



JOB DESCRIPTION

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| Job Title: | Postdoctoral Research Associate in the Astronomy Group |
| Department / Unit: | Physics |
| Job type | Professional Services |
| Grade: | RHUL 7 |
| Accountable to: | Dr Vanessa Graber |
| Accountable for: | N/A |
| Purpose of the Post | |
| <p>The main purpose of this post is to undertake research activities related to neutron star observations as part of the UKRI Future Leaders Fellowship (FLF) project "<i>Revealing the secrets of neutron star interiors with AI and the SKA</i>". This post will focus on analysing radio pulsar timing data, specifically timing noise and pulsar glitches.</p> <p>As part of this position, the post holder will also contribute to the research life within the Astronomy Group through collaboration with postgraduate students, other postdoctoral researchers, and academics. The successful candidate will further collaborate with Co-Is at Royal Holloway and UCL as well as Project Partners at the Universities of Manchester, Tasmania, and Tübingen.</p> | |
| Key Tasks | |
| <ul style="list-style-type: none"> • Take initiative in the planning of research and lead multi-disciplinary projects • Analyse radio pulsar timing data for timing irregularities • Participate in the development of a new machine-learning based physics-agnostic framework to simulate pulsar timing noise • Participate in the design, development and testing of scientific software which employs neural networks to analyse observable signatures of cosmic superfluidity • Ensure the validity, reliability and reproducibility of research results • Maintain accurate and complete records of all findings • Develop training materials for Early Career Researchers focused on software development, data science, and/or machine learning • Attend national and international workshops and conferences as necessary • Present research findings to colleagues at relevant conferences • Draft and contribute to publications for submission to refereed journals • Contribute to bids for research grants and new observing proposals • Provide guidance to staff and students • Take part in the supervision of BSc, MSc/MSci, and PhD students | |

- Promote the reputation of the Group, the Department, and the University

Other Duties

- Undertake appropriate administration tasks
- Attend relevant group, departmental, and university-wide meetings
- Undertake any necessary training and/or personal development
- Undertake specific safety responsibilities relevant to the role as set out in the University procedures
- Maintain safe workplace practices and procedures in accordance with the requirements of Health and Safety legislation
- Maintain an up-to-date knowledge of relevant statutory Health and Safety legislation and recommendations and attend safety training as required
- Observe and comply with all University policies and regulations

The duties listed are not exhaustive and may be varied from time to time as dictated by the changing needs of the University. The post holder will also be expected to undertake other duties as appropriate and as requested by their manager.

The post holder may be required to work at any of the locations at which the business of Royal Holloway is conducted.

Internal and External Relationships

The following list is not exhaustive, but the post holder will be required to liaise with:

- members of the RHUL Astronomy group
- Co-Is and Project Partners of the UKRI FLF project outlined above
- SKA Pulsar Working Group

PERSON SPECIFICATION

Details on the qualifications, experience, skills, knowledge and abilities that are needed to fulfil this role are set out below.

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Department: Physics

| | Essential | Desirable | Tested by Application Form/Interview/Test |
|---|-----------|-----------|---|
| Knowledge, Education, Qualifications and Training | | | |
| (a) PhD in Astronomy, Astrophysics, or related discipline with a focus on radio astronomy | X | | Application |
| (b) A keen interest to learn more about cross-disciplinary research in neutron star astrophysics | X | | Application / Interview |
| Skills and Abilities | | | |
| (a) Solid knowledge of python | X | | Application |
| (b) Solid knowledge of radio pulsar timing software | X | | Application |
| (c) Knowledge of modern scientific software development concepts such as version control, software testing, and high-performance computing environments | | X | Application / Interview |
| (d) Effective communication skills in English | X | | Interview |
| (e) Flexibility to adapt to an evolving environment and to work in teams, both as a leader or as a member | X | | Interview |
| (f) Good planning and organisational skills | X | | Interview |
| Experience | | | |
| (a) Solid publication experience in refereed scientific journals commensurate with career stage | X | | Application |
| (b) Experience of working in the environment of a cross-disciplinary research team | | X | Application / Interview |

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| (c) Demonstrated ability of planning work of a small team, of developers or scientists, of varied expertise, defining milestones and ensuring results are achieved | | X | Application / Interview |
| (d) Experience with agile development techniques and continuous integration processes | | X | Application / Interview |
| (e) Experience with teaching and/or demonstrating at the undergraduate and/or graduate levels | | X | Application |
| Other Requirements | | | |
| (a) Strong self-motivation | X | | Interview |
| (b) Occasional international travel | X | | Interview |
| (c) Demonstrable commitment to equality, diversity, and inclusion | X | | Interview |