



THE POST

College:	<u>College of Engineering, Mathematics and Physical Sciences</u>
Post:	Postdoctoral Research Associate or Postdoctoral Research Fellow
Reference No:	P64756
Grade:	E / F
HERA:	ARF
Reporting To:	Dr Jens C. Andersen

The above full-time post is available from 4th February 2019 (or as soon as possible thereafter) to 4th February 2022 in the College of Engineering, Mathematics and Physical Sciences, Camborne School of Mines. The post is available at the Penryn Campus in Cornwall, UK.

Job Description

Main purpose of the job:

The Postdoctoral Research Associate will support the EU funded MARINEFF project, which aims to develop concrete materials that facilitate bio-colonisation and bio-diversity in the marine environment of the English Channel. ESITC Caen leads the project, and the University of Exeter provides expertise in materials characterisation (microstructure, mineralogy, geochemistry and geotechnics).

The main task will be to assess how concrete materials change upon immersion into the marine environment in a series of different environments including oyster beds, artificial rock pools, piers and dykes. The work will focus on how the progressive changes in mineralogy chemistry and microstructure develop in response to bio-colonisation, and explore how these changes influence the strength and potential failure mechanisms of the materials.

The project requires a good understanding of mineralogy and geochemistry of the marine environment. Prior experience with concrete petrography, geotechnics, and mineral-microbe interactions will be beneficial. It will also be an advantage to have a good working knowledge of spoken and written French, and a valid UK/EU driver's licence.

Main duties and accountabilities (Postdoctoral Research Associate):

1. To undertake research as appropriate to the field of study including:
 - Writing up research work for publication;
 - Developing research objectives and proposals for own or joint research;
 - Making presentations at national and international conferences and similar events;
 - Dealing with problems which may affect the achievement of research objectives and deadlines;
 - Analysing and interpreting the results of own research and generating original ideas based on outcomes;
 - Using new research techniques and methods;
 - Using initiative and creativity to identify areas for research, developing new research methods and extending the research portfolio;
 - Using creativity to analyse and interpret research data and draw conclusions on the outcomes.
2. To contribute to teaching and to be involved in the assessment of student knowledge including assisting in the supervision of student projects and in the development of student research skills.
3. To work in collaboration with colleagues as appropriate to the field of study including:

- Contributing to collaborative decision making within the research group;
 - Contributing to the production of collaborative research reports and publications.
 - Preparing papers and presenting information on research progress and outcomes to bodies supervising research, e.g. steering groups.
4. To communicate complex information, orally, in writing and electronically.
 5. To prepare proposals and applications to external bodies, e.g. for funding and contractual purposes
 6. To contribute to the planning of research projects.
 7. To use research resources, laboratories and workshops as appropriate and to take responsibility for reducing hazards and for the health and safety of others. Where appropriate, the post holder will also be responsible for conducting risk assessments.
 8. To monitor research budgets as appropriate.
 9. To engage in continuous professional development and to be responsible for continually updating knowledge and understanding in field of study or specialism and for developing skills.

Person Specification (Postdoctoral Research Associate)

Competency	Essential	Desirable
Attainments/Qualifications	PhD (or nearing completion) or equivalent qualification/experience in a related field of study.	
Skills and Understanding	<p>Possess sufficient specialist knowledge in mineralogy, petrology and geochemistry to develop the research programme and methodologies.</p> <p>Expertise in mineralogical and chemical analysis using techniques such as X-ray diffraction, X-ray fluorescence and/or ICP-MS.</p> <p>Understanding of quality control for chemical measurements.</p> <p>Proficiency with Microsoft Word, Excel, PowerPoint or equivalent.</p>	<p>Record of research output in high quality publications.</p> <p>Prior experience with measurement of tensile and compressive strength of rocks or mineralogical materials.</p>
Prior Experience	<p>Understanding of health and safety legislation.</p> <p>Demonstrated experience with the use of optical and electron microscopy to research mineralogical materials.</p> <p>Experience with working in chemical laboratories and carrying out risk assessments related to chemical work.</p>	<p>Experience with mineralogy and petrography of concrete materials.</p> <p>A working knowledge of spoken and written French.</p> <p>Valid EU/UK drivers licence or ability to travel as required for the role.</p>
Behavioral Characteristics	<p>Excellent written and verbal communication skills.</p> <p>Able to communicate complex and conceptual ideas to a range of</p>	

	<p>groups from members of the general public to specialists and policy makers.</p> <p>Able to collaborate actively with international partners in a project consortium to complete a research project and advance thinking.</p> <p>Able to participate in and develop external networks.</p> <p>Able to meet reporting deadlines and balance the pressures of research, administrative demands and competing deadlines.</p>	
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Main duties and accountabilities (Postdoctoral Research Fellow):

