

Job Title: Research Associate

Grade: 7

Salary: £39,906 per annum, due to external funding restrictions

Department: Physics and Astronomy

Hours/Contract: Full-time, fixed term contract from 30 June 2028

Reference: 11812

Role Purpose

To have specific responsibilities within the research programme “A new light on Jupiter’s auroral emission”. To work collaboratively and independently as part of the research team to achieve defined milestones, and produce high quality research as part of the wider programme. The primary research topic is the infrared and ultraviolet auroras of Jupiter. These will be studied through analysis of James Webb Space Telescope and Hubble Space Telescope observations, and ionospheric modelling.

Main Duties and Responsibilities

Research

- Responsible for independent and collaborative research in the field of giant planet auroral processes, resulting in significant contributions to peer-reviewed journal papers (often as lead author).
- To lead in the collection, reduction, and interpretation of imaging and spectroscopic data from the James Webb and Hubble Space Telescopes, via proposal writing and analysis of auroral data.
- To apply image processing and telescope data reduction techniques to analyse JWST and HST auroral data.
- To interpret JWST and HST datasets using knowledge of auroral ionospheric processes, specifically magnetospheric dynamics, auroral precipitation and ionospheric processes.
- To develop Python-based data processing tools for space-based planetary auroral observations.
- To contribute to research outputs as a lead author and co-author for journal articles, technical papers, and telescope proposals.
- Represent the research group by disseminating results at national and international conferences and meetings, and to interact with all collaborators on the project, including national and international partners.
- Contribute to the overall research programme using innovative research models and approaches, testing and developing them to enable work to be carried out to generate new understanding within the research field.
- Contributing to determining the direction of the programme in line with reaching the research goals. This will include proposals for space-based observing facilities for the giant planets.
- Co-supervision of research students and provision of advice and guidance to other members of the team, both research staff and students.
- To undertake such duties consistent with the grade of the post as may be reasonably required.

Professional Development

- Engage in work that support your own professional development, including the preparation of fellowship applications for independent funding opportunities.





Impact and Knowledge Exchange

- Network and contribute to the maintaining and furthering of the wider research programme and research area
- To consult effectively on own specialism directly with people external to the University
- To engage positively and pro-actively in research impact

Leadership and Citizenship

- Guidance to other team members both research staff and students
- Pro-actively build networks and collaborations.
- Providing mentoring and coaching to Early Career Researchers and research students.

Internal and External Relationships

- Work closely with collaborators within the Planetary Science Group and wider School of Physics and Astronomy with interests in planetary auroras and solar-planetary science.
- Coordinate research and work closely with the principal investigator, graduate students and external collaborators on the project.
- Contribute to the supervision of graduate students and undergraduate students working on related projects.
- Provide advice and support to research staff and post graduate students working on this and similar research projects.
- Network and contribute to the maintenance of the wider research programme.

Planning and Organising

- Plan and manage workload and resources as required to achieve the aims, objectives and deliverables of the project.
- Propose, plan and execute auroral observations commensurate with the aims of the project.
- Assist the principal investigator and collaborators in the planning, organisation and dissemination of the wider research programme.
- Provide assistance in the day-to-day planning and organisation of the wider research programme, and preparation and planning for research proposals.
- To foster new collaborations and to maintain a network of other research scientists elsewhere in the UK and overseas.

Qualifications, Knowledge and Experience

Essential

- To hold, or expect shortly to hold, a PhD in a research area relevant to planetary auroras*
- A good honours degree*
- Evidence of research experience and skills in imaging or spectroscopy of auroral emission*
- Evidence of experience in presenting results at national & international meetings*
- Demonstrate knowledge of planetary auroral processes and remote sensing techniques at an international research level.
- To have a record of productive research in planetary auroras, and to have demonstrated the ability to produce published peer-reviewed papers*



Desirable

- Research experience in giant planet auroral observations.
- Expertise in the modelling of auroral and ionospheric processes.
- Demonstrate an understanding of solar-planetary science.
- Experience in working with spacecraft data as part of multinational teams.
- A proven track record of winning observing time on international facilities.
- Strong publication record in peer-reviewed journals.
- Experience of programming.
- Experience of collaboration.
- Supervisory experience.

Skills, Abilities and Competencies

Essential

- Capabilities to develop innovative approaches to modelling and interpretation of spectroscopic observations of planetary auroras.
- High level of proficiency in English, sufficient to undertake research, teaching and administrative activities utilising English Language materials and to communicate effectively with staff and students.
- Computer programming skills and the ability to program in scientific computing languages such as Python or C++
- Evidence of good time management, organisational and problem-solving skills.
- Willingness to travel nationally and internationally for data acquisition and dissemination.
- Evidence of the ability to work both independently and as part of a wider research team.
- Commitment to Continuous Professional Development (CPD) for yourself, and encourage commitment to learn and develop in others.

Desirable

- Ability to develop novel ideas and to promote own research agenda.
- Proven track record of successful proposals for international observing facilities.
- Flexible and adaptable approach to work over a range of research duties.
- Willingness to foster new collaborations with national and international partners.
- Demonstrable success in producing publications of the very highest standard.
- Proven ability to work as part of a team.
- Ability to collaborate with scientists from different institutions and research areas.

****Criteria to be used in shortlisting candidates for interview***

Reason for Fixed Term Contract

The reason for the fixed term contract is stated in section 1.9 in the summary of contractual terms in your contract of employment.





Criminal Declaration

If you become an employee, you must inform your manager immediately, in writing, if you are the subject of any current or future police investigations/legal proceedings, which could result in a criminal offence, conviction, caution, bind-over or charges, or warnings.

Supporting University Activities

As a University of Leicester citizen, you are expected to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We expect all staff as citizens to work flexibly across the University if required.

University Values

Inclusive - We are diverse in our makeup and united in ambition. Our diversity is our strength and makes our community stronger.

Inspiring - We are passionate about inspiring individuals to succeed and realise their ambitions. We challenge our community to think differently, to get involved, and to constantly embrace new ideas.

Impactful - As Citizens of Change we will generate new ideas which deliver impact and empower our community

Equity and Diversity

We believe that equity, diversity and inclusion is integral to a successful modern workplace. By developing and implementing policies and systems that challenge stereotypes across all aspects of our work, we have a culture that recognises and values the diverse contributions of our staff which benefits everyone. Our strong values of inclusivity and equity support our efforts to attract a diverse range of high quality staff and students, and identify our University as a progressive and innovative workplace that mainstreams equity, diversity and inclusion.

