

Job Title: Research Associate in Planetary Atmospheric Science

Grade: 7

Salary: £40,704 to £46,970 per annum, pro-rata if part-time

Department: Physics and Astronomy

Hours/Contract: Full-time or job share, fixed term contract from 01 January 2027 to 31 December 2029

Reference: 13952

Role Purpose

To use JWST observations of the giant planets to make new discoveries about their origins, atmospheres, and temporal variability, and to achieve the scientific aims of a European Research Council Advanced Grant (JWSTVoyager). The candidate will work collaboratively and independently as part of the Planetary Science Group to achieve defined milestones and produce high-quality research as part of a wider programme.

Main Duties and Responsibilities

Research

- Responsible for independent and collaborative research in the field of giant planet atmospheric science, resulting in significant contributions to peer-reviewed journal papers (typically as lead author in international journals).
- To lead in the collection, reduction, and interpretation of data from the James Webb Space Telescope, via proposal writing and analysis of infrared datasets.
- To apply spectral inversion techniques, including optimal estimation and Markov-Chain Monte Carlo approaches, to extract climatological variables from spectral datasets.
- To interpret JWST datasets using knowledge of planetary atmospheres, specifically atmospheric dynamics, chemistry, and cloud formation.
- To have a broad and detailed knowledge of the field of giant planet systems science from infrared remote sensing, including neutral planetary atmospheres.
- To develop Python-based data processing tools for ground- and space-based planetary atmospheres observations, and to support these via Github for the benefit of the community.
- To contribute to research outputs as a lead author and co-author for journal articles, technical papers, and telescope proposals.
- In agreement with the line manager, liaise with project collaborators to progress the research and develop new partnerships.
- 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 Earth and space-based observing facilities for their giant planets and their icy satellites.
- Co-supervision of research students and provision of advice and guidance to other members of the team, both research staff and students.





- With the support of colleagues, identify opportunities to apply for fellowships and/or further project grants
- To undertake such duties consistent with the grade of the post as may be reasonably required.
- To actively seek opportunities to carry out multi-disciplinary research with other research groups at the University or stakeholders external to the University, with the approval of the Principal Investigator (PI).

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 and public engagement with the themes of the research programme.

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, School of Physics and Astronomy, Institute for Space and Space Park Leicester with interests in planetary atmospheric 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.
- Liaison with external collaborators on the JWST programme, including those in Europe, the USA, and Chile.

Planning and Organising

You will be required to effectively manage your time to plan your research activity and to deliver on the priorities of the project:

- Prioritise tasks within agreed work schedules;
- Plan for specific aspects of research incorporating issues such as deadlines, project milestones and overall research aims;
- Adapt daily and weekly plans to accommodate new developments and be flexible to the changing priorities of the research project;
- Assist the principal investigator and collaborators in the planning, organisation and dissemination 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 Science.*
- Evidence of research experience and skills in Planetary Atmospheric Science.*
- A strong track record in publishing peer-reviewed outputs relevant to planetary science.*
- Evidence of experience in presenting results at national & international meetings.*
- Knowledge of planetary atmospheres at an international research level.*
- To have a record of productive research in planetary science.*
- Evidence of proven problem-solving capability using Python.*

Desirable

- Expertise in spectral inversion of infrared spectroscopy of neutral atmospheres.
- Familiarity with high-performance computing facilities.
- Experience with data from JWST, spacecraft, or ground-based facilities.
- A proven track record of winning observing time on international facilities.
- Supervisory experience.
- Ability to communicate complex ideas to a lay audience (e.g., general public).

*Criteria to be used in shortlisting candidates for interview

Skills, Abilities and Competencies

Essential

- Capabilities to develop innovative approaches to modelling and interpretation of spectroscopic observations of planetary environments
- 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 IDL, FORTRAN and Python
- Evidence of good time management, organisational and problem-solving skills
- Willingness to travel nationally and internationally for data acquisition and dissemination
- Evidence of both independent research and working within international scientific consortia.
- 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 encouraged to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We encourage all staff as citizens to work flexibly across the University if required. If supporting these activities is likely to affect your workload, please speak to your line manager in the first instance

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

Freedom of Speech

The University is committed to upholding freedom of speech and academic freedom within the law throughout our recruitment processes. We ensure that all candidates are considered based on merit and suitability for the role, without regard to their lawful viewpoints or the expression of challenging or controversial ideas. Our recruitment policies and practices are designed to protect applicants from discrimination or adverse treatment on the basis of their opinions, and to foster an environment where open debate and diverse perspectives are valued as essential to our academic mission.

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 equality 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 equality, diversity and inclusion.