1. To undertake research as appropriate to the development and execution of the project. The responsibilities may include all or some of the following:
 - Acting as principal investigator on the research project;
 - Adapting research objectives as the project evolves;
 - Identifying sources of further funding and contributing to the process of securing funds;
 - Extending, transforming and applying knowledge acquired from scholarship to research and appropriate external activities;
 - Writing and contributing to peer reviewed scientific publications, technical papers, and disseminating research findings using alternative appropriate media;
 - Making presentations at conferences or exhibiting work at other appropriate events;
 - Assessing, interpreting and evaluating outcomes of research;
 - Developing new concepts and ideas to extend intellectual understanding;
 - Resolving problems of meeting research objectives and deadlines;
 - Developing ideas for generating income and promoting research area;
 - Developing ideas for application of research outcomes;
 - Deciding on /following research programmes and methodologies, often in collaboration with colleagues and sometimes subject to the approval of the head of the research programme on fundamental issues.
2. To contribute to teaching and learning programmes in the School and to supervise postgraduate research students.
3. To act as research team leader including:
 - Mentoring colleagues with less experience and advising on their professional development;
 - Coaching and supporting colleagues in developing their research techniques;
 - Supervising the work of others, for example in research teams or projects;
 - Developing productive working relationships with other members of staff;
 - Co-ordinating the work of colleagues to ensure equitable access to resources and facilities;
 - Dealing with standard problems and help colleagues to resolve their concerns about progress in research.
4. To routinely communicate scientific methods and results to members of the public through social media, press releases and the project website. To present the results of scientific research to scientific peers and sponsors at conferences.
5. As determined by the nature of the project and at the direction of the PI, to plan, co-ordinate and implement research programme activity including:

- Managing the use of research resources;
- Monitoring and reporting on the use of research budgets;
- Helping to plan and implement institutional audits;
- Where appropriate, to plan and manage opportunities for consultancy assignments.

6. To engage in continuous professional development and to be responsible for continually updating knowledge and understanding in field of study or specialism and for developing skills.

Person Specification (Postdoctoral Research Fellow)

Competency	Essential	Desirable
Attainments/Qualifications	<p>PhD or equivalent qualification in mineralogy, geoscience, geotechnics or related field.</p> <p>Two years of experience in related research or employment after the completion of PhD studies..</p>	Be a nationally recognised authority in the subject area.
Skills and Understanding	<p>Possess sufficient specialist knowledge in mineralogy, petrology and geochemistry to develop the research programme and methodologies.</p> <p>Expertise in mineralogical and chemical analysis using techniques such as X-ray diffraction, X-ray fluorescence and/or ICP-MS.</p> <p>Understanding of quality control for chemical measurements.</p> <p>Proficiency with Microsoft Word, Excel, PowerPoint or equivalent.</p>	<p>Record of research output in high quality publications.</p> <p>Prior experience with measurement of tensile and compressive strength of rocks or mineralogical materials.</p>
Prior Experience	<p>Understanding of health and safety legislation.</p> <p>Demonstrated experience with the use of optical and electron microscopy to research mineralogical materials.</p> <p>Experience with working in chemical laboratories and carrying out risk assessments related to chemical work.</p> <p>Experience with managing research projects and research teams.</p>	<p>Experience with mineralogy and petrography of concrete materials.</p> <p>A working knowledge of spoken and written French.</p> <p>Valid EU/UK drivers licence or ability to travel as required for the role.</p>
Behavioral Characteristics	<p>Excellent written and verbal communication skills.</p> <p>Able to communicate complex and conceptual ideas to a range of groups from members of the general public to specialists and policy makers.</p>	<p>Able to identify sources of funding, generate income, obtain consultancy projects, or build relationships for future activities.</p> <p>Able to visualise complex scientific concepts for outreach and science communication.</p>

	<p>Able to collaborate actively with international partners in a project consortium to complete a research project and advance thinking.</p> <p>Able to participate in and develop external networks.</p> <p>Able to meet reporting deadlines and balance the pressures of research, administrative demands and competing deadlines.</p>	<p>Able to develop outreach activities through social media platforms and the internet.</p>
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This job description summarises the main duties and accountabilities of the post and is not comprehensive: the post-holder may be required to undertake other duties of similar level and responsibility. Please visit the Human Resources website to view the Research Fellow role profiles.

Informal Enquiries

Before submitting an application you may wish to discuss the post further by contacting Dr Jens C Andersen, Director of Research, (01326 371 836) or J.C.Andersen@exeter.ac.uk.

Terms & Conditions

Our Terms and Conditions of Employment can be viewed [here](#).

Further Information

Please see our [website](#) for further information on working at the University of Exeter.