

Laurentian Physics Research Groups

Particle Astrophysics

- B. Aharmim, M. Batygov, D. Chauhan, O. Chkvorets, B. Cleveland, F. Duncan, J. Farine, R. Ford, D. Hallman, R. Haq, C. Jillings, C. Kraus, M. Schumaker, M. Schwendener, N. Smith, C. Virtue, U. Wichoski
- solar, supernova and geo neutrino physics
 - direct dark matter search
 - nuclear structure and double β decay physics
 - ultralow background γ -ray monitoring and surface leaching studies
 - trace radioisotope physics
 - calibration source development
 - radon / radium / dust mitigation and monitoring
 - **EXO** neutrinoless $\beta\beta$ decay experiment
 - **SNO+** neutrino & $\beta\beta$ decay experiment
 - **PICASSO** dark matter experiment
 - **HALO** supernova detection experiment
 - **DEAP** dark matter experiment

Medical Physics

- D. Cameron, E. Galiano, R. Leclair, K. Leszczynski, S. Wan, X. Wang, T. Yeung
- X-ray diffraction imaging for tumour identification
 - clinical radiation beam diagnostics and dose delivery research
 - cellular biophysics including video-microscopy of *in vivo* cell populations
 - Monte Carlo beam modeling studies
 - digital image processing techniques
 - intensity-modulated radiotherapy
 - treatment portal verification

Condensed Matter Physics

- N. Ahmed, M. Azzouz, G. Chitov, T. Kahnashvili, R. Meyer, Y. Tatek, Z. Yamani
- models for high T_c superconductivity
 - strongly correlated fermions
 - modeling in ecological systems
 - Fermi & non-Fermi liquids
 - low-dimensional quantum magnetics
 - classical & quantum phase transitions
 - simulations of materials

Theoretical Cosmology

G. Chitov

Available Research Facilities

SNOLAB

This International Facility for Underground Science, 2 km underground and just minutes from campus, is the site of a comprehensive scientific program in underground particle astrophysics. Laurentian is playing key roles in several of the experiments sited at SNOLAB.

Radiation Therapy Facilities

Adjunct medical physicists at the Sudbury Regional Hospital's Cancer Program provide use of radiation treatment facilities for graduate research projects carried out at the Cancer Center.

Radio-Purification, Source and Detector Development Lab

A SNOLAB facility sited on campus for development work involving radio-purification technology, specialized isotope sources as well as particle detectors for the new suite of SNOLAB experiments.

Diagnostic X-Ray Imaging Lab

Scattered X-ray imaging facility and access to the Canadian Light Source (CLS) biomedical beam line (in Saskatoon SK).

Nuclear Medicine Imaging Lab

A modern radioisotope gamma imaging camera is available for imaging studies.

Computational Facilities

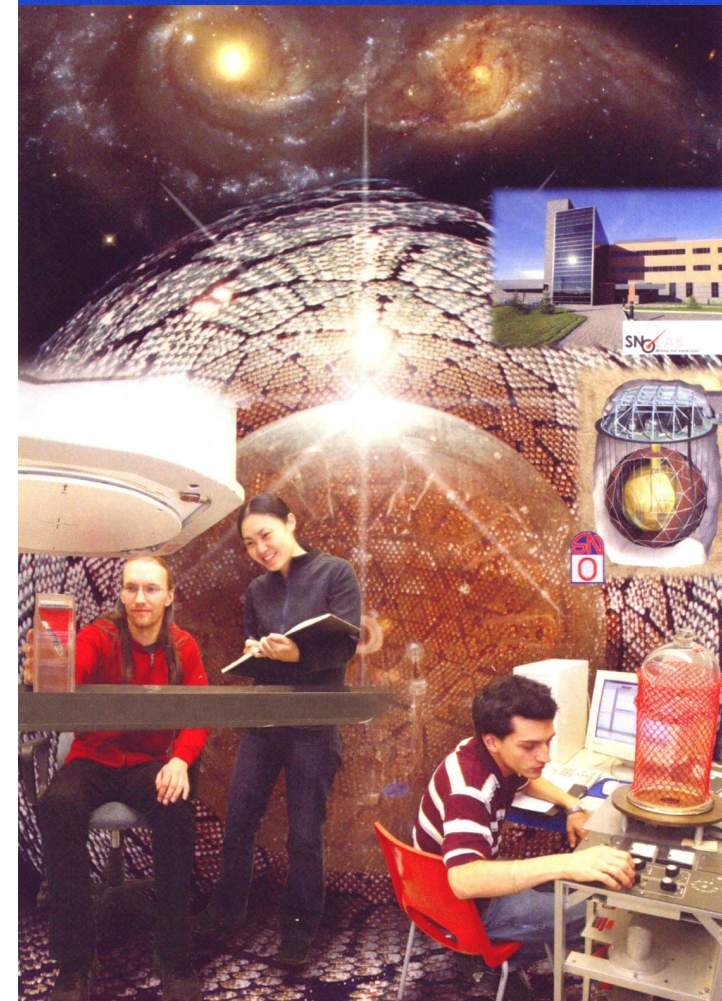
Include access to SNOLAB and SHARCNET research computing facilities.



