

## FIRST RESULTS FROM GRIFFIN INCLUDING THE HALF-LIVES OF NEUTRON RICH $^{128-130}\text{Cd}$

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Gamma-Ray Infrastructure For Fundamental Investigations of Nuclei (GRIF-FIN) is a new high-efficiency  $\gamma$ -ray spectrometer for decay spectroscopy research with low-energy (30 keV) radioactive beams from the Isotope Separator and Accelerator (ISAC) facility at TRIUMF in Vancouver, Canada. GRIFFIN is comprised of 16 HPGe clover detectors and hosts a suite of auxiliary detection systems for tagging  $\beta$  particles, neutrons, and internal conversion electrons in coincidence with  $\gamma$  rays. GRIFFIN is a powerful new tool for studying the nuclear structure of exotic short-lived isotopes far from stability, and for measuring weak  $\gamma$ -ray branches that are important in tests of fundamental symmetries and nuclear astrophysics. This presentation will provide an overview of the GRIFFIN facility, which was commissioned and entered full scientific operation at TRIUMF-ISAC in the summer of 2015. First results from the GRIFFIN physics program will be discussed, including a recent measurement of the half-lives of the neutron-rich  $^{128-130}\text{Cd}$  isotopes.

These half-lives are challenging to measure as this neutron-rich region contains many complicated decay chains due to the presence of significant  $\beta$ -delayed neutron decay branches and the population of isomeric states with half-lives com-

parable to the nuclear ground-states. Using GRIFFIN, much of this complicated background was removed by measuring the time distribution of characteristic  $\gamma$ -rays emitted following the  $\beta$ -decay of interest. In particular, the new measurements with GRIFFIN resolve a discrepancy between previously measured half-lives for the  $N = 82$  “waiting-point” nucleus  $^{130}\text{Cd}$ , with important implications for the  $r$ -process nucleosynthesis abundances in the  $A \sim 130$  mass region.