MONASH University
Science

GROUP OF EIGHT

Honours at Monash

School of Physics

Go Boldly.

www.physics.monash.edu

Honours Programme in Physics

The School of Physics provides research opportunities for creative students to work in astronomy, experimental and theoretical physics. Currently the School is going through an exciting period of renewal - investing in people and facilities. The School conducts research in areas ranging from atom optics, astrophysics and particle cosmology to condensed matter physics, x-ray optics and synchrotron science. Students graduating with an Honours degree in physics have a wide variety of relevant skills and demonstrable research achievements - our honours graduates have won the Thomas H. Laby Medal of the Australian Institute of Physics (Victorian Branch) nine times in the past 15 years and many have had their honours work published in international research journals.

Why an Honours Degree in Physics?

The discipline of physics ranges from consideration of the very practical, such as producing better performing medical imaging technologies, to answering curiosity driven questions, such as why is the sky blue? It addresses fundamental questions about the nature of space, time and matter, and also provides insight into philosophical issues about the quantum nature of reality and the origin of the Universe. An honours degree in physics gives you the opportunity to start on your own intellectual journey. It will provide you with the skills to conduct original research and a sound scientific background for a complex and technologically orientated world. You will have the opportunity to choose and carry out your own research project, develop high level quantitative and problem solving skills and develop communication and team skills. Our honours students are allocated an office and a computer, and have access to all the Schools' facilities, including: photocopiers, scanners, imaging services, computer services, research laboratories, electronics and mechanical workshops and excellent technical support.

Where does an Honours Degree Lead?

Graduates with physics majors are skilled in empirical reasoning, computational and theoretical modelling, problem-solving, analytical thinking, information handling, and written and spoken communication. These skills are sought by employers in a broad range of industries, from fundamental physics research to industrial applications, and even as far afield as banking, finance and patent law. Many of our honours graduates proceed to further study, enrolling in research Masters and Doctorates. An honours degree in physics from Monash also equips you for further study overseas. Recent honours graduates have successfully completed research degrees in the UK and USA.

Physicists use their specific knowledge in diverse areas including: macromolecular biology and drug design, medical imaging, synchrotron science, design of advanced materials, photonics, optoelectronics and lasers, astronomy and astrophysics, climate modelling and meteorology, medical and scientific instrumentation, the energy industry, solar power, industrial product development, science teaching, and science journalism.

Graduates in physics are highly employable in industry, hospitals and scientific organisations. Monash physics graduates have found employment in companies and organisations including: the Australian Synchrotron, Varian, Australian Pulp and Paper, Australian Antarctic Division, Hospitals, CSIRO Divisions, Australian Nuclear Science and Technology Organisation, Anglo-Australian Telescope, Parkes Radio-Telescope, Optiscan, Telstra, Amcor Research and Technology, Australian Optical Fibre Research, Australian Standards Laboratory, EPA, Sola, Bosch, BP Solar, and many other organisations.

Course Structure

The honours year offers choice in lecture topics and a research project worth 50% of the year's work. Course work is chosen from: quantum mechanics (compulsory), advanced quantum mechanics, quantum field theory, advanced quantum field theory, condensed matter physics, electron diffraction, nuclear physics, statistical mechanics, x-ray and synchrotron optics, and general relativity (offered by the School of Mathematical Sciences). Future options will include: many body theory, atom and quantum optics, particle cosmology and advanced astrophysics.

Assessment: Coursework (45%), Project Literature Review (5%) and Research Project (50%).

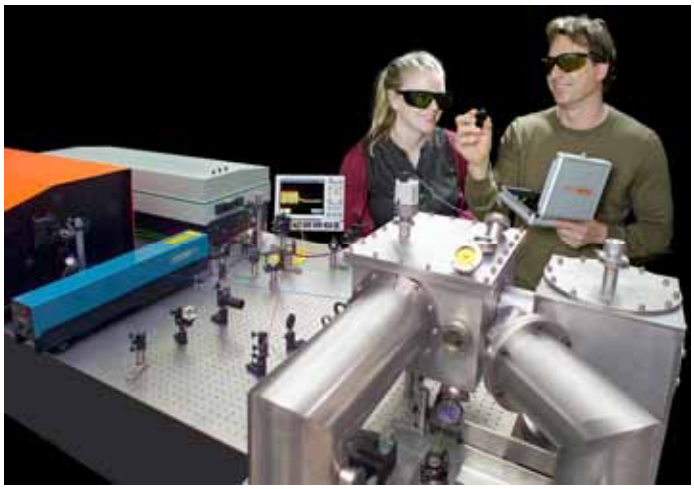
Honours Research Projects

An important feature of the Honours year is the research project, which is devoted to exploring in depth some contemporary topic in astronomy, experimental or theoretical physics. A list of current research topics may be found at:

www.physics.monash.edu.au/research/

Honours Scholarships

Outstanding applicants are invited to apply for the prestigious J. L. William honours scholarships, which are valued at $5,000 and the Jubilee Honours Scholarships are also available to students of exceptional calibre.



Atom optics experiment for focusing neutral helium atoms.
(www.physics.monash.edu.au/staff/research/bishop.html)

Further information

Details of the honours programme are provided in the Monash University Undergraduate Handbook, online at www.monash.edu.au/pubs/handbooks

and www.monash.edu.au/pubs/handbooks/undergrad/sci.html

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