

Abstract Submitted
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Isotope shifts in the $7S \rightarrow 8S$ transition of francium: measurements and comparison to ab-initio theory¹ MUKUT KALITA, JOHN BEHR, ALEXANDRE GORELOV, MATTHEW PEARSON, TRIUMF, AUSTIN DEHART, GERALD GWINNER, MICHAEL KOSSIN, U. of Manitoba, SETH AUBIN, C. of William and Mary, EDUARDO GOMEZ, Instituto de Fisica, UASLP, LUIS A. OROZCO, JQI, Physics, U. of Maryland and NIST, VLADIMIR DZUBA, VICTOR FLAMBAUM, School of Physics, U. of New South Wales, MARIANNA SAFRONOVA, U. of Delaware and JQI, U. of Maryland and NIST — The Standard Model can be tested at low energies by probing parity non-conservation (PNC) effects in atomic systems. At the francium trapping facility at TRIUMF, we are developing a Stark interference experiment to probe PNC in neutral francium atoms using the $7S \rightarrow 8S$ atomic transition. We have observed this transition in francium using two-photon spectroscopy. This allows the extraction of the isotope shifts of the $8S$ state. We have measured the shifts on five isotopes $^{208,209,210,211,213}\text{Fr}$ of cold trapped atoms. Using our previously measured isotope shifts of the $7P_{1/2}$ level we can extract the ratio of field shift constants and the relation between specific mass shift constants. The experimental results will be compared to recent ab-initio calculations.

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