



## Job Description and Person Specification

<b>Post</b>	<b>Professorship of Experimental Physics</b>
<b>Department/Faculty</b>	<b>Physics, Sub-department of Particle Physics</b>
<b>Division</b>	<b>Mathematical, Physical and Life Sciences</b>
<b>College</b>	<b>St Catherine's</b>

### Overview of the post

The University intends to appoint a Professor of Experimental Physics with effect from October 2012 (or earlier if possible).

This is a key senior role at the sub-department of Particle Physics and the successful candidate will be expected to strengthen the department's international research profile and to provide strategic scientific leadership in experimental particle physics. He or she will be part of a lively and intellectually stimulating research community which performs to the highest international levels in research and publication and will have access to the excellent research facilities which Oxford offers.

A world-leading portfolio in particle physics activity has been developed at Oxford, recently under the leadership of Professor Brian Foster, FRS. Main research areas of expertise include the ATLAS and LHCb experiments at LHC and preparations for their upgrade; neutrino physics including MINOS, T2K and SNO+; astroparticle physics, including dark matter detection in the EDELWEISS experiment and the proposal for EURECA; development of new particle detection techniques; and accelerator physics R&D in the John Adams Institute for Accelerator Science. As particle physics is currently at an exciting stage of development with critical experiments underway and about to yield results, we are seeking to appoint a leading experimental particle physicist who would be well placed to consolidate and enhance Oxford's position as a major player in the field. The department encourages applications from candidates whose main research focus is in any area of experimental particle physics, including LHC experiments, neutrino physics, astroparticle physics and preparation of experiments at future facilities, but excluding particle accelerator physics which is covered by the Director of the John Adams Institute.

Queries about the post should be addressed to Professor Neville Harnew (Head of Sub-department of Particle Physics) at [n.harnew1@physics.ox.ac.uk](mailto:n.harnew1@physics.ox.ac.uk) or telephone: +44 (0) 186573316. All enquiries will be treated in strict confidence; they will not form part of the selection decision.

### Duties of the post

The Professor of Experimental Physics will be a member of both the University and the College community.

The new professor will be expected to provide strategic leadership, lead a research programme and contribute to the teaching and administration of the sub-department. The post-holder will be expected to be willing to serve as Head of Particle Physics (currently Professor Neville Harnew until 2014) and is one of the members of the Physics department from amongst whom the Chairman of Physics (currently Dr John Wheeler until 2015) may be chosen. He or she will also have a role to play in the running of the College as a member and trustee of its Governing Body.

The main duties of the post are as follows:

- Providing leadership in research and teaching in experimental particle physics.
- Playing a leading role in the strategy and development of the sub-department of Particle Physics.
- Teaching physics and particle physics to students taking undergraduate degrees in Physics, teaching and supervising DPhil students in particle physics, and acting as College advisor to a small number of DPhil students at St Catherine's College.
- Lecturing; this typically involves delivery of one course of lectures each year, as required by the Chairman of the Department of Physics.
- Examining both undergraduate and DPhil students as required by the Chairman of the Department of Physics.
- Administration as required by the Chairman of the Department of Physics.
- Participation as a member of the Governing Body of St Catherine's College, serving occasionally on College Standing Committees, and advising the College on selection of Graduate Scholars and Junior Research Fellow in subjects related to Physics.

## Person specification

Applications will be judged only against the criteria which are set out below. Applicants should make sure that their application shows very clearly how they believe that their skills and experience meet these criteria.

Oxford is committed to fairness, consistency and transparency in selection decisions, and unsuccessful applicants may request feedback against the published selection criteria for the specific post. (We are, however, unable to provide general advice about the suitability of applicants' cvs for future vacancies in Oxford or elsewhere.) Chairs of selection committees (known as electoral boards) will be aware of the principles of equality of opportunity and fair selection and there will be a member of each gender wherever possible.

