

## Job Description and Selection Criteria

<b>Job title</b>	Postdoctoral Research Assistant – Flavour Physics (experimental)
<b>Division</b>	Mathematical Physical and Life Sciences
<b>Department</b>	Physics
<b>Location</b>	Denys Wilkinson Building
<b>Grade and salary</b>	Grade 7: £33,309-£40,927 per annum
<b>Hours</b>	Full time
<b>Contract type</b>	Fixed-term (until 31/5/24)
<b>Reporting to</b>	Dr Sneha Malde, Royal Society Dorothy Hodgkin Research Fellow
<b>Vacancy reference</b>	156636
<b>Additional information</b>	Closing date – midday (UK time) on 25 April 2022

<b>Research topic</b>	CP violation; CKM angle $\gamma$ measurements using data from the LHCb and/or BESIII experiments; Trigger and calibration software development
<b>Principal Investigator / supervisor</b>	Dr Sneha Malde
<b>Project team</b>	Oxford LHCb and BESIII group
<b>Project web site</b>	<a href="https://www.physics.ox.ac.uk/research/group/lhcb">https://www.physics.ox.ac.uk/research/group/lhcb</a>
<b>Funding partner</b>	The funds supporting this research project are provided by an ERC starter grant.



## The role

The precision measurement of the CKM angle  $\gamma$  is a long-standing goal of flavour physics. The most precise measurements in the near future will come from the combination of LHCb data augmented with charm strong phase inputs from BESIII. LHCb is an experiment at CERN searching for the effects of new physics processes in the decays of beauty and charm hadrons. Analysis efforts are ongoing in data sets accumulated in Runs 1 and 2 and significant activity is devoted to the start of Run 3 operations with the new LHCb Upgrade detector. BESIII is an experiment at the BEPCII electron positron collider. In the next two years the unique  $\psi(3770)$  dataset will be enlarged by a factor of 5.

The post-holder will join the large and vibrant LHCb & BESIII group at Oxford. The group is a founding institute of LHCb and has a leading role in its physics programme. We have a long-established interest in reconstructing hadronic final states for the determination of the unitarity triangle angle  $\gamma$ . Oxford is also an active member of the BESIII experiment, where the focus is on strong-phase parameter measurements in neutral D decays. These parameters, are central to the overall strategy of precision  $\gamma$  measurements, and crucially allow for  $\gamma$  to be determined in a model-independent way. Oxford is also active in the RTA project of LHCb, with focus on calibration and trigger development activities.

The post-holder will take a lead on one or two of the following activities, where the choice will depend on the skills, experience, interests of the post-holder and group needs.

- LHCb data analysis for CKM gamma measurements with a focus on Run 3
- Calibration and/or trigger preparation for Run 3
- Analysis of the new  $\psi(3770)$  dataset at BESIII for strong phase measurements

The post is funded through an ERC grant with the main objective of improving the precision of the CKM angle  $\gamma$ . We anticipate the post-holder beginning duties as soon as possible, and the appointment will be until 31/05/24.

Interested applicants are welcome to contact the supervisor of this post for more information ([Sneha.malde@physics.ox.ac.uk](mailto:Sneha.malde@physics.ox.ac.uk)).

## Responsibilities

- Take a lead role in data analysis using LHCb and/or BESIII data, working towards more precise measurements of the CKM angle  $\gamma$ ;
- Participate in the supervision of graduate students;
- Participation in detector operations and maintenance as appropriate;
- Collaborate in the preparation of scientific reports and journal articles and occasionally present papers and posters at national and international workshops and conferences;
- Participate in collaboration meetings as required, which may occasionally fall outside standard working hours;
- Undertake any relevant training, as required;
- Contribute to the overall activities of the research team and sub-department as required by the supervisor or Head of Department;
- The post-holder will have the opportunity to teach. This may include lecturing, small group teaching, and tutoring of undergraduates and graduate students.

### **Hazard-specific / Safety-critical duties:**

This job includes the following hazards or safety-critical activities which will require successful pre-employment health screening through our Occupational Health Service before the successful candidate will be allowed to start work:

- Night working (11pm-6am) (This is not on regular basis, but may be required for short periods of time for detector operation shifts)
- Travel outside of Europe or North America on University Business

## **Selection criteria**

### **Essential**

- Doctorate in experimental particle physics or related field (or very close to obtaining)
- Proven track record of high-quality research in experimental particle physics
- Ability to identify research objectives and subsequently conceive, plan, and execute appropriate activities to deadlines
- Strong self-motivation and the ability to motivate and guide the work of others, in particular of graduate students
- Ability to work collaboratively and communicate effectively both orally and in writing with a range of audiences including academic and technical staff
- Ability to present research findings at conferences, workshops, and working meetings
- Ability to contribute to research papers in the field
- Familiarity and confidence in programming in C++ and python
- Willingness to be involved in detector operations and travel to the experiment or collaboration meetings as required
- An interest in the physics goals of the role

### **Desirable**

- PhD in flavour physics
- Experience with the LHCb and/or BESIII experiment software

## **About the University of Oxford**

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford's researchers engage with academic, commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, while providing all our staff with a welcoming and inclusive workplace that enables everyone to develop and do their best work. Recognising that diversity is our strength, vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual's unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities. Income from external research contracts in 2016/17 exceeded £564m and we rank first in the UK for university spin-outs, with more than 130 companies created to date. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information please visit [www.ox.ac.uk/about/organisation](http://www.ox.ac.uk/about/organisation)

## **Department of Physics**

Oxford Physics is one of the largest and most eminent departments in Europe – pursuing forefront research alongside training the next generation of leaders in Physics.

