

Job Description and Selection Criteria

Job title	Postdoctoral Researcher in Device Physics of Organic Solar Cells
Division	Mathematical Physical and Life Sciences
Department	Physics
Location	Clarendon Laboratory
Grade and salary	Grade 7: £31,604 - £38,833 per annum
Hours	Full time (37.5 hours per week)
Contract type	Fixed-term until 31 st March 2021
Reporting to	Dr Moritz Riede, Associate Professor
Vacancy reference	135543
Additional information	Closing date – midday (UK time) on Monday 23 rd July 2018

Research topic	Device Physics of Organic Solar Cells
Principal Investigator / supervisor	Associate Professor Moritz Riede
Project team	The Advanced Functional Materials and Devices Group
Project web site	https://www2.physics.ox.ac.uk/research/afmd-group
Funding partner	The funds supporting this research project are provided by RCUK through a project funded through Global Challenges Research Fund (GCRF)
Recent publications	https://www2.physics.ox.ac.uk/research/afmd-group/publications



The role

The postdoctoral research assistant will be part of a GCRF project called START (Synchrotron Techniques for African Research and Technology). This project will build a partnership between world leading scientists in Africa and the UK who specialise in two strands of science; developing and characterising novel energy materials (catalysts and photovoltaics) and structural biology (understanding disease and developing drug targets). It brings together a UK team of 7 PIs from 5 institutions with 15 African based PIs from 11 independent organisations. Among others, this will constitute a unique networking opportunity for the successful candidate.

The focus of this role at Oxford will be on the optoelectronic and photophysical characterisation of organic solar cells, in particular the characteristics of full device stacks, their performance and loss mechanisms. The work will be carried out in close collaboration with our partners (material synthesis, synchrotron techniques) and involve fabrication of organic thin film devices based on small molecules and using vacuum deposition methods here in Oxford. The photophysical characterisation will be carried out primarily in Oxford and evaluated in close collaboration with a PostDoc at the Diamond Light Source (synchrotron near Oxford) whose focus will be on the microstructural characterisation of these material systems. Together we will seek to develop structure-property relationships between organic small molecules and their performance in solar cells, and use these to improve these devices further. Furthermore, we will be collaborating with colleagues from Africa and the UK on the development of novel materials and address device challenges informed by the needs of the African continent.

Our START work will be embedded in a dynamic programme of scientific research, industry engagement outreach and training, ensuring that the advantages of working together in this UK-Africa partnership can be exploited and in particular the UN sustainable development goals [SDG3, 7, and 13](#) can be addressed.

Responsibilities

- Undertake the research activities described in the project description of work and as requested by supervisor
- Adapt existing and develop new scientific techniques and experimental protocols, keeping an Open Science approach in mind
- Test hypotheses and analyse scientific data from a variety of sources, reviewing and refining working hypotheses as appropriate
- Contribute ideas for new research projects
- Undertake comprehensive and systematic literature reviews and write up the results for publication in peer-reviewed journals
- Collaborate in the preparation of scientific reports and journal articles and present papers and posters
- Use specialist scientific equipment in a laboratory environment
- Act as a source of information and advice to other members of the group on scientific protocols and experimental techniques
- Represent the research group at external meetings/seminars, either with other members of the group or alone
- Communicate and coordinate the experiments with the project partners, including visiting collaborators in Africa, to ensure that the components required for moving solar energy on the African continent ahead

- The post-holder will have the opportunity to teach in line with the GCRF rules within the department or one of the Oxford Colleges. 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)
- Lone Working
- Work in hot or cold environments
- Driving on University business
- Working with Ionising Radiation
- Regular manual handling
- Working with category 3b or 4 lasers (laser safety class)
- Work with any substance which has any of the following pictograms on their MSDS:



Travel outside of Europe or North America on University Business

Selection criteria

Essential

Below is a list of essential and desirable selection criteria. Please clearly state in your supporting statement, how your experience, skills and interests match each of the following criteria strictly following the same bullet point style (see also section “How to Apply” below):

Essential

- Hold a PhD/DPhil or be near completion in Physics, Material Science, Engineering or Chemistry
- A strong track record in fabricating and characterising semiconductor devices and working in an experimental lab;
- Extensive experience with organic semiconductors or other advanced functional materials like hybrid perovskites;
- A solid know how and experience in the photophysical and optoelectronic characterisation of full devices made from organic semiconductors or other advanced functional materials like hybrid perovskites;
- Experience with setting up experiments for the optoelectronic characterisation of semiconductor devices;
- Demonstrable and good interpersonal and communications skills and the ability to work well as part of a team;
- High level of intrinsic motivation to work in research;
- The ability to direct own research and interpret results independently.

Desirable

- Solid organic solar cell device physics and characterisation know how;
- Good programming skills, in particular experience writing Python code for measurement setups;
- Extensive experience with vacuum deposition equipment for organic electronics;
- Keen interest in renewable energies and outreach activities.

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

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/>

Condensed Matter Physics Sub-department

The post-holder will be based in the Condensed Matter 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.

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.

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/>

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/.

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. Please provide details of two referees and indicate whether we can contact them now.

You will also 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).

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
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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. Further help and support is available from 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.

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/.

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/. The University's Policy on Data Protection is available at:

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 69th 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/revisedejra/revaim/.

For **existing** employees, any employment beyond the retirement age is subject to approval through the procedures: www.admin.ox.ac.uk/personnel/end/retirement/revisedejra/revproc/

From 1 October 2017, 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

University Club and sports facilities

The University Club provides social, sporting and hospitality facilities. It incorporates a bar, café and sporting facilities, including a gym. 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 www.sport.ox.ac.uk/oxford-university-sports-facilities.

Information for international staff (or those relocating from another part of the UK)

If you are relocating to Oxfordshire from overseas, or elsewhere in the UK, the University's International Staff website includes practical information related to moving to and settling in Oxford such as advice on immigration, relocation, accommodation, or registering with a doctor. See: www.internationalstaffwelcome.admin.ox.ac.uk/

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 to settle into Oxford and to provide them with an opportunity to meet people in the area. See www.newcomers.ox.ac.uk/

Childcare

The University has excellent childcare services with 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.

Family-friendly benefits

The University subscribes to My Family Care (www.admin.ox.ac.uk/personnel/staffinfo/benefits/family/mfc/) and staff are eligible to register for emergency back-up childcare and adultcare services, a 'speak to an expert' phone line and a wide range of guides and webinars through a website called the Work + Family space.

Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. Please visit www.admin.ox.ac.uk/eop/disab/staff for further details including information about how to make contact, in confidence, with the University's Staff Disability Advisor.

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/

Other benefits

Staff can enjoy a range of other benefits such as free visitor access to the University's colleges and the Botanic Gardens as well as a range of discounts. See www.admin.ox.ac.uk/personnel/staffinfo/benefits