The successful candidate will demonstrate the following:

<b>REQUIREMENTS</b>	<b>ESSENTIAL or DESIRABLE</b>	<b>ASSESSED BY:</b>
<i>Substantial international reputation in scholarship and research, and excellent publication record in international journals and conferences in the field of experimental particle physics.</i>	<i>Essential</i>	<i>application, interview</i>
<i>Strong record in obtaining research funding and in strategic plans for future funding opportunities.</i>	<i>Essential</i>	<i>application, interview</i>
<i>The ability to manage a substantial research team; to train research students and postdocs; and to guide and motivate all members of the sub-department.</i>	<i>Essential</i>	<i>application, interview</i>
<i>The ability to contribute effectively to ensuring the long-term development of physics, and to maintaining interest in particle physics in Oxford</i>	<i>Essential</i>	<i>presentation, interview</i>

<i>and its wide recognition outside, both nationally and internationally.</i>		
<i>Commitment to providing effective teaching at undergraduate and postgraduate level.</i>	<i>Essential</i>	<i>presentation, interview</i>
<i>Ability to communicate effectively (written and orally).</i>	<i>Essential</i>	<i>application, presentation, interview</i>
<i>Experience of university governance and management, and of academic administration.</i>	<i>Desirable</i>	<i>application, interview</i>

## How to apply

There is no application form. Applications must include:

- your full contact details including email and full postal addresses, and a telephone number
- a covering letter or statement explaining how you meet the criteria set out above
- a full CV and publications list
- an indication of where you first heard about this post
- the names and contact details (postal and e-mail addresses and telephone number) of precisely **three** referees.

You should contact all three of your referees before applying, to ensure they are aware of your application and of the requirements for the post, and to ensure that they would be content to write a reference for you for this post, if they were asked to do so.

The University will assume that it is free to approach your referees at any stage unless your application specifies otherwise. Therefore if you would prefer a referee or referees to be approached only with your specific permission or if you would prefer them to be approached only if you are being called for interview on the final short list, then you must state this in your application, alongside the details of the relevant referee(s). You should provide the names and full contact details of three referees even if you do not wish them to be contacted yet.

If you are shortlisted but only Oxford references are available for you, you will be asked at a later stage to provide the name of an additional referee outside Oxford.

Applications should be sent by email to Dr Gwen Booth, Personnel Officer, Senior Appointments at [professorships@admin.ox.ac.uk](mailto:professorships@admin.ox.ac.uk).

The deadline for applications is **Monday 26 September 2011**.

Should you have any queries about how to apply, please contact Mrs Elaine Eastgate at [professorships@admin.ox.ac.uk](mailto:professorships@admin.ox.ac.uk) or telephone: +44 (0) 1865 280189.

The full membership of the board of electors will be published in the University Gazette (<http://www.ox.ac.uk/gazette/>) when it is finalised. All applications will be acknowledged after receipt and will be considered by the board of electors as soon as possible after the closing date. The board is free to search for other candidates at this or any subsequent stage in its proceedings. All shortlisted candidates will be interviewed and will be asked to give a short presentation to the electors as part of the interview. The board's decision will be communicated as soon as possible after the interview but in some cases there may be a delay while deliberations are ongoing.

# Essential Information for Applicants for the Professorship of Experimental Physics

## The University

The University of Oxford aims to sustain excellence in every area of its teaching and research, and to maintain and develop its position as a leader amongst world-class universities. Placing an equally high value on research and on teaching, the colleges, departments and faculties of Oxford aspire both to lead the international research agenda and to offer a unique and exceptional education to our undergraduate and graduate students.

Oxford's self-governing community of scholars includes university professors, readers, and lecturers, college tutors, senior and junior research fellows and over 2,500 other university research staff. The University aims to provide facilities and support for colleagues to pursue innovative research and outstanding teaching, by responding to developments in the intellectual environment and society at large, and by forging close links with the wider academic world, the professions, industry and commerce. The Strategic Plan, detailing strategy for the period 2008-12, can be found at <http://www.admin.ox.ac.uk/prs/planningcycle/stratplan.shtml>.

Research at Oxford combines disciplinary depth with an increasing focus on inter-disciplinary and multi-disciplinary activities addressing a rich and diverse range of issues, from deciphering ancient texts and inscriptions using modern scientific and computational methods developed in Oxford, through to global health, climate change, ageing, energy and the effects on our world of rapid technological change.

