



1 Advertisement

Post Title: Postdoctoral Research Fellow in extra-galactic astrophysics

School/department: School of Mathematical and Physical Sciences

Hours: part time considered up to a maximum of 1 FTE

Requests for flexible working options will be considered (subject to business need).
minimum 0.3 FTE

Contract: fixed term for 2 years

Reference: 9941

Salary: starting at £35,333 to £42,155 per annum, pro rata if part time

Placed on: 10 October 2022

Closing date: 03 January 2023. Applications must be received by midnight of the closing date.

Expected Interview date: TBC

Expected start date: TBC

The University of Sussex invites applications for a Postdoctoral Research Fellow in extra-galactic astrophysics.

You will explore the evolving demographics of galaxies and their star formation. You will use the latest data from many of the deepest extragalactic surveys including, in the very near future, the COSMOS-Web observations with the James Webb Space Telescope. One distinctive focus will be to include the lower resolution far infrared data from, in particular, the Herschel surveys, using the Sussex hierarchical modelling tool XID+. You will work with multi-wavelength survey data to understand the galaxy populations and their evolution. Other premium data sets you'll have access to include surveys with the SKA pathfinders LOFAR and MeerKAT.

You will develop your own science programmes focused on star-forming galaxies, characterising their demographics, origins and energetics, e.g. the role of environment and Active Galactic Nuclei in triggering and suppressing star formation. You will create your own follow-up programmes and contribute to and benefit from those run by others.

You will bring a broad range of skills in extragalactic survey science and a good track record of high quality scientific research. You'll be a creative and cooperative researcher. You'll be keen to explore novel statistical methods to get the best science from the data sets.

There will be opportunities to branch out on interdisciplinary research projects through the Data Intensive Science Centre at the University of Sussex, e.g. with the AstroCast project forecasting drought in Kenya.

This project is funded by the Science Technology Facilities Council (STFC) under the Astronomy Centre's consolidated grant. The Astronomy Centre has a fantastic combination of theoretical, numerical and observational expertise, focused on extragalactic science (see <http://astronomy.sussex.ac.uk>).

Please contact Seb Oliver, S.Oliver@Sussex.ac.uk for informal enquiries.

The University is committed to equality and valuing diversity, and applications are particularly welcomed from women and black and minority ethnic candidates, who are under-represented in academic posts in Science, Technology, Engineering, Medicine and Mathematics (STEMM) at Sussex.

Please note that this position may be subject to [ATAS clearance](#) if you require visa sponsorship.

For full details and how to apply see our [vacancies page](#)

The University of Sussex values the diversity of its staff and students and we welcome applicants from all backgrounds.

2. The School

Please find further information regarding the school at <http://www.sussex.ac.uk/mps/>

3. Job Description

Job Description for the post of: Postdoctoral Research Fellow in extra-galactic astrophysics

Department: Physics and Astronomy

School: Mathematical and Physical Sciences

Location: Pevensey 2

Grade: 7

Responsible to: Professor Seb Oliver

PRINCIPAL ACCOUNTABILITIES

1. To engage in individual and collaborative research activity resulting in high-quality research outputs; and to develop research funding and knowledge exchange income

individually or in collaboration with others, as appropriate, depending on the size and scope of the bid

2. To contribute to training and communication activities.

KEY RESPONSIBILITIES

1. Research, Scholarship & Enterprise

- 1.1 Develop research objectives and proposals for own or joint research, at acceptable levels, with assistance if required
- 1.2 Conduct research projects individually and in collaboration with others
- 1.3 Analyse and interpret research findings and draw conclusions on the outcomes
- 1.4 Produce high-quality research outputs for publication in monographs or recognised high-quality journals, or performance/exhibition, as appropriate, and contribute to the School's REF submission at acceptable levels of volume and academic excellence
- 1.5 Contribute to the preparation of proposals and applications to external bodies, for example for funding purposes
- 1.6 Individually or with colleagues, explore opportunities for enterprise activity, knowledge exchange income and/or consultancy, where permissible
- 1.7 Build internal and external contacts and participate in internal networks and relevant external networks in order to form relationships and collaborations
- 1.8 Continually update knowledge and understanding in field or specialism, and engage in continuous professional development.

2. Teaching & Student Support

- 2.1 Undertake data science training duties, if required
- 2.2 Assist in the assessment of student knowledge and supervision of student projects if required
- 2.3 Assist in the development of student research skills, for example as part of a postgraduate supervision team.

3. Contribution to School & University

- 3.1 Attend and contribute to relevant School and project meetings
- 3.2 Undertake additional duties, as required by the Principal Investigator and/or Head of School.

4. Role-specific duties

- 4.1 Develop and conduct research leading to papers in refereed journals exploiting

opportunities available in accordance with the research in the STFC-funded Astronomy Consolidated grant programme

- 4.2 Carry out data processing, validation and related tasks of communal benefit to the survey teams and contribute to code development
- 4.3 Instigate new research projects through formal and informal collaboration and discussion with researchers across the university and beyond
- 4.4 Promote results of research through participation in workshops and conferences.

This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.

4. Person Specification

- A PhD or equivalent scholarly or relevant professional activity
- Pursuing a line of independent research within a research group
- Publishing research (either from a recently completed PhD or new original research)
- Other forms of externally recognised professional practice of creative output of a standing equivalent to regular publication of original research
- Initiating, developing or participating in links between the University and external bodies such as business and industry, the professions, community organisations and policy-makers
- Evidence of successful engagement in teaching or supervision.

ESSENTIAL CRITERIA

1. Normally educated to doctoral level, or other equivalent qualification, or appropriate level of experience, as appropriate to the discipline (see role-specific criteria below)
2. Evidence of engagement in high-quality research activity
3. Excellent presentation skills, with the ability to communicate effectively, both orally and in writing, with students, colleagues and external audiences
4. Ability to work individually on own initiative and without close supervision, and as part of a team
5. Ability to exercise a degree of innovation and creative problem-solving
6. Ability to prioritise and meet deadlines
7. Excellent IT skills.

ESSENTIAL ROLE-SPECIFIC CRITERIA

1. Emerging track record of high-quality publications in reputable journals and other appropriate media of similar standing
2. Skilled in advanced statistical data analysis, machine learning techniques e.g. Bayesian inference and probabilistic programming
3. Strong writing and communication skills.

DESIRABLE CRITERIA

1. Excellent expertise in python language, jupyter notebooks and GitHub
2. Experience of developing code for other users
3. Experience of analysis of multi-wavelength survey data
4. Experience in supervision of projects
5. Interest in the application of data science to non-Astronomy interdisciplinary research.