

Research Associate: Semiconductor Laser Networks for Brain-Inspired Information Processing

Department	Institute of Photonics (www.strath.ac.uk/photonics/)		
Faculty	Faculty of Science (www.strath.ac.uk/science/)		
Staff Category	Research	Reference No	129353
Reports To	Antonio Hurtado	Grade:	7
Salary Range:	£31,604-£32,548 Restricted due to funding	Contract Type:	Fixed Term for 6 months (with a high expectation that the post will extend to 24 months as and when funding is confirmed)*
FTE:	1 (35 hours/week)	Closing Date	Sunday, 16 September 2018

Job Advert

The Institute of Photonics (Physics Department) at the University of Strathclyde seeks applications for a Postdoctoral Research Associate in Semiconductor Laser Networks for Neuro-Inspired Information Processing functionalities. The post holder will work on the 'BRAIN LASER' project, funded by the US Office of Naval Research Global (ONRG), to develop cutting-edge research in photonic technologies for neuromorphic (brain-like) information processing. Applicants should have a PhD in Photonic Technologies or in Laser Physics/Engineering and have experience with semiconductor lasers and/or optoelectronic systems. Experience with the characterisation of nonlinear dynamics in laser systems and/or photonic (integrated) circuits would also be an advantage. Additionally, relevant student supervision experience would be desirable. The successful candidate will join the Optoelectronics and Nanophotonics Group, part of the wider Photonic Materials and Devices Group at Strathclyde's Institute of Photonics.

Further information on the background to this appointment can be obtained via: www.photonics.ac.uk

*This post is offered for 6 months and is subject to a review at the end of that period. Depending on the funder's assessment of progress, it is highly expected that further funding will be provided to extend the post up to a period of 24 months.

Job Description

Brief Outline of Job:

To undertake research as part of the ONRG 'Brain Laser' project and as part of the wider Photonic Materials and Devices Group, working specifically on the experimental development and characterisation of semiconductor laser systems and networks for neuromorphic (brain-like) information processing applications; to progress the work of the project towards high quality publications and presentation of research results in scientific conferences, working with the wider team in a self-motivated but coordinated and organised manner; to work with the principal investigator and colleagues within the team to engender and pursue opportunities to obtain further funding for this work; to engage where required in relevant teaching, professional and knowledge exchange activities; and input to administrative activities, especially in assisting the principal investigator with the administration of the grant.

Main Activities/Responsibilities:

1.	As part of a wider research group, develop research objectives and proposals and play a lead role in delivery of a research programme on Semiconductor Lasers for Neuromorphic Photonics applications in relation to the 'BRAIN LASER' project funded by ONRG, working within an existing team and with guidance from senior colleagues.
2.	Plan and manage own workload in order to achieve research goals set jointly at the team level. Assist the principal investigator with the administration of the ONRG project.
3.	Conduct individual and collaborative research, including determining appropriate research methods and contributing to the development of new research methods.
4.	Contribute to the securing of funds for research by assisting with the drafting of proposals and the building of research collaborations.
5.	Write up research work for publication, individually or in collaboration with colleagues, and disseminate results via peer reviewed journal publications and presentations at conferences.
6.	Participate in external networks to share information and ideas, inform the development of research objectives and to identify potential sources of funding.
7.	Collaborate with colleagues on the development of knowledge exchange activities and to ensure that research advances inform departmental teaching effort.
8.	Work closely with and support the research and development of an existing PhD student, working with colleagues to ensure that the research programme is conducted in a manner that supports this student. Supervise student projects, provide advice to students and contribute to teaching as required by, for example, supervising practical work.
9.	Contribute as appropriate to Institute administrative and management functions and committees.
10.	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 PhD in Photonic Technologies (Science or Engineering)

Experience

E2 Experience of working experimentally on semiconductor lasers and/or optoelectronic devices and systems

D1 Experience of working with nonlinear dynamical photonic systems and photonic integrated circuits and networks

D2 Experience of relevant student supervision

D3 Experience of working within a research team with collaborative links to industry and academia.

Job Related Skills and Achievements

- E3 Proven ability to independently plan and execute experimental programmes, proactively drawing on assistance from colleagues and working to deadlines. This will include contribution to the supervision and support of an existing PhD student.
- E4 Proven ability to write high-quality research papers and reports for collaborators.
- D4 Proven ability to work with academic and industrial collaborators including the ability to plan and participate in research with collaborators in the UK and internationally.
- E5 Excellent experimental and laboratory skills.
- D5 Numerical simulation skills in optoelectronic device modelling

Personal Attributes

- E6 Ability to conduct individual and collaborative research, working collegiately within a team environment, using knowledge and skills to contribute to other projects where appropriate;
 - E7 Ability to plan and manage own work load effectively, coordinating this with the objectives of the team and collaborators.
 - E8 Willingness to engage proactively with colleagues to find joint solutions for research challenges
 - E9 Ability to conduct research independently and without the need for day-to-day supervision whilst contributing to a strong team environment; willingness to plan and participate in research on collaborators sites in the UK and internationally.
 - E10 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.
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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/workforum>).

Informal enquiries about the post can be directed to Dr Antonio Hurtado, Senior Lecturer (antonio.hurtado@strath.ac.uk; +0141 548 4668).

Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found [here](#).

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.

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 arrangements 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