Oxford seeks to admit undergraduate students with the intellectual potential to benefit fully from the college tutorial system and small group learning to which Oxford is deeply committed. Meeting in small groups with their tutor, undergraduates are exposed to rigorous scholarly challenge and learn to develop their critical thinking, their ability to articulate their views with clarity, and their personal and intellectual confidence. They receive a high level of personal attention from leading academics.

Oxford has a strong postgraduate student body which now numbers about 7,000, well over a third of the full-time students. Postgraduates are attracted to Oxford by the international standing of the faculty, by the rigorous intellectual training on offer, by the excellent research and laboratory facilities available, and by the resources of the museums and libraries, including one of the world's greatest libraries, the Bodleian.

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

## The Mathematical, Physical, and Life Sciences Division

The Mathematical, Physical, and Life Sciences Division (MPLS) is one of the four academic divisions of the University. Oxford is widely recognised as one of the world's leading science universities. In the 2008 UK Research Assessment Exercise over 70% of research activity in MPLS was judged to be world-leading (4\*) or internationally excellent (3\*), and Oxford was ranked first in the UK across the mathematical sciences as a whole.

The MPLS division's ten departments and three 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. We have over 6,000 students and research staff, and generate over half of our funding from external research grants. Our research addresses major societal and technological challenges and is increasingly interdisciplinary in nature. We collaborate closely with colleagues in Oxford across the medical sciences, social sciences and humanities, as well as with researchers from around the world.

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

## Particle Physics and the Department of Physics

The Department of Physics is one of the largest in the UK, with more than 300 graduate students and 700 undergraduates and a permanent academic staff of around 100. It comprises the sub-departments of Astrophysics, Atmospheric, Oceanic, and Planetary Physics, Atomic and Laser Physics, Condensed Matter Physics, Particle Physics, and Theoretical Physics.

The professorship is one of two attached to the sub-department of Particle Physics. In Particle Physics there are currently 28 academic staff, 30 postdoctoral researchers, 70 doctoral students and approximately 30 support staff. The sub-department is housed in the Denys Wilkinson Building with excellent electronics and mechanical workshops engineers play a crucial role in supporting our research. Our programme covers experiments at accelerators as well as in particle astrophysics. We are currently involved in the ATLAS and LHCb experiments at the LHC, the T2K experiment to measure neutrino oscillations, the MICE demonstration of muon cooling, while continuing participation in CDF and MINOS and analysis of HERA data in ZEUS. Particle astrophysics activities include completion of the SNO solar neutrino experiment and preparations for SNO+, as well as participation in the cryoEDM experiment to measure the neutron electric dipole moment, the EDELWEISS dark matter search and preparations for EURECA. Oxford staff are playing leading roles in the preparation and design of future experimental facilities, particularly linear high-energy electron-positron colliders. The subdepartment houses the John Adams Institute for Accelerator Science, a joint venture with Royal Holloway University of London and shortly to be joined by Imperial College of Science, Technology and Medicine, This forms a focus within the subdepartment not only for accelerator R&D but also for a wide variety of applied research and interaction with industry. The subdepartment is particularly proud of its wide and highly successful programme of public outreach.

There are strong links between members of Particle Physics and other research groups in the department: the Particle Theory group is located within the Rudolf Peierls Centre for Theoretical Physics, there is a shared interest in dark matter searches with members of Astrophysics, and members of Atomic and Laser Physics work on laser plasma accelerators with the John Adams Institute.

Further information about the department's research activities can be found on its web pages (<http://www2.physics.ox.ac.uk>) and more general details from <http://www.physics.ox.ac.uk/pp/> and <http://www.adams-institute.ac.uk/>

## The Oxford Collegiate system

The University has a strong collegiate nature consisting of academic departments and 38 self-governing and independent colleges which cut across academic disciplines, giving both academic staff and students the benefits of belonging to a small, interdisciplinary community as well as to a large, internationally-renowned institution.

In Physics, teaching is shared between the department and the colleges: the department is responsible for lectures, classes, laboratories, examinations and post-graduate research supervision, while most tutorial teaching (in small groups), the undergraduate selection process and pastoral care are college-based.

