



Position description

Lecturer/Senior Lecturer in Physics or Astronomy

Position number	50084673
Department/Unit	School of Physics
Faculty/Division	Faculty of Science
Classification (Salary rates)	Level B/C
Employment type	Full-time
Work location	Clayton campus
Date document created or updated	20 November 2013

Position purpose

This role demands a commitment to excellence, innovation and creativity in teaching & learning. The incumbent will lead the development of innovative teaching and learning programmes; in particular the implementation of the “studio teaching” model in First Year physics and astronomy- the Physics and Astronomy Collaborative- learning Environment (PACE). The incumbent will also be expected to develop an independent research program and apply for external research funding.

- **Reporting line:** The position reports to Head of School, Physics
- **Supervisory responsibilities:** Staff and Honours and/or postgraduate students
- **Financial delegation and/or budget responsibilities:** Nil

Organisational context

Monash University is an energetic and dynamic university committed to quality education, outstanding research and international engagement. A member of Australia's Group of Eight research intensive universities, it seeks to improve the human condition and is committed to a sustainable future. Monash has six campuses in Victoria, a campus in Malaysia, a campus in South Africa, a centre in Prato, Italy, and numerous international partnerships and cooperative ventures. Monash has approximately 56,000 equivalent full-time students spread across its Australian and off-shore campuses, and approximately 7000 full time equivalent staff. Approximately 3500 of these staff members are academic staff.

Faculty of Science is one of ten faculties at Monash University. It offers undergraduate courses and higher degrees by research to nearly 3,500 students at the Clayton campus, and at Monash University Malaysia; some programmes are also available in off-campus mode. The faculty consists of six Schools and includes major nodes of five national research centres funded by the Australian Research Council, in addition to six faculty research centres and involvement in six Cooperative Research Centres. Ten departments from other university faculties contribute to science teaching at all levels, allowing students to choose their studies from physical, biological, biomedical, behavioural, environmental, mathematical and computer sciences.

Staff within the Faculty of Science are active in conducting internationally recognised research, which is reflected in our teaching programmes; a prime advantage for students is our capacity to offer an extensive choice of subjects, with well-equipped laboratories and sophisticated, state-of-the-art equipment.

The Faculty mission is: *"To be recognised as a leader in the design and delivery of high quality and comprehensive programmes in science education and in the conduct of highly original and significant research at the best international standards"*.

School of Physics is located within the Faculty of Science. It aims to position itself as one of the top physics research and teaching departments in Australia. In the past four years the School has gone through an exciting period of renewal – investing significantly in people and facilities. The School of Physics is committed to teaching and research of the highest quality in astronomy, astrophysics, experimental physics and theoretical physics; it aims to produce graduates with a solid foundation in physics and/or astronomy. Although recognised internationally for research in several fields of physics, the School intends to significantly strengthen its research base to achieve the status of a top ranked physics department in Australia.

Currently the School has 15 academic staff, 18 adjunct staff and 16 research-only staff, supported by 9 general and technical staff. In 2013 the School's recurrent income was approximately \$10.9M, with research income totalling \$2.8M.

The School's major research activities include the ARC Centre of Excellence for Particle Physics at the Terascale, the Monash Centre for Astrophysics, as well as over a dozen Australian Research Council funded programmes. The School is an active participant in the development of the Medical and Imaging Beam line (BL10) on the Australian Synchrotron, which is located adjacent to the Clayton Campus of Monash University. The School also has strong research interests in the Monash Centre for Electron Microscopy, which is adjacent to the School of Physics. This facility houses a FEI Titan 80-300 FEG S/TEM, a JEOL 2100F FEG STEM, 3D atom probe field ion microscopes and other advanced microanalysis facilities. The School has access to state-of-the-art facilities in the new Melbourne Centre for Nanofabrication, which is adjacent to the Australian Synchrotron at the Clayton Campus.

The School conducts research in areas ranging from astrophysics, BEC physics and particle physics to biophotonics, condensed matter physics and synchrotron science. It is actively involved in three research centres:

- The ARC Centre of Excellence for Particle Physics at the Terascale (CoEPP) (<http://www.coepp.org.au/>)

- The Monash Centre for Astrophysics (MoCA) (<http://moca.monash.edu/index.html>)
- The Monash Centre for Electron Microscopy (MCEM) (<http://mcem.monash.edu.au/>)
- Monash Centre for 2D Materials (to be established in 2014).

Further information about the position and the School of Physics is available at:

<http://www.physics.monash.edu.au/employment.html#academic>

<http://www.physics.monash.edu.au/>

Key result areas and responsibility

Level B

Teaching

- Provide leadership in the development of innovative teaching programmes, including the implementation of the PACE model of studio physics at First Year;
- Development of teaching and learning material for small group teaching – including Technology-enabled Active Learning (TEAL);
- Development and revision of teaching materials, including e-education resources and implementation of innovative laboratory-based teaching programmes;
- Unit coordination, including supervision of staff and training of sessional staff for PACE;
- Preparation of assignments, laboratory-based exercises, examinations and other assessable coursework;
- Marking of student assignments, examinations and other assessable coursework;
- Participate in the development of other innovative teaching programmes.