With an academic staff of almost one hundred our activities range from fundamental particles to the furthest reaches of the universe to manipulating matter on an atomic scale. Oxford physicists are probing new ways to harness solar energy, modelling the Earth's atmosphere to predict the future climate, exploring computation on the quantum scale and executing calculations that reveal the fundamental structure of space and time.

For more information please visit: <http://www2.physics.ox.ac.uk/>

## **Particle Physics Sub-department**

The post-holder will be based in the Particle Physics sub-department, which is one of the six sub-departments that together make up the Department of Physics; these are Astrophysics, Atomic and Laser Physics, Atmospheric, Oceanic and Planetary Physics, Condensed Matter Physics, Particle Physics and Theoretical Physics, with a seventh function (Central Physics) providing administrative and technical support to these sub-departments. Members of all sub-departments take part in research, teaching and matters such as examinations, discussion of syllabi, lectures and liaison with undergraduates and postgraduate students.

The Oxford particle physics group is the largest university-based group in the UK, with 30 permanent academics; about 30 temporary academics, fellows and post-docs; 70 graduate students and 30 support staff. It is housed in the Denys Wilkinson Building with excellent electronics and mechanical workshops. Our research programme covers experiments at accelerators as well as in particle astrophysics. We are currently involved in the ATLAS and LHCb experiments at the LHC in both analysis of current data and preparation for detector upgrades. We also participate in the BESIII experiment to support LHCb analysis objectives. Other activities include the measurement of neutrino oscillations with the T2K experiment, the preparation of HyperK and LBNF including a program of R&D towards large liquid Argon TPCs, the SNO+ experiment to measure solar neutrinos and search for neutrinoless double beta decay, and preparations for the LUX-ZEPLIN dark matter search and dark energy science with the Large Synoptic Survey Telescope. Research in accelerator physics is carried out within the John Adams Institute, including projects for future linear colliders, light sources and laser plasma acceleration, the MICE demonstration of muon cooling, and applications of accelerators to cancer therapy.

For more information please visit: <http://www2.physics.ox.ac.uk/>

## Mathematical, Physical & Life Sciences Division

The Mathematical, Physical and Life Sciences (MPLS) Division is one of the four academic divisions of the University of Oxford.

The MPLS Division's 10 departments and 3 interdisciplinary units span the full spectrum of the mathematical, computational, physical, engineering and life sciences, and undertake both fundamental research and cutting-edge applied work. Our research addresses major societal and technological challenges and is increasingly focused on key interdisciplinary issues. We collaborate closely with colleagues in Oxford across the medical sciences, social sciences and humanities, and with other universities, research organisations and industrial partners across the globe in pursuit of innovative research geared to address critical and fundamental scientific questions.

For more information please visit: <http://www.mpls.ox.ac.uk/>

## Athena Swan Charter

The Department of Physics holds a silver Athena Swan award to recognise advancement of gender equality: representation, progression and success for all.

## How to apply

Before submitting an application, you may find it helpful to read the 'Tips on applying for a job at the University of Oxford' document, at [www.ox.ac.uk/about/jobs/supportandtechnical/](http://www.ox.ac.uk/about/jobs/supportandtechnical/).

If you would like to apply, click on the **Apply Now** button on the 'Job Details' page and follow the on-screen instructions to register as a new user or log-in if you have applied previously. When prompted, please provide details of three referees. You will also be required to upload a Curriculum Vitae and Supporting Statement **as PDF files** with your name and the document type in the filename. The supporting statement should **demonstrate how you meet the selection criteria for the post** using examples of your skills and experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants). Please list up to 10 publications to demonstrate your contributions.

Applicants should **ask their referees to send their letters of reference directly to Mrs Sue Geddes**

Denys Wilkinson Building  
Keble Road  
Oxford, OX1 3RH  
United Kingdom  
Fax: (01865) 273417

E-mail: [sue.geddes@physics.ox.ac.uk](mailto:sue.geddes@physics.ox.ac.uk) **by the closing date** (a letter by e-mail is sufficient).

Not more than two of the three referees should be from the same institution and where possible they should consider the selection criteria in the further particulars when writing their letters of reference, and to mark their letters "strictly confidential" if they do not wish the applicant to have automatic right of access.

Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

Please upload all documents **as PDF files** with your name and the document type in the filename.

All applications must be received by **midday** on the closing date stated in the online advertisement.

