

Candidate Information

Position: Research Fellow in Exoplanet Atmosphere Characterisation
School/Department: Astrophysics Research Centre
Reference: 23/110873
Closing Date: Monday 29 May 2023
Salary: £36,333 per annum
Anticipated Interview Date: Monday 12 and Tuesday 13 June 2023
Duration: Fixed Term until 31 March 2026

JOB PURPOSE:

To work on the development and improvement of the Doppler Tomography method for characterising exoplanet atmosphere under the guidance of Dr. Ernst de Mooij and Prof. Chris Watson. This will include benchmarking Doppler tomography against other techniques and applying it to both archival and novel data, with the ultimate goal of improving the measurements of the chemical compositions of exoplanetary atmospheres. The successful candidate will work within the Astrophysics Research Centre in the School of Mathematics and Physics as part of a STFC funded project.

MAJOR DUTIES:

1. Develop and implement robust exoplanet atmosphere detection algorithms into Doppler tomography.
2. Oversee the adaptation of Doppler tomography to the use of exoplanet atmosphere models.
3. Investigate the possibility of implementing telluric correction in a self-consistent manner within the Doppler tomography framework.
4. Determine chemical compositions of exoplanet atmospheres using Doppler tomography, benchmarked against other techniques.
5. Where appropriate, lead telescope observing proposals focused on exoplanet atmosphere characterisation.
6. Write peer-reviewed publications and present findings at conferences and/or workshops.
7. Help supervise and support/mentor postgraduate and undergraduate students within the post holder's area of expertise and under the direct guidance of a member of academic staff.
8. Ensure up-to-date knowledge of the state-of-the-art within the research field through scholarly activities.
9. Assist in the preparation of funding proposals where relevant.
10. Undertake supplementary duties relevant to the success of the project including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a PhD in astronomy or astrophysics.
(NB 'About to obtain' is normally defined as within 6 months of application date)
2. At least 3 years relevant research experience in at least one of the following areas:
 - exoplanet atmospheric characterisation,
 - planetary atmospheric modelling,
 - high-resolution spectroscopy,
 - the application and/or development of tomographic techniques.
3. Strong publication record commensurate with stage of career.
4. Ability to contribute to broader management and administrative processes.
5. Contribute to the School's outreach programme by links with industry, community groups etc.
6. Ability to program in python or other relevant programming language/s.
7. Ability to assess and organise resources.
8. Ability to communicate complex information in English effectively in oral and written format.
9. Ability to build relationships to develop internal and external networks.

10. Commitment to continuous professional development.
11. Practical problem-solving skills, independence of thought and initiative.
12. Demonstrable ability to positively interact with research colleagues and other staff.

DESIRABLE CRITERIA:

1. Experience in more than one of the research areas outlined in "Essential".
2. Experience of undertaking telluric corrections.
3. Willingness to travel for periods of time for the purposes of attending conferences, collaborative visits, and observing runs.