

POSITION DESCRIPTION:



SECTION A: Position Context

Position Title	CAASTRO Postdoctoral Fellow in Pulsars and Fast Transients
Position Number	
Classification	Higher Education Academic Level A
Department, Faculty	Centre for Astrophysics and Supercomputing, FICT
Division	Higher Education
Effective Date	1 July 2012
Term of Employment	Two years

Position Summary:

Applications are invited for a recent graduate to work on radio pulsars, fast radio transients such as RRATS and related phenomena in a two-year position. The successful applicant will be part of CAASTRO, the Centre for all-sky Astrophysics, an Australian Research Council Centre of Excellence and be based at the Swinburne node with Professor Matthew Bailes, Dr Willem van Straten and over 60 other astronomers.

The Swinburne pulsar group has excellent access to state-of-the-art instrumentation, including a 400 Teraflop supercomputer with 2 Petabytes of high-speed data access on campus, modern tape robots and a dedicated fibre link to the Parkes radio telescope.

The group has also engineered exciting new instrumentation at the Parkes telescope, including a 400 MHz 8-bit recorder with 96 TB of disk space, a real-time 400 MHz coherent dedisperser, and a 13-beam 8-bit spectrometer that enables real-time RRAT discovery using anti-coincidence detectors on the Parkes multibeam receiver.

The group is also part of the Parkes Pulsar Timing Array project, and has access to novel baseband instruments at the MWA, the GMRT, KAT-7 and is looking to play a leading role in the MeerKAT's pulsar instrumentation development. Staff also have access to the Keck telescopes.

The Swinburne Centre for Astrophysics and Supercomputing is based in Hawthorn, just 7 km from the Melbourne CBD, is surrounded by great coffee shops and cafes, and is in one of the world's great multicultural cities, and currently the Economist's #1 most liveable city in the world.

Applications should include a CV, full publication list, a cover letter stating why you are interested in the position, and a two-page research plan, plus the names and contact details of three referees. Applicants should also consult the full position description on the Centre's website.

CAASTRO supports a flexible working environment; for Australian citizens or permanent residents, this opportunity may be available as either a full-time or part-time position. Some assistance towards relocation expenses will be available for the successful appointee if required and level of appointment will be commensurate with experience and qualifications.

Salary Range: \$70,174-\$75,289 + 17% Superannuation.

For more information, on this and other positions within CAASTRO, see <http://www.caastro.org/Jobs>.

University Information:

Swinburne University of Technology is a large multi-sectoral and multi-campus institution with a stated mission to be a pre-eminent entrepreneurial university from the Asia-Pacific, thriving on new ideas and knowledge and exploiting its intersectoral heritage to create value for its stakeholders.

Swinburne has campuses in metropolitan Melbourne at Hawthorn, Prahran, Lilydale, Wantirna, Croydon and Healesville and an overseas branch campus in Kuching, Sarawak. It also offers an increasing number of subjects and courses via the Internet. Its programs cover the education and training needs of over 40,000 students ranging from apprentices through to doctoral students.

Swinburne is proud of its close links with industry, business and the community generally. It has gained a prominent and respected name in education in Australia and overseas through:

- government funded programs and research;
- industry and business funded research;
- consultancy and training;
- fee-for-service teaching;
- an international focus for its curricula, student recruitment and operations.

Faculty:

The **Centre for Astrophysics and Supercomputing** has approximately 70 staff and PhD students engaged in Astrophysics Research. It is one of Australia's leading astronomical research Centres and has access to fantastic infrastructure comprising a 400 Tflop supercomputer and the Keck 10m optical telescopes.

The Faculty (www.ict.swin.edu.au) has approximately 110 EFT staff, including academic, administrative and technical positions. There are approximately a further 40 EFT staff employed specifically to support research activity funded by grants. There are approximately 1,700 EFTSL enrolled across undergraduate and postgraduate programs; of that number approximately 52 EFTSL or 60 students are enrolled in postgraduate research programs. A large number of the students enrolled in the Faculty are international students.

The Faculty offers a wide range of innovative and industry-relevant undergraduate and postgraduate coursework and research programs. These programs are delivered at the Hawthorn and Sarawak campuses, in Hong Kong and online. The programs encompass major academic disciplines of Astronomy, Computer Science, Software Engineering, Information Systems and Telecommunications and Network Engineering.

The Faculty hosts the following major University research centres: the Centre for Advanced Internet Architectures, the Centre for Astrophysics and Supercomputing, the Centre for Information Technology Research and the Centre for Molecular Simulation.

