

Abstract Submitted
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Resonator-enhanced optical guiding and trapping of Cs atoms¹

FANG FANG, DAVID WEISS — We demonstrate a 90 cm launch of Cs atoms guided by a one-dimensional (1D) optical lattice. The 1064 nm wavelength optical lattice is made in a 2 m long build-up cavity of light. It provides a transverse guide depth of 150 μ K. Near the top of their trajectory, the atoms are stopped and cooled by optical molasses, becoming trapped in the 1D lattice, which can then be loaded with multiple launches. With atoms stretched out over 5 cm, the effective volume of this extended atom trap is ~ 50 mm³. The trap is far from all magnetic sources, and will be used for a precision measurement of the electron electric dipole moment.

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