



*The original redbrick
university and a member
of the Russell Group*

Faculty of Science and Engineering

TECHNICIAN IN PARTICLE PHYSICS (Detector construction ATLAS Upgrade)

Area: School of Physical Sciences, Department of Physics

Job Ref: 060626

Location: University campus

Grade: 5/6

Salary: £27,396 - £36,333 pa (pay award pending)

Working Hours: Full-Time

Tenure: Until 31 March 2026



*Outstanding development
opportunities through
our Academy*

Online application > Shortlisting > Interview Process > Job Offer



*Campus located in
the heart of the vibrant
city of Liverpool with
excellent facilities*





About the Role



Role overview and University context:

- Research technician for the construction and quality control of pixel and strip modules for the ATLAS Upgrade project in the department of physics.
- The provision of an effective and efficient technical service within the University for staff and students.
- The organisation and limited supervision of a small facility/group of facilities supporting technical and academic users e.g. teaching laboratories, research laboratories, workshops or studios.
- The manufacture and assembly of high precision particle detector components
- Occasional communication with staff and students on issues relating to the technical services, facilities and equipment.
- A technical role supporting a large volume of varied activity in an academic department/school/institute or centralised teaching facility.

Core Accountabilities

The balance of accountabilities will vary depending on the nature of the technical facilities and activities supported by a particular role:

- Ensures the implementation of a safe working environment using good working practices in line with relevant legal requirements.
- Assists in the completion of risk assessment forms by staff and students within the facility, providing instruction and advice on completion of forms in accordance with legal and local requirements as required; likewise records attendance in facility, usage of equipment and undertakes such other monitoring as may be required
- Oversees the general cleanliness, organisation and tidiness of the facility and disposal of hazardous wastes. Ensures contaminated apparatus is dealt with in a safe manner in accordance with proper procedure. Ensures redundant equipment or used consumables are disposed of safely and in accordance with sustainability policies.
- Organises and supervises specialist technical facilities and the equipment within them.
- Assists in the installation of new equipment and preparation of safe operating guides, ensuring these are clearly displayed and accessible to all.
- Assists in the maintenance of adequate stock levels of apparatus and materials, where appropriate.
- Limited authority to procure consumable items.
- Ensures the safe, proper and effective use of equipment and facilities through the provision of advice to staff and students, the documentation of operating guidance, and the ad hoc or scheduled demonstration of equipment usage to individuals or groups of staff and students.
- Supports required outcomes from use of equipment and facilities, through consultation with and advice to staff about the application of technical equipment, methods and facilities for research, teaching and professional purposes.
- Occasionally uses initiative and problem-solving techniques to produce solutions for academic requirements such as the design and construction of experiments. Uses quantitative and qualitative analysis where necessary to determine or evaluate practice: provides assistance with the interpretation of results.
- Limited liaison and networking with outside agencies, visitors, etc.
- Limited supervision of other technical staff and post-graduate students as appropriate, including training of staff in the relevant techniques.



About the Role



- Undertakes other duties commensurate with the grade as required by the School/Institute Manager or their officers.

Accountable to the ATLAS Upgrade PI in respect to duties, then the School Head of Operations

THE DEPARTMENT OF PHYSICS

The Department of Physics at the University of Liverpool is one of the worldwide construction sites for the upgrade of the Inner Tracker (ITk) for the high-luminosity upgrade of the ATLAS experiment at CERN's Large Hadron Collider. The ITk upgrade is a new detector for measuring the momentum and origin of charged particles emanating from the proton-proton collisions in the centre of the experiment.

You will be based in the Liverpool Semi-conductor Detector Centre cleanroom complex within the Department of Physics at Liverpool. You will join a team of 15 physicists and engineers working together on the manufacture and quality-control testing of silicon detectors for the endcap pixel tracker and the barrel strip tracker. You will participate in the gluing of components to form modules and be required to follow written instructions reliably and to enter data into the construction database. You will then be responsible for making the electrical connections between the readout chips and detectors using ultrasonic-wedge wire-bonding on state-of-the-art machines. You will check the quality of wire-bonding through optical inspection and wire-pull tests using industry-standard equipment. You will have to monitor and report yields, machine problems and the usage of consumables. You will be expected to attend technical meetings at Liverpool and occasionally off-site as the project proceeds.

