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Probing parity nonconservation effects with laser cooled and trapped francium atoms¹ MUKUT KALITA, TRIUMF, SETH AUBIN, College of William and Mary, JOHN BEHR, TRIUMF, ROBERT COLLISTER, AUSTIN DEHART, University of Manitoba, ALEXANDRE GORELOV, TRIUMF, EDUARDO GARCIA, Universidad Autnoma de San Luis Potosi, GERALD GWINNER, MICHAEL KOSSIN, University of Manitoba, DAVID LIVERMORE, TRIUMF, Carleton University, LUIS OROZCO, Joint Quantum Institute, University of Maryland and National Institute of Standards and Technology, MATT PEARSON, TRIUMF, FRPNC COLLABORATION — Measurements of parity nonconservation (PNC) effects in atomic systems test the Standard Model at low energies. We are developing an experiment to probe PNC effect in neutral francium atoms. Francium ions produced at the ISAC radioactive beam facility at TRIUMF are neutralized using a zirconium foil. The foil is momentarily heated and the released atoms are first trapped in a capture magneto optical trap (MOT). Then, the atoms are transported with about 50% efficiency to another MOT in a science chamber. In this chamber, in one experiment the 7S to 8S atomic transition will be probed using a laser beam, and in another experiment the ground state hyperfine transition will be probed using a microwave beam. In this talk I will report on recent developments towards the measurements.

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