Abstract Submitted
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Constructing a Laser Stabilization System for a Parity Non-Conservation Experiment with Francium[1] A.C. DEHART, GERALD GWINNER, MICHAEL KOSSIN, Univ of Manitoba, JOHN BEHR, ALEXANDRE GORELOV, MUKUT KALITA, MATTHEW PEARSON, TRIUMF, SETH AUBIN, C. of William and Mary, EDUARDO GOMEZ GARCIA, Instituto de Fisica, UASLP, LUIS OROZCO, JQI, Physics, U. of Maryland & NIST — We are developing an experiment at TRIUMF to test the Standard model at low energies by measuring Parity Non-Conservation (PNC) effects in francium. Current efforts include preparations to study the 7s – 8s electric dipole (E1) forbidden transition in francium at 507 nm under the influence of an electric field. Fr has no stable isotope; therefore to frequency-stabilize our laser at 507 nm, we are developing a laser stabilization system by using the Pound-Drever-Hall technique with a Fabry-Perot cavity made of Ultra Low Expansion Glass (ULE) as our stable frequency reference. The system will stabilize a 1014 nm laser, which will be frequency doubled to 507 nm, before sending the light to our cold and trapped francium sample. We will report on our recent experiences with the laser stabilization system.

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