This role requires the highest standard of cleanroom working disciplines to be applied. You will be required to work from formal engineering drawings and specifications. Good sensory and physical co-ordination is essential given the small scale and delicate nature of the detectors. Past experience of working in a clean room environment and on wire-bonding are highly desirable. You will have good communication skills and the ability to instruct others (e.g. students) in the production procedures.

This post coincides with the production phase of the ATLAS ITk upgrade. Subject to funding availability, there could be future possibilities of employment within the Department on other projects requiring similar skills and experience.

PARTICLE PHYSICS GROUP

The Particle Physics Group at the University of Liverpool, led by Prof. Joost Vossebeld, is one of the UK's premier Particle Physics Groups. It holds £22M in active research grants and operates research infrastructure facilities representing an investment of £30M. With a staff complement of 74 leading academics, physicists, engineers and technologists, it trains up to 65 postgraduate students at any one time.

Particle Physics is a major theme for the University of Liverpool and the group has strong support at the School and Faculty levels. The group has always been recognised for the world-leading contributions made to both the construction of experimental facilities and the data analysis and publication of physics results. In recent years the group has delivered detector sub-systems for ATLAS (Silicon Endcap-C), LHCb (VeLo and VeLo upgrade), NA62 (K-Tag), g-2 (straw tracker stations), SBND (TPC-cathode) plane and the ND280



About the Role



ECAL (for T2K). The group is currently active at CERN (ATLAS, LHCb, FASER, MUonE), at J-PARC (T2K, Hyper-K), at SNOLAB (SNO+), at FNAL (g-2, Mu2e, SBND, DUNE, MAGIS100), at PSI (Mu3e, muEDM), at Gran Sasso (DarkSide-20k, LEGEND), at SURF (LZ) and in astro-particle physics (CTA).

The PP Group is an international leader in R&D in radiation-hard silicon detectors for future experiments and upgrades. Our facilities include the unique Liverpool Semiconductor Detector Centre (LSDC), a 350m² clean-room complex equipped with automated probe stations, wire-bonders, metrology systems, materials testing, etc. The group also has an in-house R&D programme in Liquid Argon (LAr) tracking detectors for future neutrino oscillation experiments and direct Dark Matter searches. The group is the main user of the departmental mechanical workshop (CNC milling, turning, wire EDM) and the advanced materials laboratory (CFRP layup, autoclave/oven curing, etc).

The ATLAS Upgrade

The ATLAS Upgrade project at Liverpool is led by Dr Helen Hayward. Her team comprises about 15 physicists, engineers and technicians working on a programme to replace the charged particle tracker of the ATLAS experiment by 2027. The new detector will allow ATLAS to continue taking physics data until the late-2030's securing future physics output and leadership for Liverpool's academics and research students. The team will assemble silicon detector modules and mechanical support structures for the barrel strip and endcap pixel tracking systems. The Liverpool group's contribution is the largest within the UK with several staff occupying major positions of leadership and responsibility. The project will culminate in the delivery of a completely assembled and tested pixel endcap tracking system to CERN by 2026.

Additional Requirements: Manual Handling The post involves bending, stretching and the manual handling of loads up to 15kg. A system to control the risks is in place. Appointment will be subject to Occupational Health screening.

In addition to the above, all University of Liverpool staff are required to:

- Adhere to all University policies and procedures, completing all obligatory training and induction modules, including Equality & Diversity and Health & Safety.
- Respect confidentiality: all confidential information should be kept in confidence and not released to unauthorised persons.
- Participate in the University's Professional Development Review scheme and take a proactive approach to own professional development.
- Demonstrate customer service excellence in dealing with all stakeholders.
- Embody and uphold the University's Vision and Values.



