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Microscopic Lensing by a Dense, Cold Atomic Sample STETSON ROOF, KASIE HAGA, MARK HAVEY, Old Dominion University, DMITRIY KUPRIYANOV, IGOR SOKOLOV, St-Petersburg State Polytechnic University, OLD DOMINION UNIVERSITY COLLABORATION, ST-PETERSBURG STATE POLYTECHNIC UNIVERSITY COLLABORATION — We investigate a micron-scale lensing effect exhibited by a cold, dense sample of ^{87}Rb atoms and draw parallels with that of a simple convex/concave lens. The experiment is carried out in the fashion of traditional z-scan measurements but in much weaker fields and where close attention is paid to the detuning dependence of the transmitted light. The results are interpreted using numerical simulations and by modeling the atom sample as a thin lens.

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