

Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Toward the measurement of the parity violating transition amplitude and the anapole moment in the cesium ground hyperfine states via two-pathway interference. JUNGU CHOI, GEORGE TOH, NATHAN GLOTZBACH, DAN ELLIOTT, Purdue University, COHERENT AND QUANTUM OPTICS LAB TEAM — We present the full characterization of the experimental setup of RF-Raman interference in the ground hyperfine states of cesium for precision measurement of the nuclear anapole moment. We have developed an RF open resonator at 9.2 GHz to observe the "weak" atom-field interaction and minimize contributions due to various systematic effects. The simulations and measurements are in good agreement with one another and show good power buildup in the atom-field interaction region. We have developed lasers at 852 nm that are phase-locked to the RF fields to "strongly" excite the same Raman transition between the same hyperfine states for the purpose of enhancing the signal-to-noise ratio. We report some preliminary results such as RF-optical interference measurements.

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Date submitted: 06 Feb 2018

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