## St Catherine's College

The Professorship of Experimental Physics will be held initially in association with a non-stipendiary Fellowship by Special Election at St Catherine's College, which confers full Senior Common Room membership and Common Table Rights (i.e. breakfast, lunch and dinner are provided free of charge on weekdays when the College is open; it is closed for 5 weeks each year). Upon Professor Susan Cooper's retirement in 2015, the successful candidate will be elected to a non-stipendiary Professorial Fellowship and will become a member of the College's Governing Body. It is hoped that the person appointed will then be willing to play a part in the administration of

the College; attending Governing Body meetings and acting as a member of College committees when called upon to do so.

St Catherine's College is one of the largest colleges in Oxford, with around 60 Fellows, 70 lecturers, 275 graduate students, 455 undergraduates, and up to 50 visiting students. Its founding Master, Alan Bullock (Lord Bullock), established the College in the 1960s. Its striking modern architecture and new ideas reflected a move towards the open, contemporary culture that is still fundamental to St Catherine's approach today. St Catherine's admitted its first students in 1962, when it was founded as a College of the University of Oxford. Previously, the College existed as a non-residential society within the University. Undergraduates are admitted to read all subjects except Ancient History, Archaeology and Anthropology, Classics, Earth Sciences, and Theology, and the overall composition of membership is divided equally between arts and sciences.

The College's grade 1 listed buildings, their fittings and furniture, were designed by the Danish architect Arne Jacobsen and attract visitors from around the world. They are located in a peaceful setting adjacent to the University Parks. The College offers an attractive and energetic academic environment having a good mix of Science and Arts Fellows. In addition to the normal college facilities, St Catherine's has three lecture theatres, seminar rooms, a specially-designed music house, and spacious common rooms.

Physics has been a subject of major importance at St Catherine's, from both a teaching and a research perspective, from the time of the foundation of the College. In addition to the Professorship of Experimental Physics, two University Lectureships in Physics are associated with the College. These are currently held by Dr Richard Berry, a Biological Physicist specialising in the biophysics of rotary molecular motors, and Dr Andrew Bunker, an astrophysicist specialising in the formation and evolution of galaxies and observations of the high-redshift universe. The College usually admits eight undergraduates each year to read Physics, and currently there are 30 undergraduates and 10 graduate students. The College will not expect the Professor of Experimental Physics to take any responsibility for the organisation, supervision and teaching of Physics, but it is hoped that the presence of the Professor will encourage graduate and undergraduate interest in Experimental Physics within the College. The Professor might be asked to act as a College Advisor for some graduate students. College Advisors normally make contact with the graduate students under their care at least once a term, and entertain them at lunch or dinner in the College once a term at the expense of the College.

More details can be found at <http://www.stcatz.ox.ac.uk/>

# Standard Terms and Conditions

## *Standard duties*

(i) to lecture, or hold classes, in at least two of the three university terms and to give at least thirty-six lectures or classes in all and not less than twelve in each of two terms; and

(ii) to undertake research and original work and the general supervision of research and advanced work in your subject and department, and to assist students in their studies by advice or informal instruction.

It is expected that professors will generally participate in the business and affairs of the relevant faculty or department.

## *Salary, benefits and pension*

The salary of the person appointed will be determined by the Vice-Chancellor, after appropriate consultation. In addition the professor will be eligible for consideration, in regular reviews, for one of a number of additional salary awards which may be made in recognition of outstanding academic distinction and/or contribution to the academic work of the University (e.g. in leadership in, or in the development of, some field of study).

The salaries of professors at Oxford are generally above the average of those in other leading UK universities.

An additional pensionable allowance will be payable in respect of any period during which the professor is Head of Department/Faculty Board Chairman. (Any allowance payable for a period of less than three years will not, however, be pensionable.)

Eligible staff may join the Universities Superannuation Scheme. Details are available on the website at <http://www.admin.ox.ac.uk/finance/pensions/uss/>.

