POSITION DESCRIPTION:

SECTION A: Position Context

<table>
<thead>
<tr>
<th>Position Title</th>
<th>Astronomer Centre For Astrophysics And Supercomputing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position Number</td>
<td>Pending</td>
</tr>
<tr>
<td>Classification</td>
<td>Academic B-E (tenure track)</td>
</tr>
<tr>
<td>Faculty</td>
<td>Information and Communication Technologies</td>
</tr>
<tr>
<td>Division</td>
<td>Higher Education</td>
</tr>
<tr>
<td>Effective Date</td>
<td>Nov 2007</td>
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Position Purpose:

The Centre for Astrophysics and Supercomputing at Swinburne University of Technology has become one of the largest astronomy groups in Australia and is seeking an astronomer to join its academic staff to engage in research, teaching and public outreach. As a Tier 1 research centre the Centre’s main objective is to further the research aspirations of the University by publishing high-impact journal papers, attending Australian and International conferences, obtaining national competitive grants and supervising postgraduate students. The candidate must therefore demonstrate an ability to be successful in these areas and possess a relevant track record. Online teaching is an area the Centre has pioneered, and the successful candidate will teach into Swinburne Astronomy Online (SAO) and be proactive in curriculum development. From 2008, the Centre will begin teaching a limited number of undergraduate units in astronomy, and this will present opportunities for face to face teaching. The Centre has a strong belief in the need for public outreach and engagement with the wider community. Staff are expected to support these efforts through the presentation of public lectures, presentations to school children in the virtual reality theatre, and the supervision of work experience students. Although this position is open to research astronomers from any sub-discipline, preference may be given to those who would either play a large role in the development and use of the Square Kilometre Array and relevant pathfinders or exploit the availability of the excellent supercomputing facilities at the Centre.

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 programs 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.
Centre, Faculty and Higher Education:

CENTRE
The Swinburne Centre for Astrophysics and Supercomputing is part of the Faculty of Information and Communication Technologies. The Centre currently has approximately 45 full time staff and students and is committed to excellence in basic research, public outreach and education and the commercial applications of supercomputing/visualisation. The Centre operates one of the most powerful clusters in Australian and International Astrophysics, and in total the cluster has almost 12,000 Gflops of computational power, 2600 Gbytes of RAM and 250 Terabytes of disk space. Funding has recently been approved to enlarge the cluster to make it the most powerful in Australia and provide a high speed low-latency interconnect. The Centre also possesses a virtual-reality projection facility with direct access to the supercomputer for immersive 3D visualisation of data. The Centre runs school and public tours of the virtual reality theatre, and has commercialised 3D technologies and outreach materials.

The Centre develops and delivers an online astronomy program, Swinburne Astronomy Online (SAO), currently teaching over 150 students into approximately 25 countries around the world. SAO is a nested program made up of Master of Science in Astronomy, Graduate Diploma of Science in Astronomy and Graduate Certificate of Science in Astronomy postgraduate degree programs. SAO is designed for amateur astronomers, science educators and communicators, people working in astronomy related fields, and anyone with a love of astronomy and a need to understand more about what is being discovered in contemporary astronomical research. SAO is not designed to produce professional research astronomers. Commencing in 2008, the Centre will also be involved in face-to-face teaching into a new Bachelor of Science degree which has a co-major in Astrophysics & Supercomputing as well as a minor in Astrophysics.

As part of its 2015 vision, the University has indicated that funding for significant research infrastructure beyond what is allocated for supercomputing is available in the future to enable Swinburne’s participation in large astronomy projects or improve access to key infrastructure.

Situated in a newly-renovated historical building in the centre of campus, the Centre is in the suburb of Hawthorn, just minutes from Glenferrie Rd, well known for its collection of fantastic low-cost restaurants and coffee shops. Within minutes of a train station and tram lines, the Centre is easily accessed from most of metropolitan Melbourne, consistently voted one of the world’s most liveable cities.

[FACULTY]

The Faculty 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.

Higher Education consists of seven academic units:
• Faculty of Business and Enterprise
• Faculty of Design
• Faculty of Engineering and Industrial Sciences
• Faculty of Information & Communication Technologies
• Faculty of Life & Social Sciences
• Higher Education, Lilydale
• Sarawak Campus, Malaysia

Higher Education has a range of undergraduate and postgraduate coursework and research programs focussed around the themes of:
• Professional engineering
• Information technology
• Business and innovation
• Design
• Multimedia
• Health and human services
• Social Sciences

Areas of research strength include:
• Advanced computing and modelling
• Advanced industrial technologies
• Astrophysics
• Biotechnology and bioengineering
• Brain function and cognition
• Entrepreneurship
• New communication technologies
• Optics and applied laser technology

URL to web page:  http://www.swin.edu.au/hed

Participation on Committees:
Participate on committees and working groups as required.

