



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

## Faculty of Science and Engineering

### POSTDOCTORAL RESEARCH ASSOCIATE IN PARTICLE PHYSICS (LHCb EXPERIMENT)

**Area:** School of Physical Sciences, Department of Physics

**Job Ref:** 056380

**Location:** University campus

**Grade:** 7-8

**Salary:** £36,386 - £54,950 pa

**Working Hours:** Full-Time

**Tenure:** Fixed term until 30 September 2025



*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:

The University of Liverpool is seeking to recruit a highly motivated post-doctoral or senior researcher for its physics exploitation programme at the LHCb experiment at CERN. You should have a PhD in physics and a track record on high profile physics analysis within LHCb or on flavour physics (or other relevant analyses) on other experiments.

The LHCb group at Liverpool is active in physics exploitation, detectors and computing. The group has a strong involvement in flavour physics (current research includes searches for right handed currents and investigations of hadronic b-hadron decays) and electroweak physics (measurements of the Weinberg angle). We are currently establishing a novel programme of new physics investigations with baryonic B hadron decays. We seek a candidate to work with us to fully develop, exploit and deliver this programme. Liverpool assembled the upgraded pixel Vertex detector (VeLo) for LHCb and will continue to support its operation to ensure its optimal use in the physics exploitation of the experiment. The group also has a deep involvement in the computing infrastructure of the experiment and performs R&D towards future LHCb detector Upgrades.

The successful candidate will focus their effort on the Run 3 physics programme of LHCb. They will also have the opportunity to contribute to the development of the longer-term precision flavour physics programme in Liverpool.

The position is funded through the Liverpool Particle Physics Consolidated Grant and is initially available until September 30<sup>th</sup>, 2025. Extension of the post beyond this date will be subject to a future application for continued funding.

### DUTIES

- To make leading contributions to the physics programme of the LHCb experiment.
- To present the results of your work and that of others in internal and external scientific meetings.
- To work independently on complex problems and communicate effectively with colleagues inside and outside your immediate team.
- To supervise Liverpool PhD students on LHCb.
- To assist in the day-to-day operation of LHCb.
- To publish research results in the relevant international journals.

The successful applicant will be expected to travel and spend periods of time at CERN



## About the Role



**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.

### THE DEPARTMENT OF PHYSICS

The Physics Department, part of the School of Physical Sciences, was one of the first departments established in the University in 1881 and has a long tradition of excellence in physics research. The Department has scored highly in three consecutive reviews by HEFCE - the national Research Assessment Exercise (RAE). This considerable achievement reflects the Department's international reputation in the fields of particle physics, nuclear physics condensed matter physics and accelerator science.

The first Professor of Physics at Liverpool was Sir Oliver Lodge, who made the world's first public radio transmission in 1894. Two years later, Lodge demonstrated the use of X-ray photography by taking an image of a bullet in a boy's wrist. It was the first time an X-ray had been used for surgical purposes. Professor Charles Glover Barkla's research into X-Rays won him the Nobel Prize for Physics in 1917, and Sir James Chadwick was awarded the Nobel Prize for Physics in 1935 for discovering the neutron. More recently, Sir Joseph Rotblat was awarded the Nobel Peace Prize in 1995 for his work on reducing the threat posed by nuclear weapons.

The Department is very well funded for research. There are currently approximately 44 academic staff who are responsible for the teaching and supervision of around 360 undergraduate and 170 postgraduate students. Over 40 full time research and computer physicists, professional, technical and electronic support staff together with extensive laboratory, workshop and design office facilities, support the research groups. Much of our research is carried out in the leading international centres for physics research: ILL (Grenoble), ESRF (Grenoble), ELETTRA (Trieste), CERN (Geneva), DESY (Hamburg), SLAC (Stanford), FNAL (Chicago), PSI (Villigen), JYFL (Jyväskylä), GANIL (Caen), GSI (Darmstadt) and ATLAS (Argonne).



