

Postdoctoral Research Associate in Magnetic Materials Discovery

Department	Pure and Applied Chemistry (www.strath.ac.uk/chemistry/)		
Faculty	Faculty of Science (www.strath.ac.uk/science/)		
Staff Category	Academic	Reference No	91096
Reports To	Dr Edmund Cussen	Grade:	7
Salary Range:	£31,604 - £35,550	Contract Type:	Fixed Term (3 years). This post will be available from 1 January 2018.
FTE:	1 (35 hours/week)	Closing Date	Thursday, 2 November 2017

Job Advert

Postdoctoral Research Associate in Magnetic Materials Discovery (Grade 7 / Research staff category)

This 36 month post is part of a Leverhulme Trust funded project in Solid State Chemistry, working under the supervision of Dr Eddie Cussen to understand the properties of new magnetic systems. We prepare materials containing magnetic species on a frustrated antiferromagnetic lattice. This leads to unusual magnetic behaviour at low temperature, either through the emergence of curious quantum magnetic states or unusual magnetic ordering.

Our approach involves using a range of advanced characterisation techniques to examine the magnetic properties and crystal chemistry of these new materials. The materials are typically air-stable perovskite oxides and these will be prepared in the laboratories at University of Strathclyde. Assessment of sample purity is done using x-ray powder diffraction, electron microscopy and thermal analysis. We use a combination of magnetisation, neutron diffraction, muon spin relaxation, and heat capacity measurements to study these magnetic systems. The successful applicant will bring expertise in these areas to bear on these problems and be able to help direct this research effort.

The successful applicant will have, or be close to being awarded, a PhD in a relevant area of Chemistry, Materials Science, Physics or related discipline. The group has strong skills in sample preparation and structural analysis and the successful applicant can be given any necessary training in these aspects of the project. A strong application will show skills in advanced magnetic measurements that will lend themselves to this project, and a knowledge of muon spin relaxation would be particularly advantageous.

Job Description

Brief Outline of Job:

This position is available in Dr Eddie Cussen's group to join a team making new magnetic materials in the laboratory and measuring their properties. The measurements require a specific set of skills. It is very unlikely that a candidate will have experience of all of these, but will need to bring experience of some of these to the job. Measurements of magnetic behaviour is central to the project and the candidate must have experience of this. The job will also involve analysis of crystal structure and geometry of the magnetic lattice and a good understanding of the concept of frustration.

The Cussen group has extensive experience and expertise in materials synthesis and crystallographic characterisation and is particularly strong in the application of neutron diffraction to study magnetic materials. This position will include all of these tasks, but existing group members can give training in these as required. The PDRA will bring expertise in additional techniques

to the group, and be able to oversee the execution and analysis of additional measurements that are relevant to the project (e.g. muon spin relaxation, EXAFS, inelastic neutron scattering).

Many of the measurements will take place over several days at facilities that are outside of Strathclyde (e.g. Didcot, Oxfordshire or Grenoble) and the successful applicant must be able to organise and lead the experimental teams for these trips. They will also take on some of the responsibility for the day-to-day running of the Cussen group and the direction of this project.

Main Activities/Responsibilities:

