Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

Commissioning of the Francium Trapping Facility at TRIUMF[1]

M. TANDECKI, J.A. BEHR, M.R. PEARSON, TRIUMF, Vancouver, BC, V6T 2A3, Canada, S. AUBIN, Physics, College of William and Mary, Williamsburg, VA 23197, USA, R. COLLISTER, G. GWINNER, Physics, University of Manitoba, Winnipeg, MB R3T 2N2, Canada, E. GOMEZ, Instituto de Fisica, UASLP, San Luis Potosi 78290, Mexico, L. OROZCO, J. ZHANG, JQI, Physics, UMD and NIST, College Park, MD 20742, USA — The Francium Trapping Facility was constructed in 2011-2012 at TRIUMF in Vancouver. The goal of the facility is to study different aspects of weak neutral currents – which cause parity violating effects – in francium atoms using two different techniques. The first section of the apparatus, a magneto-optical trap to accumulate francium atoms produced by the ISAC radioactive beam facility as ions, has been commissioned in Sep 2012. ^{207,209,221}Fr were trapped with trap lifetimes of the order of 20s. This is of the same order as their radioactive lifetimes ($t_{1/2}$ = 14.8 to 286.1s). Following the online run, ^{225}Ac ($t_{1/2}$ = 10 days) was implanted into a tantalum foil, to have an offline source of ^{221}Fr available; recoiling francium atoms from this source were trapped as a proof-of-principle. The commissioning run paved the way for spectroscopic measurements which will be presented in other contributions. The next phase of the experiment will see the construction of the second section of the setup; a science chamber below the current glass cell, which will house a microwave cavity and electric field plates, to study the atoms in a MOT and a dipole force trap.

[1]Work supported by NSERC and NRC from Canada, NSF and DOE from USA, CONACYT from Mexico.

Michael Tandecki
TRIUMF

Date submitted: 29 Jan 2013 Electronic form version 1.4