

Post ref:	KU00002111
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**POST DOCTORAL RESEARCH ASSOCIATE IN
"Theoretical Stellar Astrophysics"
(Fixed-term for at least 24 months)**

Job Description

School/Ri/Directorate:	Faculty of Natural Sciences – School of Chemical and Physical Sciences
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Responsible to:	Prof Raphael Hirschi
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Responsible for:	
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Grade:	Grade: 7 Incremental Scale: Yes Salary range £34,304 - £42,149 per annum	Hours:	Full time Fixed term for at least 2 years
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Role Summary:
To conduct research on 3D hydrodynamic simulations of massive stars and theoretical stellar astrophysics for the STFC-funded project entitled "Synergetic 321D modelling of SN, NS and BH progenitors", as part of the BRIDGCE consortium.

Main Duties and Responsibilities:
<p><u>Work Processes and results</u></p> <ul style="list-style-type: none">• Lead the computation of 3D simulations of stellar interiors in the framework of the STFC-funded project• Improve existing theoretical prescriptions and possibly develop new ones for both turbulent convection (and possibly rotation/magnetic) induced mixing based on existing/new 3D simulations as appropriate.• Liaise with the stellar hydrodynamics community to follow-up recent results as well as plan future simulations.• Contribute to code development including GPU porting.• Actively participate in Dr Hirschi's existing collaborations.• Provide hydrodynamics expertise for local and external collaborators.• Develop research objectives and proposals for own or joint research.• Contribute to the supervision and development of PhD students' research.• Assist in the development of student research skills. <p><u>Team Work</u></p> <ul style="list-style-type: none">• Work effectively with the PI and Co-Is at Keele, as well as with their wider research group of PDRAs and PhD students, and collaborators within the UK and internationally.

- Contribute to collaborate decision-making with colleagues in the astrophysics group.

Communication / Documentation

- Participate in regular research group meetings and communicate research findings to members of the research team.
- Publish research in academic journals.
- Present research at academic conferences.
- Communicate effectively across a wide range of audiences.
- Liaise, establish and maintain positive links with external agencies and providers.
- To adhere to regulations and procedures relating to data protection and information security.

Personal Development / Performance

- Demonstrate a commitment to continuing Personal/Professional Development.
- Ability to observe and define priorities and timetables in the achievement of strategic and operational objectives.
- Adhere to the University's environmental policy and procedures and seek to promote environmental sustainability within area of responsibility.

Equality, Diversity, Health and Safety and Strategy

- A strong commitment to the principles and practice of equality and diversity
- Thorough understanding of the Dignity and Respect Policy Statement
- Take reasonable care of the Health and Safety of yourself and that of any other person who may be affected by your acts or omissions at work.
- Co-operate with Keele University in ensuring as far as is necessary, that Statutory Requirements, Codes of Practice, University Policies and School/Departmental health and safety arrangements are complied with.

For more details of the Keele Astrophysics Group, see <https://www.keele.ac.uk/scps/research/>

For enquiries please contact Prof Raphael Hirschi at r.hirschi@keele.ac.uk.

This job description is not intended as an exhaustive list of duties or a restrictive definition of the post but rather should be read as a guide to the main priorities and typical areas of activity of the post-holder. These activities are subject to amendment over time as priorities and requirements evolve and as such it may be amended at any time by the line manager following discussion with the post holder.

This post may meet the relevant criteria to allow the University to issue a Certificate of Sponsorship to individuals who wish to come to work in the UK through the Skilled Worker Route of the UK Immigration System. For information on the sponsorship system, please visit the UK Visas and Immigration website at <https://www.gov.uk/government/organisations/uk-visas-and-immigration>. You are advised to assess your circumstances against the criteria set out in the UKVI policy guidance, available at <https://www.gov.uk/browse/visas-immigration>. UK ENIC provides advice and guidance on international qualifications at [UK ENIC Visas and Nationality](#)

References

You are asked to provide details of two referees (three if you are applying for an academic or research post), including your current or most recent employer, on your application form. Referees should be able to comment on your work and/or educational background and may be approached before

interview. In providing these details you are giving the University permission to request personal information about you from your referees, which may include confirmation of your previous salary, disciplinary and work history.

Disability Confident



Keele University is committed to taking positive steps to employ, keep and develop the abilities of disabled staff and has been awarded the disability symbol. We undertake to offer all applicants with a disability and **who meet the minimum essential criteria** an interview. If you wish to be considered under this scheme, please indicate this by selecting 'Yes' in the Guaranteed Interview Scheme Section of your application. You can also provide specific information of any requirements/adjustments you may require to assist you during the recruitment process within this section. For advice or guidance please contact the Recruitment Team email: vacancies@keele.ac.uk.

The information you provide on your application will be forwarded to the recruiting area so that they may consider whether they can facilitate your requested adjustments. ***Please note that if you do not indicate that you wish to be considered under the Disability Confident scheme in your application, you will not be considered under this Scheme.***

**POST DOCTORAL RESEARCH ASSOCIATE IN
“THE STRUCTURE AND DYNAMICS OF
STAR CLUSTERS IN 6D”**

Job Description

Evidence Key	
A	= Application
I	= Interview
R	= References
T	= Test
P	= Presentation (or a combination)

Criteria Headings	Essential	Evidence d by	Desirable	Evidence d by
Qualifications/ Education/ Training	<ul style="list-style-type: none"> A PhD or equivalent in nuclear physics, astrophysics or a related subject, or an expectation of gaining a PhD within a year of appointment 	A,I		
Experience	<ul style="list-style-type: none"> Experience of research in theoretical modelling of astrophysical environments or related topics Experience of computer programming for scientific applications 	A,I A,I	<ul style="list-style-type: none"> Experience with stellar evolution codes (MESA or GENEC). Experience with 3D hydrodynamics simulations of stars (convection or rotation) Knowledge of theory of convection or rotation in stars 	A,I,P A,I,P A,I,P
Skills/ Aptitudes/ Competences/	<ul style="list-style-type: none"> Demonstrated aptitude for research in theoretical physics Good relevant writing skills relevant to the publication of journal papers Ability to contribute to a team as well as work independently Ability to present results at conferences 	A,I,R,P A,I,R A,I,R A,I,R,P	<ul style="list-style-type: none"> Demonstrated aptitude for programming in fortran, python and openMP/MPI/CUDA/ OpenACC (or equivalent programming languages) Record of publication in recognised journals 	A,I,R,P A,I
Other	<ul style="list-style-type: none"> Willingness to travel internationally and undertake trips requiring overnight stays (e.g., for conferences or collaboration visits). 	A, I, R, P	Willingness and ability to engage in public outreach and contribute to our Astrophysics public engagement programmes.	A, I, R, P

For full post details and to apply, please visit: www.keele.ac.uk/vacancies

Keele University employees wishing to apply for this vacancy should login to Employee Self Service and click on the 'View current vacancies' link.

Closing date for applications: 17th November 2021

Interviews will be held on: early December (exact date tbc)

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