## *Length of appointment*

The professorship is tenable until retirement. At present the University's normal retirement date for academic and related staff is 30 September preceding the 66th birthday, except if the successful candidate can establish vested rights, as defined in the University's statutes (details available on request), to retirement at 67 or later, the date of retirement will not normally be later than the 30 September immediately preceding the 68th birthday.

The University is currently considering the introduction of an Employer Justified Retirement Age of 67. If adopted, this would mean that, with effect from 1 October 2011, the normal retirement date for all academic and academic-related staff would be 30 September immediately preceding the 68th birthday. There would be a procedure for considering requests from individuals to continue in employment beyond that age.

## *Sabbatical leave and outside commitments*

All professors may apply for sabbatical leave to allow them to focus on their research. In general, one term of leave is available for each six terms worked. This leave may either be taken as one term of leave after 6 terms of service, or accumulated and taken as one year of leave after 6 years of service.

Professors may also spend up to 30 working days in each year on projects outside their employment duties, such as consultancy, spin-out activity and membership of research councils and other bodies. There is no limit to the amount of money which staff may earn from these activities. Full details are available on the university website at <http://www.admin.ox.ac.uk/ps/staff/codes/outsidecov.shtml>. Guidance on ownership of intellectual property (<http://www.admin.ox.ac.uk/statutes/regulations/182-052.shtml>) and managing conflicts of interest (<http://www.admin.ox.ac.uk/researchsupport/integrity/conflict/policy/>) is also available on the university website.

### *Residence*

Professors are required to reside within the University (i.e. within twenty-five miles of Carfax, the central point of Oxford) during at least six months in each academic year, between 1 October and 1 August, and in particular during not less than six weeks of each term.

### *Relocation expenses*

The University has a generous relocation expenses scheme for eligible staff, which covers removal and travelling expenses connected with relocation, as well as up to £6,500 to cover professional fees in appropriate cases. Further details are available on the website at <http://www.admin.ox.ac.uk/finance/expenses/relocationscheme/>.

### *Family support*

The University has generous maternity and adoption leave arrangements, and also offers support leave to fathers and partners. Additional paternity leave of up to 26 weeks (for children born or placed for adoption after 3 April 2011) is available where parents decide to share the 52 week maternity leave entitlement. Details are available on the website at <http://www.admin.ox.ac.uk/ps/staff/family/>.

All staff are eligible to apply to use the University nurseries (although there is a long waiting list for nursery places), and the full range of tax and National Insurance savings scheme is in operation. Details are available on the University's childcare website at <http://www.admin.ox.ac.uk/eop/childcare/>.

The University will try to accommodate flexible working patterns as far as possible and there is considerable flexibility in the organisation of duties. More information on family support and flexible working policies is available on the website at <http://www.admin.ox.ac.uk/ps/staff/family/>.

### *Facilities and services*

The University has a range of facilities and benefits for its staff; more details are available on the website at <http://www.admin.ox.ac.uk/ps/staff/benefits/>.

The University Disability Office provides support to staff and students with a disability and may be contacted through its website at <http://www.admin.ox.ac.uk/eop/disab/>.

### *Equality of opportunity*

The policy and practice of the University of Oxford require that all staff are offered equal opportunities within employment. 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. Subject to statutory provisions, no applicant or member of staff will be treated less favourably than another because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.

### *Medical questionnaire and the right to work in the UK*

The appointment will be subject to the satisfactory completion of a medical questionnaire and the provision of proof of the right to work in the UK.

Applicants who would need a work visa if appointed to the post are asked to note that they may need to enter the UK under the Tier 1 (Exceptional talent) category of the UK's points-based system. Further information is available at:

<http://www.ind.homeoffice.gov.uk/workingintheuk/tier1/exceptional-talent/>.

### *Special arrangements*

Oxford welcomes applications from candidates who have a disability. These documents will be made available in large print, audio or other formats on request. Applicants invited for interview will be asked whether they require any particular arrangements to make the interview more convenient and effective for them.

### *Data Protection*

All data supplied by candidates will be used only for the purposes of determining their suitability for the post and will be held in accordance with the principles of the Data Protection Act 1998 and the University's Data Protection Policy (available on the website at <http://www.admin.ox.ac.uk/councilsec/dp/policy.shtml>).