

Abstract Submitted
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Towards an Atomic Parity Violation Measurement with Laser Trapped Francium at ISAC¹ R. COLLISTER, M. TANDECKI, G. GWINNER, University of Manitoba, J. ZHANG, L. OROZCO, University of Maryland, J.A. BEHR, M.R. PEARSON, TRIUMF, E. GOMEZ-GARCIA, Universidad Autonoma de San Luis Potosi, S. AUBIN, College of William and Mary — The neutral atom trap for parity violation measurements at TRIUMF has recently accepted its first radioactive beam. The longest lived francium isotopes have half-lives of minutes, requiring us to produce them with the online mass separator of the ISAC facility. The ion beam is embedded into a catcher made of yttrium foil where it is neutralized. Subsequently, the foil is rotated and heated to release a pulse of atomic francium into the laser trap cell. Francium isotopes 207, 209 and 221 have successfully been cooled and confined in a magneto-optical trap, a crucial first step for later experiments. The next online measurements are planned for November 2012 where two physics goals will be pursued. Firstly, the hyperfine anomaly will be probed via high precision spectroscopy on the atomic D1 transition in order to investigate the nuclear magnetization distribution. This will be followed by ionization cross-section measurements from the $7p_{3/2}$ state to evaluate this as a potential problematic trap loss mechanism for future parity violation measurements.

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