

## Research

You can check out the research carried out in the Department on our website at:  
<http://www.phas.ubc.ca/research>

Applied Physics, Astronomy/Astrophysics, Biophysics, Cosmology, Condensed Matter Physics, Gravity and General Relativity, Laser and Plasma Physics, Medical Physics, Particle Physics, Photonics and Nanostructures, Planetary and Space Science, Structured Surface Physics, Subatomic Physics, Theoretical Physics

## ON-CAMPUS FACILITIES

### TRIUMF

Canada's National Laboratory for Accelerator-Based Research

### AMPEL

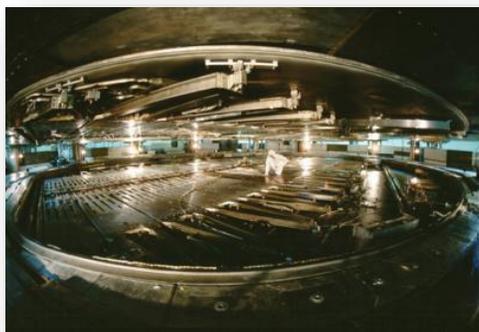
Advanced Materials and Processing Engineering Lab

### 2.3m Radio TELESCOPE

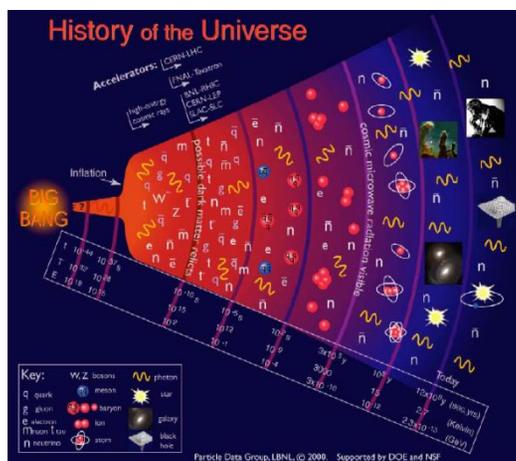
Atop the Hebb Physics Lab Building

### BC CANCER AGENCY

### UBC HOSPITAL



A photo of the inside of the TRIUMF cyclotron, showing the upper and lower halves of the resonators.



Modern astro-particle physics is now able to provide links from the Big Bang world of subatomic particle physics to the expansion of the universe.

## CONTACTS

### GENERAL PROGRAM ENQUIRY:

Undergraduate Program Coordinator  
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### PHYSICS:

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Dr. Janis Mckenna, 2nd Year Advisor  
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Dr. Carl Michal, 3rd & 4th Year Advisor  
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Dr. Chris Waltham, Undergrad Chair  
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### ASTRONOMY:

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### BIOPHYSICS:

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### ENGINEERING PHYSICS:

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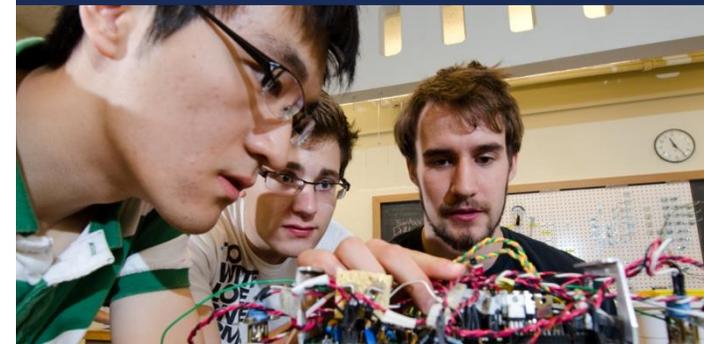
Web: [www.phas.ubc.ca](http://www.phas.ubc.ca)



a place of mind  
THE UNIVERSITY OF BRITISH COLUMBIA



UBC DEPARTMENT OF  
PHYSICS & ASTRONOMY

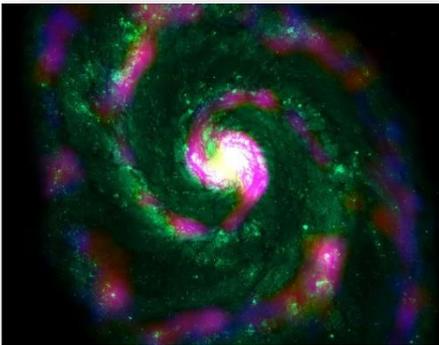


Undergraduate Studies  
Beyond First Year

**Physicists and astronomers** study the material world and the energy that drives it, from the smallest particles like neutrinos and Higgs bosons to the very largest structures in the universe, and ultimately the universe itself. In between these two extremes lies the world of atoms, whose properties control the behaviour of all the materials we encounter in our world, from computers and communications devices to our own bodies.

