

Abstract Submitted
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Measurement of the ground state tensor polarizability of Cesium atoms TENG ZHANG, ZHENYU WEI, DAVID WEISS, Pennsylvania State University — We will describe our measurement of the ground state tensor polarizability (GSTP) of Cs using laser cooled atoms trapped in optical lattices and discuss our preliminary results. Precision measurement of the Cs GSTP can help test atomic calculations of the hyperfine interactions between nuclear moments and electrons, which are a challenging part of atomic parity-violation calculations. We directly measure the GSTP by driving transitions between magnetic sublevels and measuring the populations in individual magnetic sublevels. We study systematic effects by independently varying electric and magnetic fields and the optical lattice depth. We anticipate at least an order of magnitude improvement in the precision of F=4 hyperfine level GSTP measurement and a similar precision in this first ever F=3 GSTP measurement.

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