## About the Role



The Department performs extremely well in both teaching and research as evidenced by excellent scores in teaching quality assessment, research assessment exercises and the national student survey. Further details of the department can be found on the web site: <http://www.liverpool.ac.uk/physics>

### THE PARTICLE PHYSICS GROUP

The Particle Physics group at the University of Liverpool is one of the UKs largest Particle Physics groups, holding research grants of around £22M and operating research infrastructure facilities worth £30M. With a staff complement of 65 leading academics, physicists, engineers and technologists, it trains around 60 post graduate research students at any 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 is active at CERN (ATLAS, LHC-b, FASER, MUonE), at J-PARC (T2K, Super-K, Hyper-K), at SNOLAB (SNO+), at Fermilab (g-2, mu2e, SBND, DUNE), at PSI (mu3e, muEDM) and in astroparticle physics (CTA), Dark Matter (LZ, Darkside-20k) and the use of quantum technology for fundamental physics (AION, MAGIS-100). In recent years the group has delivered the ATLAS Silicon Endcap-C, the LHC-b VeLo and VeLo pixel upgrade, the ND280 ECAL for T2K, cathode planes for the SBND TPC, and tracker stations the FNAL g-2 experiment. Currently the group is developing and building detectors and other systems for the ATLAS HL-LHC Inner tracker upgrades, for the Mu2e and Mu3e experiments, for Hyper-K, for MAGIS-100 and for DUNE.

The Particle Physics Group is an international leader in the R&D on radiation-hard silicon detectors for future experiments and upgrades. The research is performed in the unique Liverpool Semiconductor Detector Centre (LSDC). The group is the main user of the Departmental precision manufacture workshop and the advanced materials facility. The group also has an in-house R&D programme on read out techniques for 2-phase Liquid Argon (LAr) detectors for future neutrino oscillation experiments and on the development of atom interferometry for precision physics.

The group is heavily invested in the physics exploitation of various experiments, searching for new physics at the energy frontier and for dark matter, and in the study of flavour physics, with quarks and with neutral and charged leptons. For further details on the Particle Physics group see: <https://www.liverpool.ac.uk/particle-physics>



## About You



Essential Criteria		Desirable Criteria
<b>Experience</b>		
1.1	Experience in physics analysis for particle physics and evidence of the independent development of aspects of the analysis or interpretation of physics data	Proven track record in high profile physics analysis. Leading contributions to physics analysis and publications. <b>(Required for appointment at the higher grade)</b>
1.2	Has published scientific papers and presented work at international conferences	Evidence of leadership, e.g. through the appointment to convening or coordinating roles of analyses working groups, or through the initiation of new activities. <b>(Required for appointment at the higher grade)</b>
1.3	Experience with and in-depth understanding of the software tools used for physics analysis in large particle physics experiments	Experience with data analysis for precision flavour experiments.
<b>Education, Qualifications and Training</b>		
2.1	PhD in particle physics	Evidence of esteem in the form of invited conference talks, having held a competitively awarded fellowship or prize, etc. <b>(Required for appointment at the higher grade)</b>
<b>Skills, General and Special Knowledge</b>		
3.1	Working knowledge of C++ and Python	A strong theoretical background
3.2	Good communication skills with both expert and non-experts	Excellent written and verbal communication skills to communicate progress on the project with Liverpool staff and external collaborators



## About You



### Personal Attributes and Circumstances

4.1	Ability to work as part of a team	Track record of applying for research funding or demonstrated experience of developing new collaborative efforts with colleagues internationally <b>(Required for appointment at the higher grade)</b>
4.2	Ability to work independently on complex problems	
4.3	Ability to communicate effectively in the working environment	
4.4	Willingness to work, on occasion, outside normal office hours when this is required for detector shifts or for work supporting detector operation	
4.5	Willingness to travel	



## 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](#)

### 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 Professor Joost Vossebeld ([Joost.Vossebeld@liverpool.ac.uk](mailto:Joost.Vossebeld@liverpool.ac.uk)) or Professor Tara Shears ([tgshears@liverpool.ac.uk](mailto:tgshears@liverpool.ac.uk)) 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](#).





## 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](mailto: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.

