

Research Associate

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| Department | The Department of Physics and Strathclyde Institute of Pharmacy and Biomedical Sciences | | |
| Faculty | Faculty of Science (www.strath.ac.uk/science/) | | |
| Staff Category | Research | Reference No | 79257 |
| Reports To | Professor Gail McConnell and Dr Trevor Bushell | Grade: | 7 |
| Salary Range: | £31,076 - £32,004 restricted due to funding | Contract Type: | Fixed Term (Until 31/12/2018) |
| FTE: | 1 | Closing Date | Friday, 11 August 2017 |

Job Advert

We are seeking a highly qualified and ambitious candidate for a position as Research Associate joint between the Department of Physics and the Strathclyde Institute for Pharmacy and Biomedical Sciences at the University of Strathclyde. The project is funded by the BBSRC and involves the development and application of a new super-resolution imaging method based on a standing wave.

We have recently reported a standing wave method of fluorescence imaging to map the surface of the cell membrane with super-resolution in depth, using a method that is almost cost-free to implement in a biomedical sciences laboratory with standard resource and infrastructure (<https://www.nature.com/articles/srep07359>). In our standing-wave work, we reported live cell imaging with an axial resolution of around 90 nm. This is comparable to other super-resolution techniques, but because we generate multi-planar images, we can readily obtain 3D information on the specimen at this resolution.

The essence of this position is to add to this standing-wave work a new method which we call 'TartanSW' (because of the similarity of the coloured fringe patterns to textile patterns). A contour map without heights marked on the lines is of little value, but we have discovered that by using multiple wavelength narrowband detection we can recognize the order of the standing wave antinodes by their colours and so tell the difference between hills and valleys.

The appointed Research Associate will first develop a simple imaging microscope system, capable of recording multiple wavelengths simultaneously at speeds of up to 100 images per second, to provide super-resolved 3D information on cell structure and then extend the TartanSW imaging to individual red cells prepared with a fluorescent label that stains the cell membrane. Based on our preliminary work we expect to be able to detect very tiny but high-speed changes in the structure of the red cell membrane. We will also apply the method to study the highly dynamic skeletal structure of neurones and follow the growth of the cell edge over time.

We will also perform TartanSW imaging with the Mesolens, a new giant objective lens that is capable of imaging large tissue specimens with sub-cellular resolution and which is at present unique to Strathclyde. Following our first peer-reviewed journal publication in eLife (<https://elifesciences.org/content/5/e18659>), the development of the Mesolens was recognised by the Institute of Physics as one of the Top Ten Breakthroughs in Physics in 2016. By applying TartanSW with the Mesolens, it will be possible to image hundreds of cells at even higher 3D resolution than the Mesolens can manage at present. We will apply TartanSW mesoscopy to study the same red cell and neurone specimens described previously, and in imaging hundreds of cells with high resolution simultaneously we expect it will be easier to detect rare events or abnormal cells that may indicate onset of disease.

We are looking for an excellent and highly motivated candidate with a good honours degree and PhD (or equivalent professional experience) in appropriate discipline (e.g. cell biology, biophysics, neuroscience, cardiovascular science). We expect dedication and enthusiasm for research combined with good oral and written communication skills, openness and curiosity, and the ability and willingness to work in a multidisciplinary research team. The successful candidate will also have knowledge of appropriate research methods; have an ability to plan and prioritise their own workload under general supervision, and an ability to work within a team environment.

Job Description

Brief Outline of Job:

We are seeking a Research Associate to adapt an existing microscope and Mesolens using new hardware and software to support standing wave microscopy and mesoscopy, and to apply these for cell imaging. This will involve basic opto-mechanics and optical alignment, the preparation of model and cell specimens, performing TartanSW microscopy and mesoscopy, and analysing and preparing data for publication.

Main Activities/Responsibilities:

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| 1. | The primary objective of this post is to develop and apply a new spectrally-resolved optical microscopy method based on a standing wave. This builds on previous work (Amor et al, Scientific Reports 2014). |
| 2. | This will involve adapting an existing microscope and Mesolens using new hardware and software to support standing wave microscopy and mesoscopy, and to apply these for cell imaging. This will involve basic opto-mechanics and optical alignment, the preparation of fluorescent model and cell specimens (fixed and live), performing TartanSW microscopy and mesoscopy, analysing data, and preparing data for publication. |
| 3. | Plan and manage own workload, with guidance from colleagues as required. |
| 4. | Identify sources of funding and contribute to the securing of funds for research, including drafting grant proposals and planning for future proposals. |
| 5. | 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. |
| 6. | 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. |
| 7. | Contribute in a developing capacity to Department/School, Faculty and/or University administrative and management functions and committees. |
| 8. | Engage in continuous professional development. |

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 appropriate discipline (e.g. cell biology, biophysics, cardiovascular science, neuroscience).

D1 Membership of relevant Chartered/professional bodies (including Higher Education Academy).

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.

D2 Experience in cell biology and advanced optical microscopy (e.g. confocal fluorescence microscopy).

D3 Experience in basic cell culture methods, including fixation and fluorescence labelling.

D4 Experience in basic optical alignment (e.g. setting up a microscope for Koehler illumination).

D5 Experience of optomechanics and/or optoelectronics and integration/control of microscopy hardware with existing software.

D6 Experience of Matlab.

D7 Experience of knowledge exchange related activities.

Job Related Skills and Achievements

E3 Developing ability to conduct individual research work, to disseminate results and to prepare research proposals.

E4 Ability to plan and organise own workload effectively

E5 Ability to work within a team environment

Personal Attributes

E6 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 Professor Gail McConnell, Chair of Biophotonics (g.mcconnell@strath.ac.uk).

Conditions of Employment

Conditions of employment relating to the Research staff category can be found at: [Conditions of Employment](#).

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

Formal interviews for this post will be held on Thursday, 24 August 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/>.

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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