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Progress on the measurement of the francium anapole moment DONG SHENG, JONATHAN HOOD, STEVEN LYNAM, LUIS OROZCO, Joint Quantum Institute, NIST and University of Maryland, EDUARDO GOMEZ, Universidad Autónoma de San Luis Potosí, San Luis Potosí, México, SETH AUBIN, College of William and Mary, GERALD GWINNER, University of Manitoba, Winnipeg, MB, Canada, JOHN BEHR, MATTHEW PEARSON, PETER JACK-SON, TRIUMF, Vancouver, BC, Canada, DAN MELCONIAN, Texas A&M, VIC-TOR FLAMBAUM, University of New South Wales, Sydney, Australia, GENE SPROUSE, SUNY Stony Brook — We present the current status of the experimental effort towards the measurement of the anapole moment in francium. The anapole is a parity violating, time-reversal conserving nuclear moment that arises from the weak interaction among nucleons. The anapole moment is nuclear spin dependent (nsd) and sensitive to the configuration of nuclear structure. Our experimental scheme is to perform a direct measurement of the nsd parity violation, by 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 anti-node of a microwave cavity. We explore theoretical aspects and experimental requirements on the possible tests using rubidium isotopes. The experiment will be at the ISAC radioactive beam facility of TRIUMF. Work supported by NSF and DOE USA, NSERC and NRC Canada, CONACYT Mexico.

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