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Gamma-Ray Infrastructure For Fundamental Investigations of Nuclei

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Several groups from universities across Canada are collaborating on the GRIFFIN (Gamma-Ray Infrastructure For Fundamental Investigations of
Nuclei) project to significantly upgrade the decay spectroscopy capabilities at TRIUMF-ISAC. GRIFFIN will replace the HPGe aspect of the 8pi spectrometer with an array of 16 large-volume hyper-pure germanium clover detectors instrumented with a state-of-the-art digital data acquisition system. This Canadian-led project will serve both the national and international interests in low-energy nuclear physics research at TRIUMF-ISAC. The facility will make use of all the ancillary detector systems developed for the 8pi spectrometer which include the SCEPTAR array for beta-tagging, PACES for high-resolution internal conversion electron spectroscopy and an array of lanthanum bromide scintillators for fast gamma-ray timing measurements. In addition, GRIFFIN will accommodate arrays of neutron detectors, such as the DESCANT array developed by the University of Guelph and TRIUMF, to enable studies of beta-delayed neutron emitting nuclei relevant for the astrophysical r-process.

The low-energy area of ISAC-I is being reconfigured and the new experimental equipment is being installed during the first half of 2014.
It is planned to performed experiments using an early-implementation of the GRIFFIN facility during the Fall schedule of 2014. The array will be fully completed in 2015 with the full complement of 16 clovers. GRIFFIN will greatly enhance the capabilities in the nuclear structure, nuclear astrophysics and fundamental symmetries research programs with stopped radioactive beams available from ISAC and in the future ARIEL. A detailed overview and progress update of the GRIFFIN project will be presented.

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