Particle
Astrophysics
Group



Graduate Studies in Physics



SUDBURY ONTARIO CANADA

www.physics.laurentian.ca
www.physique.laurentienne.ca



Welcome to the Department of Physics

Laurentian's Department of Physics has undergraduate programs in Honours and General Physics, Biomedical Physics, and Radiation Therapy (jointly with the Michener Institute). Our M.Sc. graduate research areas are outlined in this brochure, and we have close links with medical physicists at the nearby Regional Cancer Program of HRSRH and with scientists at SNOLAB.

Although one of Ontario's smaller universities, with about 9000 full and part-time students, we have substantial research funding (over \$20 million last year) and a broad set of graduate programs including six new Ph.D. areas. Members of our department participate in Ph.D. programs at several other universities and joint Ph.D. research can be carried out here.

MSc Degree Requirements

Students require an Honours degree in Physics or equivalent for admission. Students coming from other backgrounds or otherwise lacking the full admission requirements may register in an Honours Physics Diploma program at Laurentian and then apply to Graduate Studies. The M.Sc. program requires the completion of four graduate semester courses, research, and the preparation and defence of a thesis in one of the three departmental research areas: Condensed Matter Physics, Medical Physics and Particle Astrophysics.

For information on financial support, prospective students are invited to consult the supervisor's pages or contact them directly. Eligible students will receive a graduate teaching assistantship for 10 hours per week lab demonstrating, tutorial or marking work; and a university summer research stipend in their first summer of the program. Students with external scholarships can expect higher total levels of support. For further details please contact:

Graduate Coordinator, Dr. J. Farine

jfarine@laurentian.ca

Physics Chair, Dr. Mohamed Azzouz

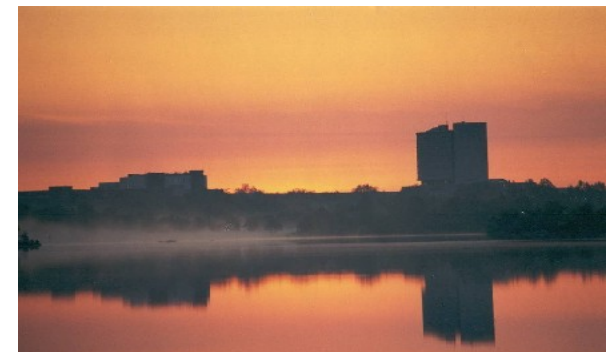
mazzouz@laurentian.ca

We can provide support for a visit to our campus for prospective graduate students. All applications for entry in the program in September, January and May must be received by the Department BY MARCH 1ST. Please allow adequate time for mail delivery and processing in the admissions office. Applications submitted after the deadline will only be contemplated if positions are available.



Laurentian's Northeastern Ontario Environment

The university is situated on a 750 acre campus bordering on five lakes. Single and married student residence accommodation, library, recreational opportunities and athletic facilities are all on campus. The Sudbury Regional Hospital (HRSRH) and its Cancer Centre as well as Science North, a world renowned science centre, are minutes away. Sudbury is a world centre for mining, environmental science, and is home to SNOLAB, an International Facility for Underground Science. We hope that you will consider joining us for graduate studies.



Revised September 2010