1.	Conduct individual and/or collaborative research, including determining appropriate research methods and contributing to the development of new research methods.
2.	Join external networks to share information and ideas, inform the development of research objectives and to identify potential sources of funding.
3.	Collaborate with colleagues on the development of knowledge exchange activities by, for example, participating in initiatives which establish research links with industry and influence public policy and the professions.
4.	To prepare polycrystalline perovskite based oxide materials using solid state methods.
5.	Collect and analyse x-ray and neutron powder diffraction data to characterise these samples.
6.	Use muon spin relaxation data, in conjunction with magnetic susceptibility measurements, to examine magnetic behaviour and timescales at low temperature
7.	Write up research work for publication, individually or in collaboration with colleagues, and disseminate results as appropriate to the discipline by, for example, peer reviewed journal publications and presentation at conferences, both in the UK and overseas.
8.	To plan and conduct experiments in central facilities including muon spin relaxation and neutron scattering measurements at the ISIS Facility in Didcot.
9.	To carry out x-ray absorption measurements and analysis of EXAFS data collected at the Diamond synchrotron.
10.	To assist in the running of the laboratory, the supervision of project students, and the running of instrumentation in the group.
11.	To write applications for beamtime at central facilities such as Diamond, ISIS and ILL Grenoble.
12.	As part of the wider research group, develop research objectives and proposals for own or joint research and play a lead role in relation to a specific project/s or part of a broader project, with guidance from senior colleagues as required.
13.	Contribute in a developing capacity to Department/School, Faculty and/or University administrative and management functions and committees.
14.	Supervise student projects, provide advice to students and contribute to teaching as required by, for example, running tutorials and supervising practical work.

Person Specification

Educational and/or Professional Qualifications

(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1 Good honours degree and PhD (or equivalent professional experience) in a relevant area of Chemistry, Physics or Materials Science.

Experience

E2 Sufficient breadth or depth of knowledge in the relevant discipline/s to contribute to research programmes and to the development of research activities.

E3 Experience of magnetisation measurements and interpretation of data and use of muon spin relaxation.

E4 Experience of the preparation of solid state materials.

D1 Practical expertise in the collection and analysis of muon spin relaxation data.

D2 Experience of preparation of complex metal oxides such as perovskites.

D3 Experience of using neutron diffraction to examine magnetic materials.

D4 Experience of thermal analysis and heat capacity measurements.

D5	Experience of student supervision
D6	Experience of using neutron diffraction to examine magnetic materials.
Job Related Skills and Achievements	
E5	Ability to carry out, and provide leadership for, beamtime experiments at central facilities.
E6	Basic knowledge of crystallographic structure description and analysis.
E7	Developing ability to conduct individual research work, to disseminate results and to prepare research proposals.
Personal Attributes	
E8	Ability to work within a team environment.
E9	Ability to support the running of the laboratory; assisting in the supervision of project students, and the running of instrumentation in the group.
D7	Excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted before interview without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

Other Information

Further information on the application process and working at Strathclyde can be found on our website (<http://www.strath.ac.uk/hr/workforus>).

Informal enquiries about the post can be directed to Dr Eddie Cussen, Senior Lecturer in Physical Chemistry (Edmund.Cussen@strath.ac.uk).

Probation

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from [Payroll and Pensions](#).

Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

Interviews

It is anticipated that formal interviews for this post will be held in mid-November 2017.

Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.



Conditions of Employment

Research Staff

1. GENERAL CONDITIONS

Members of staff are subject to the Charter and Statutes and the Ordinances and Regulations of the University, published in the Calendar, and to any amendments or additions thereto approved by the University Court and, in the case of the Charter and Statutes, the Privy Council. Staff are also expected to familiarise themselves with, and adhere to, general University policies and procedures, as published on University web pages.

The University Court recognises Strathclyde Universities and College Union (SUCU) as the sole body with which it will negotiate and consult on all collective issues concerned with the terms and conditions of employment of Research Staff. Such terms and conditions may be varied by the University Court after negotiation and consultation with SUCU.

Each member of staff is responsible for the proper performance of allocated duties to the person or persons specified in the member of staff's letter of appointment and any accompanying papers.

The University is committed to ensuring that its business is conducted in an open and transparent manner and will take all appropriate steps to address risks of bribery or corruption. Members of staff are required at all times to act honestly and with integrity and to safeguard the resources for which they are responsible. The University has in place a robust Public Interest Disclosure (Whistleblowing) Policy to enable concerns to be brought to its attention. This is available at www.strath.ac.uk/publicinterestdisclosure. Other relevant policies, e.g. Fraud Prevention and Conflicts of Interests, can also be found on the University's website.

