

Research Associate in Scientific Computing of Wave Scattering Problems and Applications

Department	Mathematics and Statistics		
Faculty	Faculty of Science (www.strath.ac.uk/science/)		
Staff Category	Research	Reference No	148642
Reports To	Dr Victorita Dolean	Grade:	7
Salary Range:	£31,604 - £34,520 restricted due to funding	Contract Type:	Fixed term (36 months with a start date of 1 January 2019)
FTE:	1.0	Closing Date	Friday, 12 October 2018

Job Advert

Applications are invited for a 3-year full-time Postdoctoral Research Associate (PDRA) position on the UK Engineering and Physical Sciences Research Council-funded project: "Fast solvers for frequency domain wave scattering problems and applications", <http://gow.epsrc.ac.uk/NGBOViewGrant.aspx?GrantRef=EP/S004017/1> (see the related grant page for a full description <http://gow.epsrc.ac.uk/NGBOViewGrant.aspx?GrantRef=EP/S003975/1>).

This project is concerned with the formulation, analysis, implementation and applications of fast solvers for partial differential equations arising in acoustic, electromagnetic and elastic wave problems, modelled in the frequency domain. It will be particularly concerned with parallel domain decomposition methods for solving the large ill-conditioned linear systems that arise from typical applications, especially in seismic inversion and in electromagnetics.

This appointment is part of a collaboration with University of Bath and EPSRC funding provides for the appointment of two linked PDRAs, one at Strathclyde (Glasgow) and one with our partners at University of Bath. All shortlisted candidates will be invited to Bath on 6th November where they will give a presentation as part of the selection process and get a tour of the Bath campus. All shortlisted candidates will then be taken to Strathclyde on the evening of 6th November for formal interviews on 7th November.

The Strathclyde PDRA will principally be concerned with the computational and algorithmic aspects of domain decomposition methods for frequency-domain wave problems, their implementation on parallel computers for applications from seismic inversion or electromagnetics. This will be mainly done under the supervision of Dr Victorita Dolean at Strathclyde. The postholder will also work in close collaboration with researchers involved in the development of high level open source languages for variational discretisations of PDEs such as Freefem++ (Sorbonne Université, Paris), Firedrake (Imperial College, London) and computational frameworks for high performance domain decomposition methods such as hpddm (University of Toulouse). There will be opportunities for collaboration with Pr. Graham (PI at Bath), Drs Gazzola and Spence, and the Bath PDRA, as well as a number of international researchers who will visit Glasgow and Bath during the project. The post has a start date of 1 January 2019 for a 3-year period, should candidates wish to have an earlier or later start date this can be considered.

Candidates are encouraged to apply for both this position and the position at Bath university:
<http://www.bath.ac.uk/jobs/Vacancy.aspx?ref=CA6049>

Job Description

Brief Outline of Job:

The post holder will provide subject-specific research expertise and undertake specific research work to the EPSRC-funded project “Fast solvers for frequency domain wave scattering problems and applications”. The post carries no teaching or administrative duties. Funds are available under the project for attending conferences and making appropriate research visits.

The research will be conducted under the general guidance of a Dr Victorita Dolean.

Main Activities/Responsibilities:

1.	Conducting individual and/or collaborative research projects.
2.	Writing up results of research and contributing to publishing of results in high-quality peer-reviewed academic literature.
3.	Project management: e.g. timetabling and meeting project milestones; participating in regular discussions with collaborative partners.
4.	Disseminating the results of the project by presentations at workshops and conferences.
5.	Participating regularly in group meetings and prepare and deliver presentations to the project team, internal and external stakeholders or funders.
6.	Continually updating knowledge and understanding in field or specialism to inform research activity.
7.	Developing research objectives and proposals for own or joint research, with assistance of a mentor if required.
8.	Collaboration with academic and non-academic colleagues involved in the project.

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 A PhD degree in subject area of direct relevance for the project, or an equivalent professional qualification (and significant relevant experience where applicable).

Experience

D1 Post doctoral experience

E2 Demonstrated significant depth and breadth of specialist knowledge of subject matter to contribute to research programme.

E3 Experience in numerical analysis of PDEs.

D2 Experience in large-scale linear algebra problems.

D3 Experience in frequency domain wave problems and relevant applications.

D4 Demonstrated awareness of latest developments in the field of research.

E4 Demonstrated potential to publish in high quality, peer reviewed journals.

Job Related Skills and Achievements

E5 Ability to conduct individual research work and to disseminate results.

E6 Ability to organise and prioritise own workload.

E7 Ability to write research reports and to effectively disseminate outcomes.

E8 Excellent oral, interpersonal and written communication skills.

Personal Attributes

E9 Innovation and developing creative solutions.

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- E10 Ability to plan and deliver work to meet required deadlines.
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- E11 Able to achieve own and team objectives and to overcome obstacles.
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- E12 Ability to be an effective team worker.
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- E13 Willingness to participate in a project involving researchers from different areas of mathematics.
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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/workforus>).

Informal enquiries about the post can be directed to Dr. Victorita Dolean, Department of Mathematics and Statistics (Victorita.Dolean@strath.ac.uk).

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.

Interviews

Informal interviews will be held on Tuesday, 6 November 2018, at the University of Bath.

Formal interviews for this post will be held on Wednesday, 7 November 2018, at the University of Strathclyde, Glasgow.

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