

THE POST

College:	<u>College of Engineering, Mathematics and Physical Sciences</u>
Post:	Postdoctoral Research Fellow / Postdoctoral Research Associate (Industrial Impact Fellow) – Agritech Cornwall and Isles of Scilly
Reference No:	P63528
Grade:	F
HERA:	RFEL
Reporting To:	Senthilarasu Sundaram

The post is available immediately until 31 December 2019 and is part of a project involving the University of Exeter and Passive Cooling (Agri-tech Cornwall) and lead by the Duchy College. It is funded through the European Regional Development Fund and forms part of the European Strategic Investment Framework for Cornwall and Isles of Scilly.

Job Description

Heat stress in dairy animals can create serious health welfare issues alongside negatively impacting on agricultural production. This project will focus on removing the heat from cow sheds/barns using cutting edge technological development alongside existing and emerging collaborative industrial partners. The development of flexible graphene and graphene coatings with different nanostructures is essential for this project.

The appointee will participate in a project to develop graphene and graphene oxide based coating and integrate it with the thermal absorber. You will involve developing graphene coatings and measure its thermal conductivity. The candidate will work along with collaborating business partners to build and test prototypes with the primary purpose to alleviate heat stress and thermal management in the cow shed/barns. Experience in graphene material synthesis, coating methods and materials characterisation are essential for this position.

Furthermore, the applicant will need to work in close quarters with Cornish businesses looking for opportunities to use the research related to the project to create growth opportunities for Cornish SMEs. The post will also be required to work closely and effectively with other external project partners and wider project colleagues within the Impact, Innovation and Partnership Directorate. As the post is ERDF funded, engagement with industrial partners, identifying new partnerships and leading on the production of evidence and information necessary to support ERDF compliance and reporting requirements will be fundamental to the role.

Main purpose of the job:

Develop a nanostructured coating using graphene and graphene oxide for thermal absorber in dairy farms and collaborating with Cornish industries to improve animal health. Key activities will include Materials Synthesis and characterisation; Developing different types of nanostructures and testing them for flexible thermal absorber; Thermal data collection and database generation; prototype development and testing in the farmed environment and with industry partners; general laboratory work and leading and supporting ERDF compliance and reporting requirements

Main duties and accountabilities – (Postdoctoral Research Fellow level)

1. To undertake research as appropriate to the field of study. The responsibilities may include all or some of the following:
 - Conducting individual or collaborative research projects;
 - Identifying sources of funding and contributing to the process of securing funds;
 - Extending, transforming and applying knowledge acquired from scholarship to the applied fields including collaboration with the industry
 - Writing or contributing to publications or disseminating research findings using media appropriate to the discipline;
 - Presenting research at conferences or exhibiting work in other appropriate events;
 - Assessing, interpreting and evaluating outcomes of research;
 - Developing new concepts in the field of community biology linking experimental results with the theoretical predictions;
 - 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 complex and conceptual ideas to those with limited knowledge as well as to peers using high level skills and a range of media and to present the results of scientific research to sponsors and 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 and ensuring that effective use is made of them;
 - Monitoring and reporting on the use of research budgets;
 - Helping to plan and implement commercial and consultancy activities;
 - Where appropriate, to plan and manage own consultancy assignments.

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.

Person Specification – (Postdoctoral Research Fellow level)

Competency	Essential	Desirable
Attainments/Qualifications	PhD or equivalent qualification/experience in a related field of study.	Be a nationally recognised authority in the subject area.
Skills and Understanding	Materials synthesis and characterisation especially in graphene related materials; coatings on rigid and flexible substrates.	<p>Knowledge of graphene and graphene coatings with different nanostructures and/or thermal conductivity processes.</p> <p>Knowledge of the dairy/animal health sectors.</p> <p>Experience in graphene material synthesis, coating methods and materials characterisation.</p>
Prior Experience	Experience of managing research projects and research teams.	Experience of acting as principal investigator on research projects.
Behavioural Characteristics	<p>Excellent written and verbal communication skills.</p> <p>Able to communicate complex and conceptual ideas to a range of groups.</p> <p>Evidence of the ability to collaborate actively within the Institution and externally to complete research projects and advance thinking.</p> <p>Able to participate in and develop external networks, track record off collaboration with the industry.</p> <p>Able to balance the pressures of research, administrative demands and competing deadlines.</p>	<p>Able to identify sources of funding, generate income, obtain consultancy projects, or build relationships for future activities.</p> <p>Able to identify and work collaboratively with industry partners.</p>

Main duties and accountabilities – (Postdoctoral Research Associate level)

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, 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.

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Person Specification – (Postdoctoral Research Associate level)

Competency	Essential	Desirable
Attainments/Qualifications	PhD (or nearing completion) or equivalent qualification/experience in a related field of study.	
Skills and Understanding	Sufficient knowledge in the discipline and of research methods and techniques to work within established research programmes.	Evidence of research activity and published research.
Prior Experience	Understanding of health and safety legislation	Experience of undergraduate teaching
Behavioural Characteristics	Excellent written and verbal communication skills. Able to communicate material of a specialist or highly technical nature.	

	<p>Able to manage research and administrative activities and to balance the competing pressures of research and administrative demands and deadlines.</p> <p>Able to liaise with colleagues and students.</p> <p>Able to build contacts and participate in internal and external networks for the exchange of information and collaboration.</p> <p>Able to identify potential sources of funding. Actively participate as a member of a research team.</p> <p>Engage in continuous professional development.</p> <p>Understand equal opportunity issues as they may impact on areas of research content.</p> <p>Where appropriate to the role, willingness to undergo training in order to conduct risk assessments.</p>	
Circumstances	Willing to work flexibly to achieve project demands.	

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.