Department of Physics
Clarendon Laboratory
Parks Road, Oxford OX1 3PU

UNIVERSITY OF OXFORD

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Job title	**Postdoctoral Research Assistant – ATLAS**
Division	**Mathematical, Physical & Life Sciences**
Department	**Physics**
Location	**Denys Wilkinson Building, Oxford**
Grade and salary	**Grade 7: £36,024-£44,263 (GB Pounds), per annum**
Hours	**Full time**
Contract type	Fixed-term (36 months)
Reporting to	Prof. Daniela Bortoletto
Vacancy reference	174812
Additional information	Closing date – midday (UK time) 10 September 2024

Research topic	Collider physics, Higgs boson physics
Principal Investigator / supervisor	Prof. Bortoletto
Project team	ATLAS group
Project web site	https://www2.physics.ox.ac.uk/research/atlas
Funding partner	The funds supporting this research project are provided by STFC
Recent publications	See web page above

Job description

Overview of the role

The post-holder will be based at CERN or in Oxford and will be expected to take a leading role in the Oxford analysis activities, which include standard model, Higgs, supersymmetry and exotic analyses. This position is especially aimed at further strengthening the Oxford Higgs

effort. In addition, part of post-holder's time will be dedicated to the support and operation of the ATLAS silicon detector.

Oxford has a large enthusiastic group working on ATLAS and is very active in analysis, software development and hardware maintenance. It also has a major effort on the upgrade programme for the inner tracker for phase-II running.

Responsibilities/duties

- Take a lead role in one or more of the Higgs and di-Higgs analyses in which the Oxford group is focussed.
- Perform and manage academic research and administrative activities in connection with the ATLAS experiment.
- Participation in detector operations and maintenance as appropriate.
- Participation in the supervision of graduate students in the Oxford ATLAS group
- Undertake any relevant training, as required.
- Enhance and/or develop new scientific techniques for the detection of the Higgs boson decaying into heavy quarks.
- Improve the SCT data acquisition for operation as pile-up and trigger rates are increased.
- Collaborate in the preparation of scientific reports and journal articles and occasionally present papers and posters.
- Represent the research group at collaboration meetings, ATLAS sub-group meetings, external meetings/seminars, either with other members of the group or alone.
- Carry out collaborative projects with colleagues in partner institutions, and research groups.
- Other comparable duties as may be required by the supervisor or Head of Department.

Teaching duties of up to three hours per week during University term may be required as specified by the Physics Department; usually this involves supervision of undergraduate practical work.

Place of Work

The job will be based at CERN or in Oxford according to the preference of the successful candidate

Selection criteria

Essential

- Doctorate (or close to obtaining) in experimental particle physics.
- Proven record of high-quality research in experimental particle physics or a related area.
- Ability to identify research objectives and subsequently conceive, plan and execute appropriate activities to given deadlines.
- Excellent communication skills, including the ability to write for publication, present results, represent the research group at meetings and to communicate effectively both orally and in writing with academic and technical staff.
- Strong self-motivation, ability to fulfil commitments within deadlines and ability to motivate and guide the work of others, in particular of graduate students.
- Experience with the analysis of large-scale experimental data.

- Knowledge of computer languages such as C, C++ and Python.
- Experience of LINUX and/or UNIX operating systems.
- Ability to work collaboratively as a member of a team.
- Ability to contribute to research papers in the field.
- Ability to present research findings orally in conferences or workshops.
- Be willing to travel to CERN, to Oxford, or to other locations as the work requires.

Desirable

- Previous experience advising graduates students
- Familiarity with the ROOT package.
- Expertise in advanced statistical methods and machine learning techniques
- Expertise in b-tagging at hadron colliders
- Experience of independently managing a discrete area of a research project
- Experience with developing or implementing DAQ for a high energy physics experiment.
- Experience of actively collaborating in the development of technical reports or research articles for publication

Pre-employment screening

Standard checks

If you are offered the post, the offer will be subject to standard pre-employment checks. You will be asked to provide: proof of your right-to-work in the UK; proof of your identity; and (if we haven't done so already) we will contact the referees you have nominated. You will also be asked to complete a health declaration so that you can tell us about any health conditions or disabilities for which you may need us to make appropriate adjustments.

Please read the candidate notes on the University's pre-employment screening procedures at: https://www.jobs.ox.ac.uk/pre-employment-checks

Hazard-specific / Safety-critical duties

This job includes hazards or safety-critical activities. If you are offered the post, you will be asked to complete a health questionnaire which will be assessed by our Occupational Health Service, and the offer of employment will be subject a successful outcome of this assessment.

The hazards or safety-critical duties involved are as follows:

- Night working (11pm-6am)
- Lone Working
- Work in hot or cold environments
- Driving on University business
- Working with Ionising Radiation

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 and we rank first in the UK for university spin-outs, and in recent years we have spun out 15-20 new companies every year. 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.

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 over 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 40 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 analyses of current data and preparation for detector upgrades. Other activities include the study of neutrino cross sections with MicroBooNE, measurement of neutrino oscillations with T2K, the preparation of HyperK and DUNE, the SNO+ experiment to measure solar neutrinos and search for neutrinoless double beta decay, and the study of charm physics at BESIII. We search for dark matter with LUX-ZEPLIN and prepare to study dark energy science with the Large Synoptic Survey Telescope. We have initiated a unique programme to search for ultra-light dark matter with AION in Oxford and MAGIS at Fermilab. Research in accelerator physics is carried out within the John Adams Institute, including projects for future linear colliders, light sources and laser-plasma acceleration, 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

Applications are made through our online recruitment portal. Information about how to apply is available on our Jobs website https://www.jobs.ox.ac.uk/how-to-apply.

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

As part of your application you will be asked to provide details of three referees.

You will be asked to upload a CV and a supporting statement. The supporting statement must explain how you meet each of 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 the referees to send their letters of reference directly to** ppadmin@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 one 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.

Please upload all documents **as PDF files** with your name and the document type in the filename.
All applications must be received by **midday** UK time 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 department(s).
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).

If you need help

Application FAQs, including technical troubleshooting advice is available at: https://staff.web.ox.ac.uk/recruitment-support-faqs
Non-technical questions about this job should be addressed to the recruiting department directly *recruitment@physics.ox.ac.uk*
To return to the online application at any stage, please go to: www.recruit.ox.ac.uk.
Please note that you will receive an automated email from our online recruitment portal to confirm receipt of your application. **Please check your spam/junk mail** if you do not receive this email.

Important information for candidates

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: https://compliance.admin.ox.ac.uk/job-applicant-privacy-policy. The University's Policy on Data Protection is available at: https://compliance.admin.ox.ac.uk/data-protection-policy.

The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for very senior research posts at **grade RSIV/D35 and clinical equivalents E62 and E82**, which with effect from 1 October 2023 will be 30 September before the 70th birthday. The justification for this is explained at: https://hr.admin.ox.ac.uk/the-ejra.
For **existing** employees on these grades, any employment beyond the retirement age is subject to approval through the procedures: https://hr.admin.ox.ac.uk/the-ejra.
There is no normal or fixed age at which staff in posts at other grades 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 https://hr.admin.ox.ac.uk/staff-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 and https://www.sport.ox.ac.uk/.

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 https://welcome.ox.ac.uk/
There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependants. See https://staffimmigration.admin.ox.ac.uk/visa-loan-scheme

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 the Work+Family Space, 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 https://hr.admin.ox.ac.uk/my-family-care
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 https://childcare.admin.ox.ac.uk/

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 https://edu.admin.ox.ac.uk/disability-support

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 https://edu.admin.ox.ac.uk/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.