



1 Advertisement

Post Title: Research Fellow in Extragalactic Astrophysics

School/department: Mathematical and Physical Sciences/Physics & Astronomy

Hours: full time or part time hours considered up to a maximum of 1.0 FTE

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

Location: Brighton, United Kingdom

Contract: fixed term until 31 March 2026 (36 months)

Reference: 10867

Salary: starting at £36,333 to £43,155 per annum, pro rata if part time

Placed on: 9 March 2023

Closing date: 23 March 2023. Applications must be received by midnight of the closing date.

Expected start date: negotiable between 1 April 2023 and 1 October 2023

We invite applications for a Postdoctoral Research Fellowships in Computational Extragalactic Astrophysics at the University of Sussex.

You will run and analyse the second phase of the FLARES: First Light And Reionisation Epoch Simulations project. FLARES makes use of an innovative strategy to efficiently simulate a range of environments in the distant, high-redshift, Universe.

This second phase of FLARES is anticipated to use the SWIFT: SPH With Inter-dependent Fine-grained Tasking simulation code combined with physics models that resolve the cold ISM.

The output of these simulations will be used to investigate the physics of high-redshift galaxy formation and improve the interpretation of observations from JWST, Euclid, Roman, and other upcoming facilities.

You will bring experience of running and analysing cosmological hydrodynamical simulations, ideally focussed on the high-redshift Universe. Experience with SWIFT and the creation of synthetic observations would be advantageous.

This position is one of seven funded by the Science Technology Facilities Council (STFC) under the Astronomy Centre's consolidated grant. The Astronomy Centre has an outstanding combination of theoretical, numerical and observational expertise, focused on extragalactic science and cosmology (see <http://astronomy.sussex.ac.uk>). **You will automatically be considered for one of the similar vacant positions in the Department of Physics and Astronomy if you meet the person specification selection criteria.**

Successful candidates will be expected to assist in the teaching and supervision of students within the group.

A CV, including publication list, and statement of research interests and skills should be included with your application. Candidates should also supply the names and email addresses of 3 referees on their application form.

Please contact **Prof. Peter Thomas**, p.a.thomas@sussex.ac.uk or **Dr Stephen Wilkins**, s.wilkins@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.

Please note: The University requires that work undertaken for the University is performed from the UK.

2. The School / Division

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

3. Job Description

Job Description for the post of: **Research Fellow in Astronomy**

Department: Physics and Astronomy

Section/Unit/School: Mathematics and Physical Sciences

Location: Pevensey II/Pevensey III

Grade: Research Fellow I, Grade 7

Responsible to: Principal Investigator through to Head of School

Key contacts: Members of research group, members of faculty within the School and University.

Research Fellow I is an early career-grade research position. Post-holders will be expected to contribute to the work of the research team, and to develop their research skills with support from more experienced members of staff.

PRINCIPAL ACCOUNTABILITIES

1. To engage in individual and/or collaborative research activity resulting in high-quality publications; 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 School teaching 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 recognized high-quality journals, 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 contacts and participate in internal networks and relevant external networks 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 teaching 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. Integrate the relevant physics model into the SWIFT zoom simulation code.
- 4.3. Design, undertake, and analyse a suite of hydrodynamical zoom simulations of the high-redshift Universe (FLARES Phase 2).

4.4. Instigate new research projects through formal and informal collaboration and discussion with researchers across the university and beyond.

4.5. 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.

INDICATIVE PERFORMANCE CRITERIA

- 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.

4. Person Specification

ESSENTIAL CRITERIA

1. Normally educated to doctoral level, or other equivalent qualification, or appropriate level of experience, as appropriate to the discipline.
2. Evidence of engagement in high quality research activity or research software development.
3. Strong presentation skills and 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 small team or larger collaboration.
5. Ability to exercise innovation and creative problem-solving.
6. Excellent organizational and administrative skills.
7. Ability to prioritize and meet deadlines.
8. 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. Experience with undertaking cosmological hydrodynamical simulations.
3. Competence with both Python and C.

DESIRABLE CRITERIA

1. Emerging record of high-quality publications in reputable journals and other appropriate media of similar standing.

DESIRABLE ROLE-SPECIFIC CRITERIA

1. Experience with zoom simulations.
2. Experience with the SWIFT simulation code.
3. Experience generating synthetic observations from simulations.
4. High-level knowledge of the high-redshift Universe and the physical processes specific to this era of the Universe's history.
5. Demonstrable ability to work within large international collaborations.