Supervision Reporting Relationships:

<table>
<thead>
<tr>
<th>This position's supervisor/manager</th>
<th>This position reports to the Director of the Centre for Astrophysics and Supercomputing. Ultimately, the position reports to the Dean of the Faculty.</th>
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</thead>
<tbody>
<tr>
<td>Other positions reporting to this position</td>
<td>None.</td>
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</tbody>
</table>
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.

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.

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<thead>
<tr>
<th>Key Responsibility Areas</th>
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<tbody>
<tr>
<td>1. RESEARCH</td>
</tr>
<tr>
<td>Apply for time on leading observational facilities and/or conduct theoretical astrophysical research.</td>
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<tr>
<td>To publish refereed papers in international journals.</td>
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<tr>
<td>To obtain and supervise PhD students.</td>
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<tr>
<td>To obtain national competitive grants.</td>
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<tr>
<td>2. TEACHING</td>
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<tr>
<td>To teach into subjects as required by the Director.</td>
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<tr>
<td>To help develop and revise SAO course material.</td>
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<tr>
<td>To help develop new curriculum material for the BSc.</td>
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<tr>
<td>3. OTHER</td>
</tr>
<tr>
<td>Take part in the Centre's outreach activities (e.g. AstroTour).</td>
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<tr>
<td>Undertake other duties as required by the Director.</td>
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</table>

SECTION C: Key Selection Criteria

Qualifications: Include all educational and training qualifications, licences, and professional registration or accreditation, criminal record checks etc. required for the position.

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Essential/ Preferable</th>
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<tbody>
<tr>
<td>1 PhD in astronomy/astrophysics.</td>
<td>Essential</td>
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</table>

Experience / Knowledge / Attributes: Required by the incumbent to successfully perform the positions key responsibilities.

<table>
<thead>
<tr>
<th>Experience / Knowledge / Attributes</th>
<th></th>
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<tbody>
<tr>
<td>1 Demonstrated ability to produce high impact refereed journal publications as both lead author and as part of teams.</td>
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<tr>
<td>2 Track record commensurate with the ability to win national competitive grants.</td>
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<tr>
<td>3 Demonstrated ability for self-directed research.</td>
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<tr>
<td>4 Demonstrated ability to win competitive time on research infrastructure such as telescopes or supercomputers.</td>
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<tr>
<td>5 Demonstrated ability to supervise postgraduate students.</td>
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<tr>
<td>6 Demonstrated ability to teach undergraduate or postgraduate programs. (highly desirable)</td>
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<tr>
<td>7 Enthusiasm for public outreach activities.</td>
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<tr>
<td>8 Ability to convey astrophysical concepts to students with little scientific background.</td>
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</tbody>
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Swinburne Employee Attributes:

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

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

For further information, please contact the Centre Director, Prof Matthew Bailes on +61 (0)3 9214 8782 or email mbailes@swin.edu.au.

Date Position Description prepared and/or agreed ________ (For internal use on appointment of incumbent)

Occupant: (If applicable) ___________________________ Date: ______________________
Signature

Supervisor: ___________________________ Date: ______________________
Signature

Head of Department: ___________________________ Date: ______________________
Signature

End of Position Description.

For more information, refer to following attachments/web links:

ATTACHMENT A: Swinburne Recruitment & Selection Guide
ATTACHMENT B: Swinburne Employee Attributes

Applications.

Applications should be directed to the Director, Professor Matthew Bailes mbailes@swin.edu.au by December 31 2007. Email applications are strongly preferred and applicants should ensure their application was acknowledged.

Applications should include an up to date CV with full publication list, a cover letter and brief description of why they are suitable for the position (not more than 3 pages), the names of 3 referees with email addresses, and a research plan of not more than 2 pages. Applicants should indicate the minimum academic level (B – E) they would consider accepting. Base salary ranges from 1-4-2008 are:

Level B: 65,697 – 77,937 + 17% Superannuation
Level C: 80,384 – 92,627 + 17% Superannuation
Level D: 96,708 – 106,498 + 17% Superannuation
Level E: 124,453 + 17% Superannuation