Research

- Establish a strong, personal programme of research, publish research outcomes, including publications in high impact journals, and foster postgraduate research training (supervise honours and postgraduate students);
- Apply for National Competitive Research grants (e.g., ARC Discovery Project Grants, ARC LIEF etc.) and access other funding sources;
- Develop collaborations with other research groups in the School, elsewhere at Monash and within Australia

Administration, Management and Strategic Planning in the School of Physics

- Contribute to the administration of the PACE teaching programme;
- Contribute to the implementation of the School's strategic plan in education and research;
- Participate in School, Faculty of Science and university committees, and in particular play a significant role in the School's Education Committee.

Level C

Teaching

- Provide leadership in the development of innovative teaching programmes, including the implementation of the PACE model of studio physics at First Year;
- Development of teaching and learning material for small group teaching – including Technology-enabled Active Learning (TEAL);
- Development and revision of teaching materials, including e-education resources and implementation of innovative laboratory-based teaching programmes;
- Unit coordination, including supervision of staff and training of sessional staff for PACE;
- Preparation of assignments, laboratory-based exercises, examinations and other assessable coursework;
- Marking of student assignments, examinations and other assessable coursework;
- Participate in the development of other innovative teaching programmes.

Research

- Establish a strong, personal programme of research, publish research outcomes, including publications in high impact journals, and foster postgraduate research training
- Supervision of Post Graduate Students
- Apply for National Competitive Research grants (e.g., ARC Discovery Project Grants, ARC LIEF etc.) and access other funding sources;
- Develop collaborations with other research groups in the School, elsewhere at Monash, within Australia, and internationally.

Administration, Management and Strategic Planning in the School of Physics

- Contribute to the administration of the PACE teaching programme;
- Contribute to the implementation of the School's strategic plan in education and research;
- Participate in School, Faculty of Science and university committees, and in particular play a significant role in the School's Education Committee.
- Other strategic initiatives as directed by the Head of School

Key selection criteria

Level B

A **Level B** academic shall have qualifications and/or experience recognised by the university as appropriate for the relevant discipline area of Physics or Astronomy. In determining experience relative to qualifications, regard is had to teaching experience, experience in research, experience outside tertiary education, creative achievement, professional contributions and/or contributions to technical achievement.

Essential

- Relevant academic qualifications, including a PhD in physics or astronomy, or a closely related field;
- Record of innovation in teaching or prior experience in undergraduate physics teaching, including delivery of lectures and laboratory programmes;
- Ability to coordinate undergraduate physics units, including undergraduate laboratories;
- Ability to develop and grade assessable coursework (e.g., examinations, laboratory reports etc.);
- Record of high-impact publications and citations;

- Capacity to develop an independent research programme;
- Capacity to attract National Competitive Grants to fund research;
- Excellent written and verbal communication skills necessary to carry out the duties of the position.

Desirable:

- Experience with the delivery of innovative teaching & learning programmes, involving “Studio Physics”, such as: Technology-enabled Active Learning, SCALE-UP, etc.;
- Experience supervising honours and postgraduate students;
- Familiarity with, or willingness to learn, modern e-education practices (e.g., “clicker technology”);
- Capacity for, or willingness to participate in, scientific outreach, including engagement with talented students (e.g., through the John Monash Science School).

Level C

A **Level C** academic shall have qualifications and/or experience recognised by the university as appropriate for the relevant discipline area of Physics or Astronomy. A position at this level will require a doctoral qualification or equivalent accreditation and standing. In determining experience relative to qualifications, regard shall be had to teaching experience, experience in research, experience outside tertiary education, creative achievement, professional contributions and/or contributions to technical achievement. In addition, a position at this level will normally require a record of demonstrable scholarly and professional achievement in the relevant discipline area.

Essential

- Relevant academic qualifications, including a PhD in Physics or Astronomy, or a closely related field;
- Research achievements in Physics or Astronomy, including citations and significant publications in the highest impact physics journals;
- Capacity to develop a significant independent research programme;
- Evidence of a successful record of quality research supervision of higher degree research students, including evidence of successful completions and completion rates.
- Capacity to attract National Competitive Grants to fund research;
- Excellent written and verbal communication skills necessary to carry out the duties of the position.

Desirable:

- Experience supervising honours and postgraduate students;
- Prior experience in undergraduate physics teaching, including delivery of lectures, laboratory programmes; and small group teaching;
- Capacity to maintain a public profile as a leader in his/her field of physics.
- Previous experience in a course leadership position.

Other job-related information

- After hours work may be required.

Legal compliance

Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including:

- Equal Employment Opportunity, supporting equity and fairness

- Occupational Health and Safety, supporting a safe workplace
- Conflict of Interest (including Conflict of Interest in Research)
- Paid Outside Work
- Privacy
- Research Conduct
- Staff/Student Relationships