

Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Current status of the measurement of the anapole moment¹
DONG SHENG, ADRIAN PEREZ GALVAN, JONATHAN HOOD, LUIS OROZCO, Joint Quantum Institute and Department of Physics, University of Maryland — We present the current status of the experimental effort towards the measurement of the anapole moment in different isotopes of francium. The anapole is a parity-violating, time-reversal conserving nuclear moment that arises from the weak interaction among nucleons. Due to the electromagnetic interaction between electrons and nucleons, atomic physics gives the unique possibility to probe the weak interaction in the low energy regime. Our experimental scheme involves driving a parity forbidden E1 transition between hyperfine ground states in a series of francium isotopes inside a blue detuned dipole trap at the electric antinode of a microwave cavity. The experiment will make use of the ISAC radioactive beam facility at TRIUMF. The system is currently being tested with rubidium.

¹Work done as part of the FrPNC collaboration, supported by NSF.

Dong Sheng
Joint Quantum Institute and Dept of Physics, University of Maryland

Date submitted: 23 Jan 2009

Electronic form version 1.4