FURTHER PARTICULARS

DEPARTMENT OF PHYSICS

Simulation Specialist for SKA Design Studies Programme

(Fixed Term) – DB09010

Grade 7: £28,839 - £34,435 p.a

Sub-Department of Astrophysics, Oxford Astrophysics Instrumentation Group

The post

The main purpose of the job is to simulate continuum radiation from the extragalactic Sky to feed into telescope and data simulations. The goal is to complete the first end-to-end simulation of an SKA Key Science Project.

The Square Kilometre Array (SKA) is a global project aimed at producing a next-generation radio astronomy facility. Oxford leads science simulation work within Europe in collaboration with many international partners.

Main duties and responsibilities

- Assist with SKA design studies
- Participate in SKA related meetings, in particular, Progress meetings, and Interface meetings
- Take responsibility for one particular aspect of the study, e.g. sky simulation
- Report to the study manager periodically, advising him/her of the status of those aspects of the study for which the candidate is responsible
- Document the design effort through written reports, both for periodic progress reporting, and a final document set deliverable at the end of the study
- Interact frequently with the rest of the SKA design team and consortium
- Manage own academic research and administrative activities. This involves small scale project management, to co-ordinate multiple aspects of work to meet deadlines.

Selection Criteria (skills, experience and knowledge required)

- The candidate must hold a PhD/DPhil in Astronomy (it is acceptable to be in the final stages of writing up)
- Experience in simulation work is highly desirable
- Candidate must be prepared to travel within UK and abroad for meetings, workshops and conferences.
- The candidate is expected to show active interest in conducting research in simulation work (presenting results at conferences, publishing papers / conf. proceedings).

BACKGROUND TO ASTROPHYSICS WITHIN OXFORD

The post-holder will be based in the Astrophysics department, which is one of the six sub-departments that together make up the Department of Physics. The other sub-departments are (1) Atomic and Laser Physics, (2) Atmospheric, Oceanic and Planetary Physics, (3) Condensed Matter Physics, (4) Particle Physics and (5) Theoretical Physics. Members of all sub-departments take part in research, teaching and matters such as examinations, discussion of syllabi, lectures and liaison with undergraduate and postgraduate students.

Oxford Physics is one of the largest and most eminent departments in Europe – pursuing forefront research alongside training the next generation of leaders in Physics. It currently hosts 96 University-funded academic staff, 209 other postdoctoral researchers and academic related staff , 303 graduate students and 625 registered undergraduate students. Since 1 October 2000, the Department of Physics is part of the Division of Mathematical and Physical Sciences. Detailed information about the department of Physics may be found at http://www.physics.ox.ac.uk.

The Sub-Department of Astrophysics is situated in the Denys Wilkinson Building, which is close to the centre of Oxford and the extensive University Parks. The Laboratory has excellent teaching and workshop facilities. The Sub-Department has grown steadily in recent years.

Professor Steve Rawlings is currently Head of Astrophysics. Professor Roger Davies, (Philip Wetton Professor of Astrophysics) is now Chair of Physics. Since 2008, Professor Richard Ellis is a Royal Society Research Professor at the sub-department. Their work on galaxy evolution and observational cosmology at radio, optical and near-infrared wavelengths, has led to substantial increases in the department's work in astronomical instrumentation. The theoretical research group is led by Professor Joseph Silk, (Savilian Professor of Astronomy) studying cosmology, galaxy formation and dark matter. The recently opened Beecroft Institute for Particle Astrophysics and Cosmology provides a focus for this activity. Oxford Astrophysics has been successful in attracting STFC Senior/ Advanced / Post-doctoral and Royal Society Research Fellows. STFC rolling grants support research into observational and theoretical cosmology.

