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### **Francium Spectroscopy for Weak Interaction Studies<sup>1</sup>**

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Francium, a radioactive element, is the heaviest alkali. Its atomic and nuclear structure makes it an ideal laboratory to study the weak interaction. Laser trapping and cooling in-line with the superconducting LINAC accelerator at Stony Brook opened the precision study of its atomic structure. I will present our proposal and progress towards weak interaction measurements at TRIUMF, the National Canadian Accelerator in Vancouver. These include the commissioning run of the Francium Trapping Facility, hyperfine anomaly measurements on a chain of Fr isotopes, the nuclear anapole moment through parity non-conserving transitions in the ground state hyperfine manifold. These measurements should shed light on the nucleon-nucleon weak interaction. This work is done by the FrPNC collaboration: S. Aubin College of William and Mary, J. A. Behr TRIUMF, R. Collister U. Manitoba, E. Gomez UASLP, G. Gwinner U. Manitoba, M. R. Pearson TRIUMF, L. A. Orozco UMD, M. Tandecki TRIUMF, J. Zhang UMD

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