Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

$7P_{1/2}$ hyperfine splitting in ^{206,207,209,213}Fr and the hyperfine anomaly[1] J. ZHANG, L.A. OROZCO, JQI, Physics, University of Maryland and NIST, College Park, 20742, USA, R. COLLISTER, G. GWINNER, Physics, University of Manitoba, Winnipeg, MB, R3T 2N2, Canada, M. TANDECKI, J.A. BEHR, M.R. PEARSON, TRIUMF, Vancouver, BC, V6T2A3, Canada, E. GOMEZ, Instituto de Fisica, UASLP, San Luis Potosi, 78290, Mexico, S. AUBIN, Physics, College of William and Mary, Williamsburg, VA 23197, USA. — We perform precision measurements on francium, the heaviest alkali with no stable isotopes, at the recently commissioned Francium Trapping Facility at TRIUMF. A combination of RF and optical spectroscopy allows better than 10 ppm (statistical) measurements of the $7P_{1/2}$ state hyperfine splitting for the isotopes ^{206,207,209,213}Fr, in preparation for weak interaction studies. Together with previous measurements of the ground state hyperfine structure, it is possible to extract the hyperfine anomaly. This is a correction to the point interaction of the nuclear magnetic moment and the electron wavefunction, known as the Bohr Weisskopf effect. Our measurements extend previous measurements[2] to the neutron closed shell isotope (213) as well as further in the neutron deficient isotopes (206, 207).

[1]Work supported by NSERC and NRC from Canada, NSF and DOE from USA, CONYACT from Mexico.
[2]Grossman *et al* Phys. Rev. Lett. 83, 935 (1999).

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Date submitted: 28 Jan 2013 Electronic form version 1.4