In observational astronomy, our programme spans galaxy evolution and cosmology, including stellar dynamics and populations, super-massive black holes, galaxy clusters, the physics of active galaxies and their use as cosmological probes, evolution of galaxies at high redshift, gravitational lensing, and galaxy redshift

surveys. The group is the focus for UK involvement in the Gemini Observatories hosting the UK Gemini Support Group. We have a growing instrumentation group that, in collaboration with RAL, has recently commissioned the fibre-fed infrared MOS (FMOS) for the Japanese 8m Subaru telescope and the VISTA wide field near-infrared camera. We have also recently commissioned the Oxford SWIFT spectrograph at the 5-m Hale telescope. We are participating in the design and construction of infrared spectrographs for KMOS at the ESO VLT. Oxford is leading a design study for the HARMONI integral field spectrograph at the E-ELT, and is involved in design studies for EPICS at the E_ELT, and for the WFMOS spectrograph (Gemini / Subaru). Oxford has a newly established experimental cosmic microwave background group that is participating in experiments such as CLOVER and QUIET, as well as development of the Square Kilometre Array (SKA) and its pathfinder instruments.

The University of Oxford is over 700 years old and has a strong collegiate nature, the individual Colleges being a microcosm of multi-disciplinary academic expertise, whilst the science departments have a conventional structure. Teaching is shared between the two aspects - lectures, classes, laboratories, examinations and post-graduate research supervision being normally department-based, while tutorial teaching (in small groups) is college-based, as also is the undergraduate selection process.

Computing Facilities

Oxford Astrophysics computers run in support of a wide range of observational and numerical/theoretical research programmes. In addition to multi-node BEOWULF clusters, users will typically each have a powerful desktop (running their choice of Mac OS X, linux or in some cases Windows). We benefit from the expertise of the Central Physics IT Support team.

Appointment Procedure

A selection panel from within the sub-department of Astrophysics will consider all applications. Preference will be given to applicants with research experience in the areas indicated above.

Applicants should send a statement of research interests, curriculum vitae, list of publications (one file only in pdf) and emailed to sec@astro.ox.ac.uk, and the names and addresses of three referees by the closing date of **14 April**, quoting reference **DB09010**. Email submission is preferred. Please ensure that the reference number **DB09010** is included in the subject title. In addition candidates should arrange for letters from the referees to be sent to sec@astro.ox.ac.uk by the closing date. Interviews are expected to be held shortly after.

How to apply

Applications should be submitted to Mrs Vanessa Ferraro-Wood and emailed to sec@astro.ox.ac.uk. Applicants should email a brief statement of research interests,

curriculum vitae, list of publications, and the names and addresses of three referees and submit in **one pdf file** by 4pm on the closing date of **14 April 2009**, quoting reference **DB09010** on all documents and in the subject line of the email**.** In addition candidates should arrange for letters from the referees to be emailed to sec@astro.ox.ac.uk. While preference will be given to applications that arrive by the closing date, we will also consider late applications which arrive prior to the final short-listing of candidates. It is expected that successful applicants will be called forward for a telephone interview shortly afterwards.

Please note all applications will be acknowledged but not reference letters.

The list of duties and the 'selection criteria' for this job describe the sort of skills, experience, knowledge or abilities which we are looking for. We will interview those whose applications best meet these criteria, so it is very important that you should use your application to explain how you can match them.

Any offer of employment will be subject to the satisfactory completion of a medical questionnaire and the provision of an original document which indicates the holder's right to work in the UK. All candidates invited for interview will be required to provide this evidence when attending for interview.

Points requirement

Applicants who would need a work visa if appointed to the post are asked to note that under the UK's new points-based migration system they will need to demonstrate that they have sufficient points, and in particular that:

(i) they have sufficient English language skills (evidenced by having passed a test in basic English, *or* coming from a majority English-speaking country, *or* having taken a degree taught in English)

and

(ii) that they have sufficient funds to maintain themselves and any dependents until they receive their first salary payment.

Further information is available at:
http://www.ukba.homeoffice.gov.uk/workingintheuk/tier2/generalarrangements/eligibility/

Data Protection

All data supplied by applicants will be used only for the purposes of determining their suitability for the post[1] and will be held in accordance with the principles of the Data Protection Act 1998 and the University's Data Protection Policy.

