

Abstract Submitted  
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**Trapping cold Cs atoms in an optical bottle beam**<sup>1</sup> LARRY ISENHOWER, WILL WILLIAMS, ADAM DALLY, MARK SAFFMAN, Department of Physics, University of Wisconsin — We demonstrate a blue detuned bottle beam optical trap for confinement of cold Cs atoms. The use of blue detuned, dark traps is of interest for reducing inhomogeneous light shifts in atomic ensembles, and for Rydberg atom trapping. The bottle beam is created using a Mach-Zehnder interferometer with unequal magnification in the two arms. The resulting optical field has an intensity zero surrounded by bright regions in all directions. The bottle beam is loaded by spatially overlapping it with a cloud of cold atoms in a MOT, giving a localized sample of several thousand atoms.

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