



## DEPARTMENT OF PHYSICS

### Postdoctoral Position in Experimental Nuclear Physics

Applications are invited for a postdoctoral research position with the University of Guelph Nuclear Physics Group investigating nuclear structure using rare isotopes at TRIUMF's Isotope Separator and Accelerator (ISAC) radioactive ion-beam facility. Our group is among the largest Canadian groups working in the field of experimental nuclear physics and leads experiments with a number of major facilities at ISAC, including the new GRIFFIN gamma-ray spectrometer, the DESCANT neutron-detector array, a  $4\pi$   $\beta$ -counter/fast-tape-transport system, and the highly-segmented TIGRESS gamma-ray spectrometer. Guelph is located 45 minutes west of Toronto and has been consistently named one of Canada's top ten places to live for University graduates, mid-career professionals and families.

The TRIUMF-ISAC Gamma-Ray Escape Suppressed Spectrometer (TIGRESS) is a position-sensitive gamma-ray spectrometer comprised of sixteen 32-fold segmented HPGe clover detectors for use in experiments with accelerated radioactive ion beams from ISAC-II. The advertised position is focused on the development of the future TIGRESS Silicon Tracker ARray (TI-STAR). This \$750,000 project will be an innovative new auxiliary detector for the TIGRESS array. The TI-STAR detector is currently developed within an international research team, including Guelph, TRIUMF, Colorado School of Mines (USA) and TU Munich (Germany), led by our group. Multiple layers of ultra-thin fine-pitched silicon sensors will be coupled to ASICs to track the interaction vertices in a gas target with high precision, allowing a major increase in luminosities for direct reaction studies with accelerated radioactive beams. The applicant will be expected to work within our team to further the development of the individual TI-STAR components, with a focus on the silicon PCB prototype development. Among other topics, the applicant will be encouraged to contribute to a future research program towards measurements of neutron-capture cross sections of r-process nuclei, for which the TI-STAR design has been optimized.

The applicant will also be supported to develop his/her independent research program related to nuclear structure studies far from stability, e.g. using the Gamma-Ray Infrastructure For Fundamental Investigations of Nuclei (GRIFFIN), a new high-efficiency gamma-ray spectrometer for decay spectroscopy research with the low-energy radioactive beams from the ISAC-I facility, and the DEuterated Scintillator Array for Neutron Tagging (DESCANT), an array of 70 deuterated liquid scintillator neutron detectors.

We encourage applications from excellent candidates who hold, or will soon graduate with, a Ph.D. in experimental nuclear physics or a closely related field and who are interested in participating in one or more of the above research programs. The ideal candidate has experience in the field of silicon detector developments and/or digital electronics/ASICs. Candidates are invited to submit a curriculum vita, list of publications, a statement of research interests, and the names of three professional references to Prof. Dennis Muecher: [dmuecher@uoguelph.ca](mailto:dmuecher@uoguelph.ca). Review of applications will begin on **May 30, 2018** and will continue until the position is filled.