

# **Candidate Information**

Position:	Research Fellow in Exoplanet Discovery and Stellar Activity
School/Department:	School of Mathematics and Physics
Reference:	23/110874
Closing Date:	Monday 29 May 2023
Salary:	£36,333 - £39,592 per annum.
Anticipated Interview Date:	Thursday 8 or Friday 9 June 2023
Duration:	Fixed Term 36 months or until 31 March 2026

# JOB PURPOSE:

To work on the mitigation of stellar activity signals and their impact on the radial-velocity follow-up and/or discovery of extrasolar planets. This will include the further investigation of newly identified stellar activity indicators, and the implementation of novel mitigation methods. This work will be carried out under the guidance of Prof. Chris Watson and Dr. Ernst de Mooij within the Astrophysics Research Centre in the School of Mathematics and Physics as part of a STFC funded project.

### **MAJOR DUTIES:**

- 1. Categorise and quantify new stellar activity indicators observed in high-resolution echelle spectra.
- 2. Critically assess the ability of these different stellar activity indicators to mitigate the stellar induced radial-velocity variations within the context of exoplanet discovery.
- 3. Investigate stellar activity induced signals over activity cycle timescales, and how this may impact planet detection and recovery.
- 4. Develop robust measures of stellar activity removal methods, including machine-learning approaches where applicable, and benchmark these methods using observed and simulated datasets.
- 5. Investigate planet candidates with a focus towards the discovery/confirmation of longer period and/or low-mass exoplanets.
- 6. Where appropriate, lead telescope observing proposals focused on exoplanet discovery and/or stellar activity characterisation.
- 7. Write peer-reviewed publications and present findings at conferences and/or workshops.
- 8. 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.
- 9. Ensure up-to-date knowledge of the state-of-the-art within the research field through scholarly activities.
- 10. Assist in the preparation of funding proposals where relevant.
- 11. 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 discovery that includes radial velocity measurements,
  - Stellar activity characterisation via spectroscopy,
  - The impact of stellar activity on exoplanet characterisation.
- 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. Postdoctoral research experience in one of the research areas listed under 'Essential'.
- 2. Experience of applying machine learning algorithms to complex datasets.
- 3. Willingness to travel for periods of time for the purposes of attending conferences, collaborative visits, and observing runs.