Any member of staff may at any time be exposed to commercially sensitive information, information related to potentially valuable intellectual property or information which may otherwise be of a confidential nature. This information, which could be found anywhere in the University, may be written or disclosed orally, can include information of a commercial or technical nature, and may be owned by the University or by third parties. The University requires all employees to keep any such information confidential in the first instance and not disclose, publish or otherwise disseminate it without prior consent of the University. Such confidentiality obligations are commonplace and in the commercial interests of the University. When in doubt advice should always be sought from Research and Knowledge Exchange Services prior to disclosure.

The University operates probationary periods for new staff, the duration of which will be specified in individual letters of appointment. The normal probation period for posts in this staff category is 9 months for those at grades 6 and 7, and 12 months for grades 8 and above. Further guidance on probationary procedures is published at <http://www.strath.ac.uk/staff/policies/hr/>.

Further guidance on probationary procedures is published at www.strath.ac.uk/hr.

Further information on the terms and conditions specified in this document and other staffing policies and procedures can also be found at www.strath.ac.uk/hr.

2. SALARY

Appointments are made at an appropriate salary point on the University's grading structure, with initial placing determined according to qualifications and experience. Increments are paid to staff on the 12 month anniversary of their appointment. Where this is not the first of the month, the increment will be paid on the first of the month directly

after the 12 month anniversary. This allows 1 progression to the next point on the salary scale until the top guaranteed point of the scale is reached.

Salaries are paid directly to staff members nominated bank account, normally on the second last working day of the month.

3. HOURS OF WORK

Working time is that required to fulfil the duties of the post. The University Court recognises that research staff carry out these duties in a variety of ways appropriate to the nature of the research activity, but expects regular contact to take place between the research staff employee and the supervisor/granholder (where these positions are occupied by different individuals) during normal working hours on week days. There are exceptions to this pattern which may involve contact at other locations or in the evenings, or at weekends, but these arrangement will be made with the agreement of the member of staff concerned.

Duties may, by arrangement with Head of Department/School/Director, include some teaching associated with the post (up to a maximum of 40 hours per semester) for which no additional payment will be made.

Additional work which does not fall within the scope of that described above may by arrangement attract payment which must be authorised and processed through the payroll.

4. HOLIDAYS

Annual leave entitlement is 31 days per year to be taken by agreement with the line manager. For staff members working on a part-time basis, holidays will be calculated on a pro-rata basis.

In addition to annual leave there is an entitlement to eleven public holidays per year which should be taken on days that the University is closed for this purpose. The University presently closes for four additional days over the Christmas and New Year period. **These additional days count against the annual leave entitlement.**

For staff members working on a part-time basis, public holiday entitlement will be calculated on a pro-rata basis.

Annual leave and public holiday entitlements should be taken in the leave year to which they relate. Up to five days leave can be carried forward into the new leave year subject to line management agreement. In exceptional circumstances, Heads of Department/School/Director may approve carry forward of accrued annual leave in excess of five days.

The University's expectation is that staff take all accrued holidays prior to their termination date. If staff have exceeded their entitlement the University will deduct an equivalent number of days pay from final salary payments.

5. SICKNESS ABSENCE

During any period of absence through illness or injury provided the appropriate notification and certification procedures have been followed the University will pay a member of staff (having taken account of the aggregate of all periods of absence due to illness during the twelve months immediately preceding the first day of the current absence) as follows:

Period of Continuous Employment at start of absence from work	Full Pay	Half Pay
Less than 1 year	1 month	1 month
1 year but less than 2 years	2 months	2 months
2 years but less than 3 years	4 months	4 months
3 years but less than 5 years	5 months	5 months
5 years or more	6 months	6 months

In order to manage the University's sick pay scheme the University requires to maintain sickness absence records on individual members of staff. When making payments after the expiry of statutory sick pay the University will deduct an amount equivalent to any benefit normally payable by the Department of Work and Pensions. For full details on the general University policy in this area please refer to the Sickness Absence Management Policy at www.strath.ac.uk/staff/policies/hr.

