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Decay Spectroscopy Experiments Using the GRIFFIN Spectrometer at TRIUMF

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GRIFFIN [1], the Gamma-Ray Infrastructure For Fundamental Investigations of Nuclei is the new decay spectroscopy array located at TRIUMF, Canada's National Laboratory for Nuclear and Particle Physics. GRIFFIN consists of 16 large-volume hyper-pure germanium clover detectors assisted by a custom-built digital data acquisition system, providing 10% efficiency for detecting gamma-rays at 1.3 MeV. A suite of ancillary detector systems can be coupled to GRIFFIN for comprehensive decay spectroscopy experiments with radioactive beams delivered by the TRIUMF-ISAC facility: SCEPTAR [2], an array of plastic scintillators for beta-particle tagging, and PACES [2], an array of five lithium-drifted cooled silicon detectors for high-resolution internal conversion-electron spectroscopy, eight lanthanum bromide scintillators for fast gamma-ray timing measurements [2], and a neutron detector array for the detection of beta-delayed neutron-emitting nuclei called DESCANT, [3]. This versatile experimental set-up allows for the identification of weak branching ratios and firm spin and parity assignments of excited states thorough angular correlation measurements.
Results obtained with the GRIFFIN spectrometer near and far from stability using beta decay of beams of 128–130Cd [4], 46,47K [5,6], 32Na [7], and 118,132In [8,9] will be presented along with a discussion of future opportunities, including the addition of the Compton and background suppression shields in 2018.
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