TRIUMF
Canada's National Laboratory for Particle and Nuclear Physics
STUDENT JOB PROGRAM
Summer 2018 job posting
Job number TR18-2-11

Student job title:
   TIGRESS Undergraduate Research Assistant

Name of project:
   TIGRESS

Overview:
   TIGRESS -- the TRIUMF-ISAC Gamma-Ray Escape Suppressed Spectrometer -- is a state-of-the-art gamma-ray detector array. It consists of commercial, custom-built semiconductor and organic scintillator gamma-ray detectors. It is used for experiments studying the structure of exotic nuclei. These detectors require routine maintenance and occasional repair. Experiments require manpower for custom detector setups and for quality control, and typically, experiments run around the clock.

Duties:
   The general duty of the candidate shall be to assist in experiments performed with TIGRESS and to assist in the maintenance and setup of the array between experiments. Tasks may include: developing algorithms and codes to simulate experiments; setting up and calibrating detector elements; monitoring experimental data as it is collected; analyzing data after an experiment; testing detectors and associated equipment for out-of-specification performance, and subsequently, troubleshooting and fixing them. Detailed task assignment shall be based on the needs of the experimental program and the skills of the candidate. In this work term, it is anticipated that the main tasks will involve setting up the TIGRESS array in a new experimental location with the recoil separator EMMA, and optimization of a fast gas-filled ion counter. Each of these efforts enable new possibilities for high sensitivity experiments in nuclear structure.
Skills learned during this work experience:
  Fundamentals of nuclear science; radiation measurement; data analysis;
  signal transmission and processing; vacuum and gas-handling systems

Qualifications:
  REQUIREMENTS: The successful candidate shall have a minimum 5 terms
  of physics, engineering physics, mathematical physics, or engineering
  physics, and have demonstrated through course work an understanding of
  electrical circuit theory, measurement uncertainties and error propagation. The successful candidate shall have taken a 2nd year physics laboratory class, or discipline-specific equivalent.

  IN ADDITION: Linux and C experience are valuable assets. Other experience relevant to this position include electronic assembly (soldering, antistatic practices, clean rooms), other fine assembly jobs, oscilloscopes, cryogenics, vacuum or turbine systems, light industrial, manufacturing or construction work, cranes.

Shiftwork required: No

Period of Work: 4 to 8 months based on mutual agreement, with possible 4-month extension