

Abstract Submitted
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Phase Stabilized Arbitrary Lattices with Magnetic Levitation in Time-of-Flight Z. S. SMITH, M. E. W. REED, A. DEWAN, A. M. STAHL, S. L. ROLSTON, Joint Quantum Institute/Univ of Maryland-College Park — We present three portions of our apparatus that enable 60 ms time-of-flight images to be taken of atoms released from arbitrary lattices. First, we present the generation of these optical lattices using a pair of Acousto-Optic Modulators [AOM]. Second, the phase-stabilization of these lattices using an in-house manufactured interferometer and piezo-actuated mirror. Third, a magnetic levitation system for ^{87}Rb using supercapacitors and a MOSFET-based switched circuit that enables 10's of ms time-of-flight while staying in focus with a high-resolution imaging system.

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