

THE UNIVERSITY OF MANCHESTER

PARTICULARS OF APPOINTMENT

FACULTY OF ENGINEERING & PHYSICAL SCIENCES
SCHOOL OF PHYSICS & ASTRONOMY
JODRELL BANK OBSERVATORY**e-Merlin Support Scientists
(2 posts)**Vacancy ref: **EPS-06133**

Starting salary: £30,434 to £37,394 per annum
Probation: 9 months
Based at: The University of Manchester
Responsible to: **Dr Simon Garrington**
Director, e-Merlin / VLBI National Facility

BACKGROUND

e-MERLIN is a network of seven large radio telescopes across the UK linked to a central operations and processing hub at Jodrell Bank in Cheshire. The network of telescopes provides a world-leading facility for high resolution astronomical imaging at centimetre wavelengths. The e-MERLIN/VLBI National Facility is operated by the Science and Technology Research Council and the University of Manchester for use by scientists world-wide.

e-MERLIN has just undergone a major upgrade, increasing its sensitivity by more than an order of magnitude, by connecting the telescopes with a new optical fibre network to a new correlator situated at Jodrell Bank.

The 76-m Lovell Telescopes and the radio telescopes which make up e-MERLIN are equipped with highly sensitive, cryogenically cooled radio receivers operating at frequencies from 151 MHz to 24 GHz. The e-MERLIN telescopes are located at Jodrell Bank, Pickmere and Darnhall (Cheshire), Knockin (Shropshire), Defford (Worcestershire) and Cambridge. Except for Jodrell Bank, all the sites are remotely operated with no staff on site except for maintenance visits.

In addition to the UK's e-MERLIN Network, these telescopes also participate in Very Long Baseline (VLBI) observations which use telescopes in Europe, Russia, China, South Africa and the US.

The e-MERLIN network is operated by the University of Manchester's and is affiliated to the Jodrell Bank Centre for Astrophysics (JBCA). JBCA is one of the largest astrophysics groups in the UK with over 25 permanent academic staff members, plus associated research staff and students, working on a diverse range of astrophysical research (see www.jb.man.ac.uk). JBCA also hosts the UK's ALMA regional centre and the new international SKA Project Office, which alongside JBCA's e-MERLIN and VLBI activities make it the UK's prime centre for mm- and cm- interferometry.

These positions are based at Jodrell Bank Centre for Astrophysics (JBCA) on the University of Manchester campus and the Jodrell Bank Observatory in Cheshire. Both are available immediately. The e-MERLIN/VLBI National Facility is operated under a contract between the Science and Technology Facilities Council and the University of Manchester.

JOB DESCRIPTION

Main responsibilities

These roles will facilitate and develop the operations of e-MERLIN, and support external scientific users. The job will involve taking part in the daily operation of the array, including: scheduling user observations; quality control of scientific observations; executing and analysing test observations for performance assessment; providing support to facility users for all aspects of the use of e-MERLIN from proposal preparation to data analysis; developing new techniques for e-MERLIN data analysis and imaging; and helping to develop the scientific capabilities of e-MERLIN.

You will work as part of the wider e-MERLIN team, including the necessary communication with engineering and operational staff at JBO, the research and academic staff at JBO and JBCA, as well as external scientists from around the world. You will contribute of the wider JBCA scientific research activity, and will be expected and encouraged to undertake your own programme of scientific research preferably complementing the existing research areas of JBCA.

PERSON SPECIFICATION

Essential

Applicants should possess:

- Relevant PhD in Astronomy, physics or Engineering.
- Proven track record of high quality research activity, with evidence of previous publications or ability to publish research.
- Experience in Radio interferometry techniques and data processing in current data reduction packages (e.g. AIPS, CASA).
- Good written and verbal communication skills.
- Good interpersonal relationship skills.
- Ability to work independently and as part of a team.
- Experience / interest in operational aspects of radio astronomy facilities, including scheduling, proposal administration, quality control and user support.

Desirable

- Experience with e-MERLIN, JVLA / VLBI data reduction techniques.
- Interest in and experience of development of data reduction techniques, software / pipelines.
- Experience of advanced radio imaging techniques required for wide bandwidths, wide fields of view, high dynamic range etc.
- Working knowledge of programming / scripting techniques (e.g. within python, C/C++).