

Delayed Charged Particle Spectroscopy with GRIFFIN

Naturally occurring explosive astrophysical events including x-ray bursts, supernovae, and neutron-star mergers are responsible for the synthesis of the majority of heavy elements in the universe. Short-lived rare isotopes, produced in the initial blast, will decay back to stability through β -decay and other modes of radioactivity. The properties of these exotic nuclei can be investigated in the lab with highly efficient detection instrumentation and intense beams of rare isotopes, available at TRIUMF's Isotope Separator and Accelerator (ISAC) facility. A new radiation detector array, consisting of six double-sided silicon strip detectors, is presently being developed by the nuclear physics group at the University of Regina that will be coupled with the GRIFFIN spectrometer at TRIUMF. This state-of-the-art detection system will allow new studies of exotic decay modes close to the proton drip line including α -decay and β -delayed charged-particle emission (βp , $\beta 2p$, $\beta \alpha p$). An overview of the design and construction of the array will be presented.

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Funding Agency

NSERC

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Session Classification: Poster Session

Track Classification: Poster