first demonstration of laser cooling and magneto-optical trapping of Holmium atoms. Using the strong $J = 15/2 \rightarrow J' = 17/2$ transition at 410.5 nm we cool and trap approximately 10^4 atoms from an effusive beam source. The cooling light is one linewidth red detuned relative to the $F = 11 \rightarrow F' = 12$ cycling transition. The addition of a repumper driving $F = 10 \rightarrow F' = 11$ increases the trapped atom number, although the MOT is present without any repump light. Our interest in Ho stems from the fact that it has 128 hyperfine ground states, the largest number of any stable atomic isotope. We plan to use these states for collective encoding of qubit registers and will present progress towards that goal.

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