UNIVERSITY OF SUSSEX

1 Advertisement

Post Title: Research Fellow in Cosmology
School/department: Mathematical and Physical Sciences
Hours: full time 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: 10863
Salary: starting at £36,333 to £43,155 per annum, pro rata if part time current salary scales can be found here
Placed on: 3 April 2023
Closing date: 10 May 2023 Applications must be received by midnight of the closing date.
Expected Interview date: to be confirmed
Expected start date: negotiable between 1 April 2023 and 1 October 2023

We invite applications for a Postdoctoral Research Fellowship in theoretical cosmology related to primordial black hole science at the University of Sussex.

You will primarily work on early universe physics and/or gravitational wave analysis related specifically to primordial black holes.

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 a fantastic combination of theoretical, numerical and observational expertise, focused on extragalactic science (see http://astronomy.sussex.ac.uk **You will automatically be considered for one of the seven 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 2 or 3 referees.

Please contact Dr Christian Byrnes (ctb22@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 Cosmology**

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 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 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. To carry out original research in cosmology and/or statistical or numerical methods, in one of the following areas: inflationary theory and model testing; tests of early universe models using gravitational waves; search for primordial black hole signatures in early or late time cosmological data; model building theories which generate primordial black holes and determining constraints or signatures of their existence.

4.2. Participate in organizing the group's regular meetings and seminars.

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.

INDICATIVE PERFORMANCE CRITERIA

- The post-holder will be expected to have gained a PhD in cosmology or a related discipline.
- Being a lead author in published research in high-impact astrophysics or physics journals, or a demonstrably important role within a large collaboration.
- Other forms of externally recognized professional practice or creative output, of a standing equivalent to regular publication of original research.

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. High level of expertise in at least some of: primordial black hole science; cosmological perturbation theory; applications of quantum field theory to cosmology; inflationary model building and testing.
2. Exceptional demonstrated innovation, skill and knowledge in a relevant area of theoretical or observational cosmology.
3. Established publication record in the area of cosmology, and/or production of high-quality research software.

DESIRABLE CRITERIA

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

DESIRABLE ROLE-SPECIFIC CRITERA

1. Experience working on theoretical models which generate primordial black holes and calculating their observational consequences.

2. Experience with analysis of cosmological datasets, e.g., a working knowledge of how to perform high-level statistical tests on publicly available data, such as GW data from the LIGO-Virgo-KAGRA collaboration or stochastic gravitational wave data from a pulsar timing array collaboration.

3. Excellent programming skills.

4. Interest in public communication of science.