## Why Study Physics & Astronomy?

There are two main reasons, often overlapping, to study physics and astronomy: to satisfy our curiosity about the material universe, and to look for solutions to humanity's problems. Whether you wonder about why you and the rest of the universe are composed of elementary particles, or whether you worry about how we are going to provide energy for nine billion people without ruining our environment, getting a physics or astronomy degree will help you with your quest.



A composite image of the Whirlpool Galaxy (also known as M51).  
Photo Credit: Joint Astronomy Centre, UBC and NASA/HST/STScI

## Careers

More than one third of Physics & Astronomy graduates go on to graduate school (in many different fields). Roughly 25% of B.Sc. graduates find jobs in Research and Development, 25% enter the teaching profession and ~15% enter the computing field. Surveys of recent graduates indicate that they view the “general problem-solving skills and modes of thought” obtained from their physics education to be more important than the specific details from their various courses. A physics education prepares you for almost any possible career from forensic scientist to medical researcher or patent lawyer.

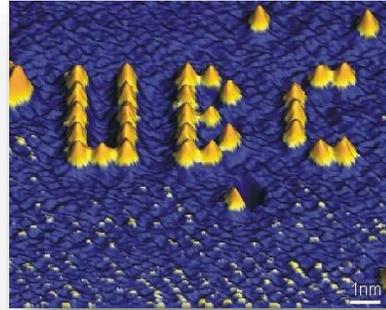
Curious about career options after Physics & Astronomy? Check out the following websites --

### Institute of Physics–Careers:

<http://www.iop.org/careers/>

### Canadian Association of Physicists - Physics Careers:

<http://www.cap.ca/careers/careers.html>



Scanning tunneling microscopy picture - 2 nm wide letters created with CO molecules on a Cu surface at AMPEL, where many PHAS labs are located.

## People

Typically ~60 students graduate each year with a B.Sc. in Physics or Astronomy and about 40 students graduate with a B.A.Sc. in Engineering Physics. A large fraction of these students participate in Co-op education. There are about 200 graduate students in Physics and Astronomy. The department has 53 full-time faculty (including 5 professional engineers), 25 adjunct or associate faculty members, and typically 45 postdoctoral fellows and research associates. The departmental teaching, research and administration is supported by a clerical and technical staff of 40 people.

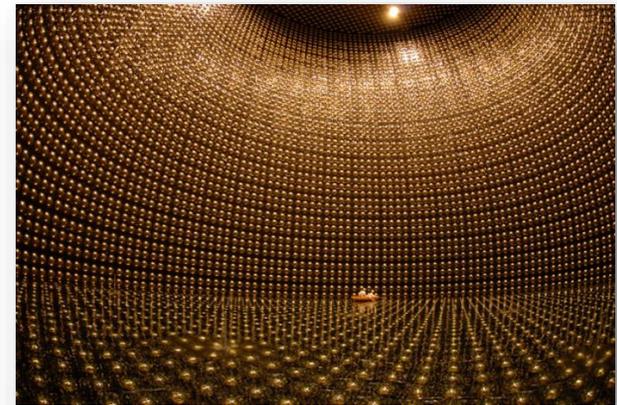
## Undergraduate Specializations

Details about the various specialization requirements can be found on the department webpage (look under Undergrad Students – Degree Programs). The Department offers the following degree programs:

- Honours in Physics or Biophysics
- Combined Honours in Physics & Astronomy
- Combined Honours in Physics & Computer Science, Chemistry, or Mathematics
- Major in Physics or Astronomy,
- Combined Major in Physics & Computer Science, or Oceanography
- BSc/BEd Dual Degree in Physics and Education
- Engineering Physics in Applied Science

Prospective students are encouraged to consider Co-op education; they should apply in the spring of their 1st year. (Details at [www.sciencecoop.ubc.ca](http://www.sciencecoop.ubc.ca))

The Honours specializations are designed for students who intend to pursue a graduate degree in Physics, Astronomy or a related field. The Majors specializations are less restrictive and are intended for students who want a broader background and/or wish to use their physics/astronomy knowledge in professional fields such as teaching, medicine, law, business, or government. Students wishing to combine physics with engineering should consider the Engineering Physics program in Applied Science. That program is sufficiently rigorous that students can go directly on to do graduate work in physics.



Dr. Scott Oser is part of the T2K research team. T2K, an international neutrino experiment, was rated 7<sup>th</sup> in the top ten physics breakthrough in 2011.

## Student Life

Students in the department are all extremely passionate about physics and astronomy. But that doesn't mean it is all work and no play. In fact, students in the department are well-rounded. The student societies and clubs within Physics & Astronomy – Physsoc, Fizz, Biophys, and Astro Club - provide many opportunities for students to be involved. These opportunities include sport teams, annual wine and cheese (which includes grad students and faculty), and various seminar series. The student societies and clubs also work closely with the department in developing events such as the career nights and the UBC high school Physics Olympics.