

Abstract Submitted
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Spatially Selective Imaging in a Three-Dimensional Optical Lattice¹ CAROLYN MELDGIN, DAVID CHEN, BRIAN DEMARCO, University of Illinois at Urbana-Champaign — We have developed a technique to isolate atoms at the center of a three-dimensional optical lattice. A microwave-frequency magnetic field is used to transfer the central atoms into a hyperfine state that is selectively imaged. The center is spectroscopically resolved using hyperfine-state-sensitive AC Stark shifts effected by crossed laser beams. We discuss how this technique may be applied to compressibility measurements to aid in the determination of the three-dimensional disordered Bose-Hubbard phase diagram.

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