About You



Essential Criteria		Desirable Criteria
Experience		
1.1	Experience in a technical capacity in an electrical or mechanical scientific environment	Experience of assembling silicon detectors Required for appointment at Grade 6
1.2	Experience of working to health and safety regulations and legal requirements	Experience of working in a clean room Required for appointment at Grade 6
1.3	Experience of working within a production environment	Experience of ultrasonic-wedge wire-bonding
Education, Qualifications and Training		
2.1	BTEC Higher (or equivalent) in Electrical Engineering or relevant professional experience	Higher level qualifications in an engineering or science-based discipline (or a clear desire to achieve this)
Skills, General and Special Knowledge		
3.1	Relevant experience of and extensive knowledge of precision mechanical and micro-electronics assembly	Good understanding of wire-bonding processes and determination of optimum settings
3.2	Manual dexterity and an aptitude for fine detailed work	Additional skills relevant to a clean-room environment
3.3	Ability to understand and work from engineering drawings, sketches and verbal instruction	Ability to create engineering drawings and procedures
Personal Attributes and Circumstances		
4.1	Ability to communicate across all levels e.g. research students, senior technical staff, senior academics, external suppliers	Willingness to travel both in UK and overseas
4.2	Ability to work in a team	Willingness to undertake limited shift-work
4.3	Ability to work to targets and meet deadlines	Willingness to maintain and improve skill set
4.4	Ability to take initiative and solve problems on a day-to-day basis	



About Us



Established in 1881, we are an internationally renowned Russell Group university recognised for our high-quality teaching and research. We are consistently ranked as one of the best Universities both nationally and globally, and the majority of our research is rated world leading or internationally excellent. Find out more [here](#).

Our Areas

When you work at the University of Liverpool you are more than just your job role. You are a crucial part of our mission to improve lives on a local, national and international scale. Click on the relevant links below for more information on area you will be working in.

[Faculty](#)

[Department of Physics](#)

[Particle Physics Research Cluster](#)

Why Work Here

We recognise, appreciate and celebrate the incredible work our staff do every day. As well as generous terms and conditions, we offer a range of enviable benefits and provide support for colleague's wellbeing and development. Discover more [here](#).

Moving from abroad

As a global institute, we welcome applicants from all nationalities, moving from a different country can be challenging and we would like to help as much as we can, we have put together some information on eligibility to work documentation, accommodation, schools, healthcare, life in Liverpool and the UK as well as other practical information. Discover more [here](#)

Our Staff

Whether it be their friendly colleagues, supportive managers or our outstanding facilities, our staff can explain better than anyone what it is like to work for us and why they enjoy their role. See what they have to say [here](#).



How to Apply



The University of Liverpool is committed to being an inclusive employer. We welcome applications from everyone regardless of age, gender, ethnicity, sexual orientation, faith or disability.

Contacting us

Shortlisting and interview arrangements are the responsibility of the recruiting department. Please contact Dr Helen Hayward, email: Helen.Hayward@cern.ch for all enquiries.

Application process

Our e-recruitment system enables you to register for an online account, where you can view, copy and edit your applications. Set up your account [here](#).

Once you submit your application you will receive an automatic email acknowledgment. You can view your application any time by clicking into the application history section of your account.

Job Description

After the closing date this job description will be removed from our website. Should you wish to refer to this information at a later date please ensure you save a copy of this document.

Right to work

We have a legal responsibility to ensure that you have the right to work in the UK before you can start working with us. If you do not have the right to work in the UK already, any offer of employment we make to you will be conditional upon you gaining it. The UKVI have an interactive tool allowing you to immediately see if vacancies are eligible for a Skilled Worker visa. You will need to know the SOC code for the role, our most used SOC codes can be found [here](#), if none of these apply to this role, there are more codes on the eligibility checker. The skilled worker eligibility checker can be found on [GOV.UK](https://www.gov.uk).



How to Apply



Disabilities and alternative formats

If you have any other requirements which will help you access the application or interview process or employment opportunities at the University, or if you require copies of documentation in alternative formats, please email: jobs@liverpool.ac.uk or telephone 0151 794 6771.

Outcome of your application

The recruiting department will endeavour to respond to each application. However, if you have not heard within six weeks of the closing date, please take it that your application has not been successful on this occasion.

