MANCHESTER 1824
The University of Manchester

Job Description

Research Associate (Postdoc) in Radio Cosmology	
Grade	6.1
Department	Jodrell Bank Centre for Astrophysics, Department of Physics and Astronomy

Overall Purpose

The post-holder will work in the group of Dr Laura Wolz on HI Intensity mapping with the SKA and its pathfinders. The positions are funded through the UKRI Future Leader Fellowship award 'Mapping the cosmic web with neutral hydrogen during the era of the Square Kilometre Array'.

The posts will involve working with the single-dish data and simulations observing the largest scales of the large scale structure distribution via the technique HI intensity mapping. The post-holder will work on data reduction, data processing methodology, data inference methods, and mock data simulations in the context of HI Intensity Mapping within the MeerKLASS collaboration. They will have access to SKA pathfinder data from South African array MeerKAT which was taken under the eXtra Large Project.

The successful applicant will have a background in cosmology and be familiar with HI Intensity Mapping. They should have some experience in either single-dish HI intensity mapping (simulations or data analysis), or interferometric radio observations preferably in the context of cosmology (e.g. HI galaxy surveys, HI stacking, Epoch of Reionization experiments, Radio Weak Lensing).

About the Team

The successful applicant will work under the supervision of Dr Laura Wolz, who is currently the Deputy PI of MeerKLASS. They will be working with the local team of students and collaborators at JBCA as well as within the vibrant international research collaboration MeerKLASS, which communicates via multiple weekly telecons and in-person Busy Weeks twice a year.

Key Accountabilities

- Undertaking independent research which includes literature research, data analysis, development of analysis algorithms, interpretation of results
- Managing their workload and time effectively
- Communicating research updates in an effective and timely manner to supervisor and team members
- Presenting research outcomes via conference presentation and published articles
- Participating in international research collaborations via telecons, and research visits
- Coordinating tasks and data analysis with other team members
- Conducting responsible research, including completion of ethics, sustainability and EDIA assessments if appropriate
- Contribute to the supervision of research students

Person Specification

- PhD (or be about to obtain one) in astronomy or related physics field

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- Established knowledge in the field of cosmology
- Familiarity with the field of radio astronomy
- Familiarity with the field of HI intensity mapping
- Specialist knowledge in computational methods (i.e. simulations of mock data, radio data processing techniques, cosmological inference or related fields)
- Established experience with coding (e.g. python) and using high-performance computing facilities
- Excellent communication and interpersonal skills, including ability to receive and act on feedback

Knowledge	What does the role holder need to know on day one?
	Extra-galactic astronomy and cosmology, radio astronomy
Experience	What does the role holder need to have experience in from day one?
	(Mock) data analysis and interpretation
Skills	What does the role holder need to be good at on day one?
	Computing, communication
Education	Only include essential qualifications. Remove non-essential or any bias towards educational requirements, such as degrees or niche degrees
	PhD in Physics and Astronomy
Other	For any essential requirements that cannot be categorised into any of the above

Key Behaviours

One University: A 'One University' approach, whereby we break down silos and work collaboratively towards furthering the University's strategic goals, vision and values.

Service Excellence: Committed to prioritising service excellence and high performance to deliver great people-centred experiences.

Agility: Demonstrate a commitment to agility and continuous improvement by embracing change, championing innovation, and being flexible and forward thinking to adapt.

Sustainability: A sustainable approach that safeguards the University of the future by championing environmental practices, advancing digital capability, and supporting financial stability and philanthropic initiatives.

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Inclusion: A commitment to furthering equality, diversity, inclusion and wellbeing to create a positive work environment and culture.

Social Responsibility: Promote and champion the University's social responsibility ambitions to advance social inclusion, prosperous communities, better health, and cultural engagement.