



Job title	Research Associate/Fellow in Extragalactic Astrophysics	Job family and level	Research and Teaching Level 4 (or Level 4 career training grade where an appointment is made before PhD has been completed)
School/ Department	Physics & Astronomy	Location	University Park Campus

Purpose of role

This is a postdoctoral position to work on hydrodynamic simulations of galaxy clusters and their surrounding filaments, the cornerstone of a UKRI funded project to understand the evolution of galaxies in dense cosmic web environments. The successful candidate will take a leading role in the development and running of new simulations with the SWIFT simulation code, as well as their scientific exploration. The former will involve significant technical work, while the latter includes comparison to observational data through synthetic observations. The successful candidate will work with Dr. Yannick Bahe, as well as other members of the Nottingham Astronomy Group. They will also be embedded in the international COLIBRE team, the Virgo Consortium, and further collaborations across Europe, the USA, and beyond.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	Research in Astrophysics , under the supervision of the line manager and other academic staff in the Nottingham Astronomy Group <ul style="list-style-type: none"> ▪ Necessary code development ▪ Use the update code to run new simulations, as described above ▪ Scientific analysis of the completed simulations ▪ Other research as appropriate, depending on skills and interests of the candidate 	60%
2	Dissemination of research results <ul style="list-style-type: none"> ▪ Write up research results for publication in scientific journals ▪ Present results at conferences and workshops ▪ Communicate project results to non-academic audiences 	25%
3	Engagement in collaborations <ul style="list-style-type: none"> ▪ Active participation in international collaborations related to the project, in particular the COLIBRE team and the Virgo Consortium ▪ Depending on the candidate profile, engagement in related observational collaborations such as Euclid or MOONS 	10%
4	Departmental duties <ul style="list-style-type: none"> ▪ Organise and contribute to department activities as required by the line manager and head of department 	5%

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> ▪ Able to code efficiently in both Python and C ▪ Can understand, modify, and document complex codes ▪ Ability to analyse and combine data from a variety of sources ▪ Aptitude for creative thinking and problem-solving ▪ Excellent oral and written communication skills, including the ability to communicate complex information efficiently to experts and general scientific audiences. ▪ Ability to identify problems independently and work efficiently towards deadlines ▪ Able to work independently, both on project objectives and towards self-defined goals ▪ Working as part of a team, including within international collaborations where most communication is online 	<ul style="list-style-type: none"> ▪ Ability to code in other programming languages, in particular bash ▪ Ability to work efficiently on Unix systems
Knowledge and experience	<ul style="list-style-type: none"> ▪ Proven track record in extragalactic astrophysics ▪ Good knowledge of galaxy formation physics ▪ Experience working on data-intensive projects involving simulations or observations ▪ Experience with parallel programming 	<ul style="list-style-type: none"> ▪ Experience using the SWIFT simulation code ▪ Experience running and analyzing large cosmological simulations ▪ Experience using high performance computing systems ▪ Knowledge of galaxy clusters from an observational or theoretical perspective.
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> ▪ PhD (or equivalent) degree in astrophysics or a closely related subject. Applicants currently in the process of submitting their PhD thesis will also be considered. ▪ BSc/MPhys (or equivalent) degree in physics, astronomy, or a related subject. 	

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

- Valuing people** Is friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
- Taking ownership** Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
- Forward thinking** Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
- Professional pride** Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
- Always inclusive** Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others



