Abstract Submitted
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Single qubit gates on neutral atoms in a 3d Optical lattice[1] AISHWARYA KUMAR, YANG WANG, XIANLI ZHANG, THEODORE A. CORCOVILOS, DAVID S. WEISS, Department of Physics, The Pennsylvania State University, University Park, PA 16802 — Neutral atoms are especially promising candidates for quantum computing because of their inherent scalability. To realize this scalability requires being able to manipulate the quantum information at target qubits with high fidelity and low crosstalk. We will present two single qubit gate addressing protocols. We have experimentally applied them both to targeted sites in a 5x5x5 3D array. The two distinct approaches both use crossed MEMS-mirror directed addressing beams along with microwave pulses to target atoms at single sites, while having minimal impact on the quantum information at non-target sites.

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