### **Information for priority candidates**

*A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing departments.*

*If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments)*

Should you experience any difficulties using the online application system, please email [recruitment.support@admin.ox.ac.uk](mailto:recruitment.support@admin.ox.ac.uk). Further help and support is available from [www.ox.ac.uk/about\\_the\\_university/jobs/support/](http://www.ox.ac.uk/about_the_university/jobs/support/). To return to the online application at any stage, please go to: [www.recruit.ox.ac.uk](http://www.recruit.ox.ac.uk).

Please note that you will be notified of the progress of your application by automatic emails from our e-recruitment system. **Please check your spam/junk mail** regularly to ensure that you receive all emails.

## **Important information for candidates**

### **Pre-employment screening**

Please note that the appointment of the successful candidate will be subject to standard pre-employment screening, as applicable to the post. This will include right-to-work, proof of identity and references. We advise all applicants to read the candidate notes on the University's pre-employment screening procedures, found at:

[www.ox.ac.uk/about/jobs/preemploymentscreening/](http://www.ox.ac.uk/about/jobs/preemploymentscreening/).

### **Data Privacy**

Please note that any personal data submitted to the University as part of the job application process will be processed in accordance with the GDPR and related UK data protection legislation. For further information, please see the University's Privacy Notice for Job Applicants at: [www.admin.ox.ac.uk/councilsec/compliance/gdpr/privacynotices/job/](http://www.admin.ox.ac.uk/councilsec/compliance/gdpr/privacynotices/job/). The University's Policy on Data Protection is available at:

[www.admin.ox.ac.uk/councilsec/compliance/gdpr/universitypolicyondataprotection/](http://www.admin.ox.ac.uk/councilsec/compliance/gdpr/universitypolicyondataprotection/).

### **The University's policy on retirement**

The University operates an Employer Justified Retirement Age (EJRA) for all academic posts and some academic-related posts. From 1 October 2017, the University has adopted an EJRA of 30 September before the 69<sup>th</sup> birthday for all academic and academic-related staff in posts at **grade 8 and above**. The justification for this is explained at:

[www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8+/](http://www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8+/).

For **existing** employees, any employment beyond the retirement age is subject to approval through the procedures: [www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8+/](http://www.admin.ox.ac.uk/personnel/end/retirement/acrelretire8+/).

There is no normal or fixed age at which staff in posts at **grades 1–7** have to retire. Staff at these grades may elect to retire in accordance with the rules of the applicable pension scheme, as may be amended from time to time.

## **Equality of Opportunity**

Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. No applicant or member of staff shall be discriminated against because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.

## Benefits of working at the University

### Employee benefits

University employees enjoy 38 days 'paid holiday, generous pension schemes, travel discounts, and a variety of professional development opportunities. Our range of other employee benefits and discounts also includes free entry to the Botanic Gardens and University colleges, and discounts at University museums. See [www.admin.ox.ac.uk/personnel/staffinfo/benefits](http://www.admin.ox.ac.uk/personnel/staffinfo/benefits).

### University Club and sports facilities

Membership of the University Club is free for all University staff. The University Club offers social, sporting, and hospitality facilities. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, powerlifting room, and swimming pool. See [www.club.ox.ac.uk](http://www.club.ox.ac.uk) and [www.sport.ox.ac.uk/oxford-university-sports-facilities](http://www.sport.ox.ac.uk/oxford-university-sports-facilities).

### Information for staff new to Oxford

If you are relocating to Oxfordshire from overseas or elsewhere in the UK, the University's Welcome Service website includes practical information about settling in the area, including advice on relocation, accommodation, and local schools. See [www.welcome.ox.ac.uk](http://www.welcome.ox.ac.uk). There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependents. See [www.admin.ox.ac.uk/personnel/permits/reimburse&loanscheme/](http://www.admin.ox.ac.uk/personnel/permits/reimburse&loanscheme/).

### Family-friendly benefits

With one of the most generous family leave schemes in the Higher Education sector, and a range of flexible working options, Oxford aims to be a family-friendly employer. We also subscribe to My Family Care, a service that provides practical advice and support for employees who have caring responsibilities. The service offers a free telephone advice line, and the ability to book emergency back-up care for children, adult dependents and elderly relatives. See [www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/](http://www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/).

### Childcare

The University has excellent childcare services, including five University nurseries as well as University-supported places at many other private nurseries. For full details, including how to apply and the costs, see [www.admin.ox.ac.uk/childcare/](http://www.admin.ox.ac.uk/childcare/).

### Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. For further details, including information about how to make contact, in confidence, with the University's Staff Disability Advisor, see [www.admin.ox.ac.uk/eop/disab/staff](http://www.admin.ox.ac.uk/eop/disab/staff).

### Staff networks

The University has a number of staff networks including the Oxford Research Staff Society, BME staff network, LGBT+ staff network and a disabled staff network. You can find more information at [www.admin.ox.ac.uk/eop/inpractice/networks/](http://www.admin.ox.ac.uk/eop/inpractice/networks/).

### The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is an organisation run by volunteers that aims to assist the partners of new staff settle into Oxford, and provides them with an opportunity to meet people and make connections in the local area. See [www.newcomers.ox.ac.uk](http://www.newcomers.ox.ac.uk).



