



MSc and PhD Graduate Studies in Subatomic Physics



Subatomic Physics

Saint Mary's University in Halifax, Nova Scotia is Atlantic Canada's leading center for graduate studies and research in subatomic physics. The university belongs to the consortium of 21 Canadian universities that own and operate TRIUMF, Canada's national laboratory for particle and nuclear physics, in Vancouver. The Department of Astronomy and Physics is also home to the Institute for Computational Astrophysics.

The research and graduate studies program features an interactive learning atmosphere. A notable feature is the offering of distant courses through TRIUMF and other partnering universities that extends the learning scope Canada-wide. Graduate students in subatomic physics get immense international and national exposure working together with experts from all across Canada and around the world.

Subatomic Physics research has drawn the highest research funding at SMU from Canada's federal granting agencies. The university's research in this field is actively building its success making notable impacts.

About Saint Mary's

Saint Mary's physics faculty perform research investigating a wide range of topics in subatomic physics, leading front-line research projects at various international facilities. Students take part in this research, most of which involves visits or work terms at particle accelerator facilities either in Canada (TRIUMF in B.C.), or in other countries—such as FRIB and Argonne National Laboratory in the USA; GSI in Germany; or RIKEN in Japan.

With its emphasis on research as well as teaching, its status of offering the only subatomic physics faculties in Halifax and its small, intimate, urban setting in one of the most charming cities on the continent, Saint Mary's University is truly a unique place for graduate studies in subatomic physics.

FIELDS OF STUDY

- Radiation detection techniques
- Nuclear structure
- Nuclear reactions
- Nuclear astrophysics
- Computational methods
- Accelerator physics

CAREER OPPORTUNITIES

- University/Government Research Scientist or Faculty
- Industrial Research Scientist
- Medical Physicist
- Computational Modelling and Simulations Expert
- Scientific Data Analyst
- Nuclear Engineering
- Patent Agent

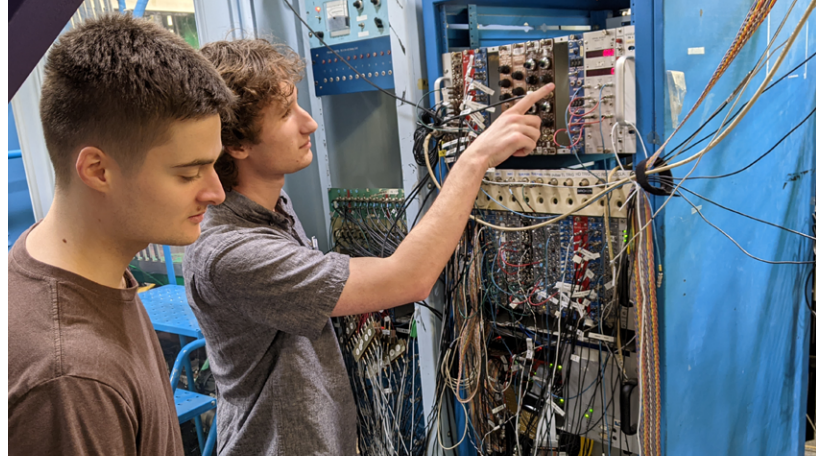


Graduate Studies in Subatomic Physics:

www.smu.ca/astronomy-physics/graduateprograms/grad-physics.html



Saint Mary's University



Faculty Members and Research Areas

Dr. Gregory Christian Associate Professor

- Research topics include astrophysical nuclear reactions, the structure of nuclei away from stability, and advanced detector development.
- Experiments performed at the TRIUMF facility in Vancouver and other accelerator facilities worldwide.
- Students may work on a variety of projects, incl. direct or indirect measurements of key astrophysical reactions, experiments probing nuclei at the edge of existence, and development of novel radiation detectors.

Dr. Thanassis Psaltis Assistant Professor

- **Multidisciplinary Research:** We use a "systems approach" to understand how stars explode and create the elements that make up our world, bridging the gap between nuclear physics, stellar modeling, and astronomy.
- **Global Experiments:** Students travel to and participate in experiments at world-leading ion-beam facilities, including TRIUMF (Canada), FRIB, Argonne National Lab (USA), and RIKEN (Japan), to measure the rare nuclear reactions that power stellar explosions.
- **Diverse Projects:** Whether you want to operate advanced radiation detectors and analyze experimental data, write code for nucleosynthesis simulations, or examine observational data from space, there are projects available that match your specific interests and career goals.

Dr. Rituparna Kanungo Professor; physical sciences division head, TRIUMF

- The research program is experiments with radioactive ion beams for nuclear structure and nuclear astrophysics.
- The group leads the experimental facility IRIS @ TRIUMF (triumf.ca/iris).
- Experiments geared to discover nuclear halos, neutron skin, new magic numbers, and explore nuclear processes for the creation of heavy elements in our Universe. Students play active leading roles at TRIUMF (Canada), GSI (Germany), RIKEN (Japan) and NSCL-FRIB (USA) at the international forefront.

Dr. Roby A.E. Austin Associate Professor, Saint Mary's

- Research in gamma-ray spectroscopy and nuclear data visualization.

Dr. Friedhelm Ames Adjunct Professor, SMU; Research Scientist, TRIUMF

- Research projects on radioactive beam production and acceleration.

Dr. Ruohong Li Adjunct Professor, SMU, Research Scientist, TRIUMF

- Research projects are on laser spectroscopy and polarized beams

Graduate Program Contact

Dr. Greg Christian

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Pre-applications are invited at any time by email to either the Subatomic Physics graduate program coordinator or the prospective supervisor.

Admissions

Graduate studies in Subatomic physics are typically undertaken through the MSc or PhD programs in Applied Science at Saint Mary's University. For programs starting in May or September, full applications must be submitted by January 31.

More information about the Applied Sciences program at Saint Mary's can be found on our website:

[MSc and PhD in Applied Science.](#)

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**Saint Mary's
University**