

Abstract Submitted  
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**Comparison of Pulsed and cw Dipole Traps for Confining Ultracold Rubidium** M. SHIDDIQ, C.E. LUCAS, M.D. HAVEY, C.I. SUKENIK, Old Dominion University, Norfolk, Virginia, R.R. JONES, University of Virginia, Charlottesville, Virginia, D. CHO, J.Y. KIM, C.Y. PARK, Korea University, Seoul, Korea — We are planning to use the free electron laser (FEL) at Jefferson Laboratory (Jlab) to spatially confine ultracold rubidium atoms using the optical dipole force. We anticipate applications of a high power, pulsed laser source like the FEL to precision measurements in traps, studies requiring blue or UV light for trapping, and experiments requiring very deep optical traps. The Jlab FEL is a pulsed laser. To date, almost all far-off-resonance traps (FORT) for confining ultracold atoms have used cw laser light. As a precursor to the FEL experiments, we are currently investigating the loading efficiency of a pulsed Nd:YAG laser FORT in direct comparison to a cw Nd:YAG FORT of comparable average power. We will present our findings on these experiments. Supported in part by the National Science Foundation, grant no. INT-0225869, Jefferson Laboratory, and Old Dominion University.

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