6. PENSIONS

New members of staff, aged under 75, will be admitted automatically to membership of the Universities Superannuation Scheme (USS) on taking up appointment. If you are already in receipt of a USS pension you will join USS in accordance with pension auto-enrolment regulations. USS requires a contribution from the member, currently 8 per cent of pensionable salary. A contribution, currently 18 per cent of pensionable salary, is paid by the University. From 1 April 2016 all members are part of the career revalued benefits scheme called the USS Retirement Income Builder. From 1 October 2016 a threshold, initially of £55,000 a year, will apply to the maximum salary that counts towards the USS Retirement Income Builder. From the same date a new defined contribution section of the scheme called USS Investment Builder will open and any contributions above the threshold will be invested in this section. The exception to automatic membership of the pension scheme applies if your post is located out with the UK in an EU member state. If this is the case membership of USS is not available to you.

New members of staff may opt out of USS within three months of taking up appointment and will then be treated as if they had never been a member of the scheme. After three months members of staff who wish to withdraw from USS during their employment will be required to give a minimum of 28 days' notice in writing to the University. Any member of staff who wishes to opt out should contact the Pensions Section, Finance, in the first instance (pensions@strath.ac.uk). Please note that if you are a member of Pensions Plus and withdraw from USS with less than two years of membership, or cease employment with the University and have less than two years of USS membership, the option of a refund of pension contributions will not be available to you. Instead, USS must provide you with a pension benefit that is payable from your retirement date.

The University reserves the right to alter or withdraw Pensions Plus as it sees fit or as required to comply with legislative changes. Withdrawal or amendment of Pensions Plus will not affect your membership of USS. If you do not wish to participate in Pensions Plus but wish to remain in the pension scheme please contact the Pensions Team who will provide you with a non-participation form.

Information regarding pension scheme membership can be found on the Pensions pages of the University's website. Full information regarding USS can be found on the USS website – www.uss.co.uk

7. PLACE OF WORK AND RESIDENCE

Members of staff will be based on the John Anderson Campus, unless otherwise stated in the letter of appointment. The Department/School in which the post is initially placed will be specified in the letter of

appointment although there will be an expectation to work at such other places as required in the course of employment.

If the need arises for members of staff to work outside the UK for a period (or periods) of more than one month then such arrangements will be subject to mutual agreement. Members of staff would then be provided with a statement in advance setting out the terms covering such periods of employment.

The University does not normally place specific restrictions upon the place of residence of members of staff. All staff are, however, expected to reside in a location which is compatible with the satisfactory fulfilment of all the duties associated with their appointment.

8. CONSULTANCY/FURTHER ACTIVITIES

To support the strategic objectives of the University and to facilitate individual professional development, the University encourages staff to engage in professional activities with outside bodies related to their field of work. In many cases, such activity will be approved on the basis that it represents University knowledge exchange activity and should therefore be treated as part of the individual's overall workload and managed through the University's systems. It is also recognised that there will be some cases where an activity is entirely separate from the University and should thus be notified/approved as a personal business activity. For further information please refer to the "University Procedure in relation to Work for Outside Bodies including Consultancies", which forms part of the employment contract and can be accessed at www.strath.ac.uk/hr

9. DISCIPLINARY AND GRIEVANCE PROCEDURES

Further information on the University's disciplinary and grievance procedure can also be found at www.strath.ac.uk/policies/hr or on request from Human Resources.

10. NOTICE AND TERMINATION

Members of staff are employed on the conditions indicated in individual letters of appointment and any accompanying papers. The University is not obliged to give notice of termination or continue any employment beyond the end of that period. Where the period of the contract of employment is for one year or less it may be terminated short of the fixed term period by one months notice on either side. Where the period of the contract of employment is for more than one year, or where there have been a further contract or series of contracts immediately consecutive, the employment may be terminated short of the fixed term period by three months' notice on either side, except during the probationary period when the notice period is one month.

If the appointment is for a fixed term it will expire at the end of the period without the necessity for notice.

Revised April 2016