HIGHER EDUCATION INFORMATION

Higher Education located at Hawthorn, Lilydale, Prahran and Sarawak campuses has approximately 17,000 undergraduate and postgraduate students and over 700 academic and other staff. The relatively small size necessitates a focused approach to both course offerings and research activities.

Higher Education's mission is to be a research-intensive technological university characterised by

- Research activities of national prominence and international recognition focussed around the University's chosen areas of excellence
- Students of high academic standard in a range of high quality specialist undergraduate and post-graduate coursework and research programs
- Being international in operation and perspective
- A significant level of self determination arising from a sustainable balance between revenue generating activity and prestige.

URL to webpage:

Participation on Committees:

As required.

Supervision Reporting Relationships:

This positions' supervisor/manager	Matthew Bailes
Other positions reporting to <u>this</u> position	None

Location:

This position is currently located at the Hawthorn campus but the incumbent may be required to undertake duties at any of the University's campuses. Thus the incumbent must be willing to travel between campuses and work at a range of locations and observe at facilities within Australia and overseas.

SECTION B: Key Responsibility Areas

The key responsibility areas (KRAs) are the major outputs for which the position is responsible and are not a comprehensive statement of the position activities.

Key Responsibility Areas		
1.	Research	Contribute to the research activities and output of the Swinburne pulsar group with support and guidance, both individually and as a member of a team. This will include involvement in the following areas: <ul style="list-style-type: none">• Manage significant observational programmes in the area of pulsar and fast transients discovery and follow-ups. This includes planning and supervising major observational campaigns, applying for observing time, and managing teams.• Prepare or contribute to the preparation of refereed journal publications, conference and seminar papers arising from the research.• Develop instrumentation and software.• Development of research proposals and funding submissions as appropriate Enhance the research profile of the Faculty through: <ul style="list-style-type: none">• Collaborative research with other Universities, organisations and involvement in relevant professional activities.
2.	Student Supervision	Provide advice to and co-supervise postgraduate students, honours students and/or visiting students.

SECTION C: Key Selection Criteria

Application letters and/or resumes must address the Qualifications and Knowledge/Experience/Attributes sections under the key selection criteria. Preferably applications should not exceed six (6) A4 pages in total.

Qualifications: Include all educational and training qualifications, licenses, and professional registration or accreditation, criminal records etc. required for the position.	Essential/ Preferable
1. A PhD in observational radioastronomy and evidence of self-directed research with published outcomes. Experience in pulsar astronomy or the detection of fast transients such as the Lorimer burst is essential.	Essential

Experience / Skills / Knowledge / Attributes: Required by the incumbent to successfully perform the positions key responsibilities.		Essential/ Preferable
1.	Demonstrated experience in observational radio astronomy, particularly involving radio pulsars or the detection of fast transients that require dedispersion.	Essential
2.	A mastery of advanced computing involving supercomputing clusters and programming in a high level language like C/C++. Ability to perform advanced scripting and processing pipelines.	Essential
3.	Ability to apply for and obtain competitive telescope time on national facilities.	Essential
4.	A beginning research agenda. This includes ability to design and conduct independent research projects within a broader overall team environment, to identify complementary expertise and initiate appropriate collaborations, and to analyse the state of areas of technology from publications.	Essential
5.	Demonstrated high standard of interpersonal and communication skills including the ability to work both independently and collaboratively in a multi-disciplinary environment.	Essential
6.	Ability to communicate with, and assist PhD students in conducting their research.	Essential
7.	Demonstrated ability to publish results in world-class scientific journals.	Essential

Swinburne Attributes:

Our attributes inform the selection process; however, a written response to the attributes is not required. The attributes are:

Building Organisational Capability	Demonstrates Personal Integrity	Manages Change Effectively
Builds Relationships	Drives Service Excellence	Provides Educational Leadership
Creates a Learning Environment	Exhibits Entrepreneurial Skills	Sets Direction

For information refer to the following weblink: [Swinburne Attributes](http://www.swin.edu.au/corporate/hr/attributes/)
(<http://www.swin.edu.au/corporate/hr/attributes/>).

Contact:

For further information, please contact Matthew Bailes on telephone +61 (0) 3 9214 8782
email: mbailes@swin.edu.au

Supervisor:

Date:

Signature

Head of Department:

Date:

Signature

I accept the Position Description as stated above and that the Position Description may need amending and updating periodically due to changes in responsibilities and organisational requirements. Changes to position descriptions will be in accordance with the position classification and consistent with the purpose for which the position was established.

Incumbent:

Date:

Signature