UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Astrophysics,

Faculty of Engineering and Physical Sciences

Salary: Grade 7 (£39,355 – £46,735 p.a.)

Reference: EPSMA1125

Location: Leeds main campus

Closing date: Wednesday 14 May 2025

Fixed-term for up to 8 months

We are open to discussing flexible working arrangements

Research Fellow in Astrophysics, School of Mathematics.

Are you interested in astrophysics, and how advanced computational methods can be used to investigate the dynamics of objects ranging from neutron stars to exoplanets? Would you like to feel part of a strong supportive group at the University of Leeds?

We are looking for a Research Fellow to join our astrophysics group. The project is funded by a Science & Technology Facilities Council grant to Professors Adrian Barker and Rainer Hollerbach, and consists of two options:

- You could work with Professor Hollerbach, and collaborating also with Dr Andrei Igoshev at Newcastle University, on numerical modelling of magnetic fields in the interiors of neutron stars, or
- You could work with Professors Barker and Hollerbach on numerical modelling of tidal flows in the interiors of stars and exoplanets.

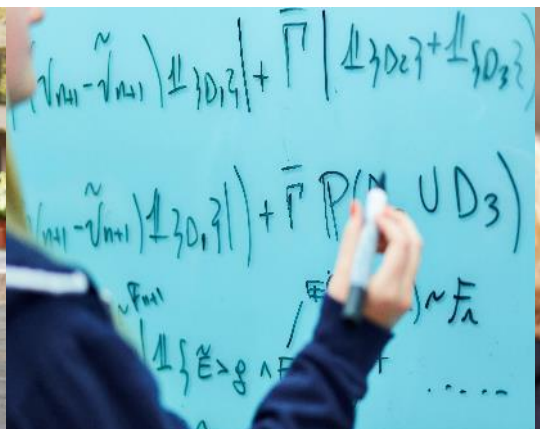
Either option would involve applying modern numerical techniques to the governing equations to explore how the magnetic fields and/or fluid flows evolve. Some of the numerical codes are already in place, but some new code development would also be involved. Both options could also involve making comparisons with astronomical data.

You will have a PhD in Mathematics, Astrophysics, or a closely allied discipline, with a strong background in numerical methods. Ideally you would have expertise in one of the above options, or some other aspect of astrophysics.

You will have the ability to conduct independent research and a developing track record of publications in international journals.

The School of Mathematics is committed to Equity, Diversity, and Inclusion, and to an environment free of any type of discrimination, where everyone can reach their full potential. We strive to support the career development of the Post-Doctoral Research Fellows that we recruit, and to provide them with the flexibility and support needed in their development as the future generation of world-leading researchers.

The School of Mathematics also offers a number of family-friendly employment practices that are designed to enable a good work-life balance and to be responsive to support personal circumstances. In many roles we offer flexible working and part-


time working, and we have a range of services to help support staff through work and personal challenges.

What does the role entail?

As a Research Fellow, your main duties will include:

- Familiarising yourself with the existing numerical codes and how to run them on the available high-performance computing facilities;
- Extending these codes to incorporate new physics, and explore the resulting solutions;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own research;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals and by presentation at national and international meetings;
- Working independently and as part of a larger team of researchers, both internally and externally, to develop new research links and collaborations and engage in knowledge transfer activities where appropriate;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.



What will you bring to the role?

As a Research Fellow you will have:

- A PhD (or have submitted your thesis before taking up the role) in Mathematics, Astrophysics, or a closely allied discipline;
- A strong background in computing;
- The ability to rapidly acquire expertise in unfamiliar areas in both numerical methods and astrophysics;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively without close support;
- A developing track record of peer-reviewed publications in international journals;
- Excellent communication skills both written and verbal, and the ability to communicate your research at national and international conferences;
- A proven ability to work well both independently and in a team;
- A strong commitment to your own continuous professional development.

You may also have:

- Familiarity with either neutron stars or tidally driven flows;
- Experience with high performance computing;
- Experience of pursuing external funding to support research.

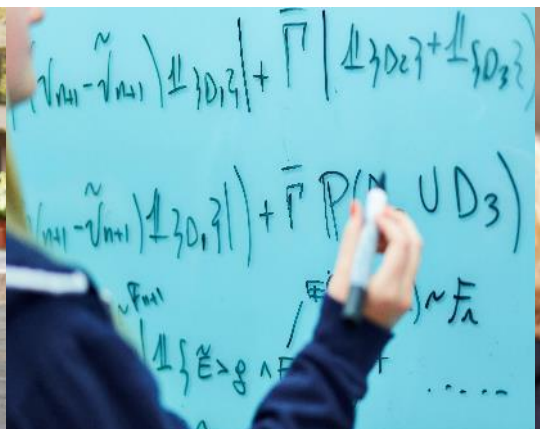
How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23:59** (UK time) on the advertised closing date.

Contact information

To explore the post further or for any queries you may have, please contact:

Professor Rainer Hollerbach, Professor
Tel: +44 (0)113 343 5134
Email: R.Hollerbach@leeds.ac.uk



Additional information

Faculty and School Information
Further information is available on the research and teaching activities of the Faculty of Engineering & Physical Sciences, and the School of Mathematics.

Working at Leeds
We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our Working at Leeds information page.

A diverse workforce
As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.

The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN Silver Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our equality and inclusion webpage provides more information.

Information for disabled candidates
Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our How to Apply information page or by getting in touch by emailing HR via hr@leeds.ac.uk.



Criminal Record Information
Rehabilitation of Offenders Act 1974
A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.

Salary Requirements of the Skilled Worker Visa Route

Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information, please visit the Government's Skilled Worker visa page.

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit the Government's page, Apply for the Global Talent visa.