Working for the University of Oxford

At the University of Oxford, we're naturally very proud of our outstanding reputation for scholarship and research. But we're also proud to say that we're one of the region's biggest and best-established employers, with a real diversity of staff helping

[1] But NB if the person appointed to the post is a migrant sponsored under the UK's new points-based migration system, we are required to retain all applications for the duration of the sponsorship.

to sustain our success - from lab. assistants, cleaners, technicians and secretaries, to IT, finance and administrative professionals. Join us, and you can expect to find yourself working in a friendly, open-minded atmosphere where your ideas will be welcomed, with an interesting and satisfying job to do, and with plenty of opportunities to learn new skills, or maybe even get some extra qualifications.

As well as pay and other benefits such as generous holidays and an excellent pension scheme, we may be able to help you with:

- **Training** – We train our staff, both in the skills needed for starting the job, and to help them develop afterwards. If you don't have all the skills we are looking for (e.g. computer packages), but you know that you are a quick learner, it's worth asking if training might be available.

- **Working hours** – We may be able to be flexible about working patterns to help you combine work with responsibilities at home. Even for full-time jobs, we can often adjust starting and finishing times, or even sometimes consider term-time-only working: if this is important to you, let us know.

- **Disability** – If you have a disability, we have specialist staff who can help you to start and stay in work.

- **Childcare** – We have several subsidised nurseries for under-fives, a childminding network, a holiday play scheme, and tax and national insurance savings schemes. For further information see www.admin.ox.ac.uk/eop/child.

- **Parenting** – As well as providing childcare facilities, we have generous maternity, paternity and adoption leave schemes to help new parents on our staff.

- **Cultural and religious needs** – We respect the cultural and religious lives of our staff. If you need time away from work, or special facilities, and can give plenty of notice for arrangements to be made, this will always be considered.

- **Travel arrangements** – We offer an interest-free season ticket loan scheme for bus or train season tickets. Annual passes for Oxford Bus Company routes are available at discounted rates.

- **Use of University facilities –** All University staff can use the study facilities provided by University libraries and museums; join the University Club, a sports and social club which has its own bar, café, and reading room; and make use of the University Sports Complex and the Pulse fitness centre.

- **Discounts** – A number of discounts are available to University staff e.g. for insurance, holiday travel, and computer equipment.

The range of benefits is continuously reviewed and extended. For further information see www.admin.ox.ac.uk/ps/staff/benefits/

Pay and benefits

The salary offered for a full-time appointment to this job is in the grade and range stated above depending on qualifications and experience. If you are appointed at a salary below the top of this range, your salary will automatically be increased each year until you have reached the top point. Increases beyond this point may be available in certain cases. There is also an annual 'cost-of-living' salary review, which normally takes place in summer each year. Pay and benefits for part-time appointments are worked out on a 'pro rata' basis.

For a full-time appointment, the annual holiday entitlement will be 38 days (including 5 days to be taken on fixed dates at Christmas and Easter, and 8 public holidays). The hours of work are as such reasonably required to carry out the duties of the post to the satisfaction of the department.

Equal opportunities at the University of Oxford

As an Equal Opportunity employer, we positively encourage applications from people of different backgrounds. All our jobs are filled in line with our equal opportunities code of practice, which helps us make sure that men and women, people of different religions or beliefs, ages, racial groups, and those with disabilities are all treated fairly.

POLICY STATEMENT

The policy and practice of the University of Oxford require that all staff are afforded equal opportunities within employment. Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. Subject to statutory provisions, no applicant or member of staff will be treated less favourably than another because of his or her gender, marital or civil partnership status, sexual orientation, religion or belief, racial group, age or disability.

If you have any questions about equal opportunities at the University of Oxford, please visit our web-site at www.admin.ox.ac.uk/eop.