

## Research Associate – Advanced Composites Manufacturing for the Automotive Industry

Job Ref: REQ17317

**As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.**

Applications are invited for a Research Associate position in in Electrical Engineering, Electronics or Acoustics Engineering with excellent communication skills, who is capable of designing and performing experiments using lab benchtop rigs and to instrument those rigs. This project intends to develop science that can be translated to an industrial setting, as such candidates with a strong track record in conducting effective research with academic rigour will be considered.

The Multifunctional materials Manufacturing Lab has an outstanding portfolio of research projects to develop the science that underpins the design and manufacture of high performing materials, incl composites. It has a strong track-record of collaborations with industries. The Wolfson School of Mechanical, Electrical and manufacturing Engineering at Loughborough have outstanding research facilities for manufacturing and mechanical testing.

### Job Description

**Job Grade:** Specialist and Supporting Academic Grade 6, fixed term to 30<sup>th</sup> March 2018

#### Job Purpose

To develop excellent science which can be tested in a lab setting and deployed in an industrial environment of a manufacturing protocol for multifunctional lightweight materials that exhibit bespoke mechanical properties, using sonication technology, and in collaboration with FAR-UK Ltd, our industry partners.

#### Job Duties

##### Research

The work entails, primarily, the following activities under the direction and supervision of Dr Carmen Torres-Sanchez or a nominee:

- To design, plan and execute hypothesis-driven scientific experiments in an effective and scholarly manner
- To acquire, gather, analyse and interpret results of their own research and report them in a timely manner, both in written and oral form
- To explore relevant manufacturing techniques using sonication as a porosity engineering agent – this includes generation and measurement of acoustic fields
- To conceive, design and engineer the necessary hardware and instrumentation in conjunction with the project technical staff
- To conduct technical research on materials, composites, components and other parts as necessary – this includes mechanical testing as well as materials characterisation
- To liaise with technician staff and/or suppliers to adjust hardware and commission equipment necessary to conduct experiments in the lab

- To generate implementation ideas for the subsequent stages of the project
- To maintain written records of research results to a scientific standard
- To write academic papers suitable for publication in high impact International Journals
- To plan, manage and conduct the day-to-day activities of the project to agreed deadlines.
- To maintain confidentiality where appropriate and to ensure that intellectual property (IP) agreements are met.
- Travel to equipment suppliers and other organisations on an ad-hoc basis.

## **Teaching**

Teaching is not the primary purpose of this post and teaching load will be small relative to the typical load of a member of academic staff in the School, but the Research Associates will be expected to contribute to taught programmes and student projects, at any level, if appropriate and if requested to do so.

## **Other Related Activities and Functions**

- To engage in training programmes in the University (e.g. through Professional Development) and elsewhere as required.
- To undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.
- To pursue excellence and maintain high standards of outputs and interpersonal relationships
- To work effectively with relevant administrative, technical and academic staff in the School, across the University, and at FAR-UK Ltd

## **Points to Note**

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

## **Special Conditions**

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity.

## **Organisational Responsibility**

Reports to the project principal academic investigator, Dr Carmen Torres-Sanchez.

## Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below. Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

- 1 – Application
- 2 – Telephone interview/Assessment Centre/Presentation (N/A in this post)
- 3 – Interview

### Essential Criteria

Area	Criteria	Stage
Experience	The conducting of original research that can be, or has been, published in high quality journals	1, 3
	Experience in authoring academic papers in quality International journals	1, 3
	Practical experience in commissioning instruments, lab equipment and, if necessary, tailoring them to suit specific applications	1, 3
	Ability to conduct research by preparing experiments, conducting them in an scholarly manner, interpreting results and producing reports in a timely fashion	1, 3
	Experience with oscilloscopes, impedance analysers, amplifiers, PZT transducers and other acoustic equipment	1, 3
Skills and abilities	Excellent communication skills- both written and oral. Excellent research paper or report writing skills	1, 3
	Effective team-player with the ability to liaise with project team members based both at University and industry	3
	Independent researcher capable of working under minimum supervision if required	1, 3
	Highly-motivated with the ability to set and meet deadlines appropriate to the progress of the project	1, 3
Training	A willingness to undertake further training as appropriate and to adopt new procedures as and when required	3
Qualifications	An honours degree in electrical or electronics engineering, or other relevant subject	1
	A relevant PhD degree (or approaching the completion of a PhD degree) in any one of the following areas: <ol style="list-style-type: none"> <li>1. Electrical Engineering</li> <li>2. Electronics Engineering</li> <li>3. Acoustics Engineering</li> <li>4. relevant subjects in physics, materials science or chemical engineering</li> </ol>	1,3
Other	Commitment to observing the University's Equal Opportunities policy at all times	3

### Desirable Criteria

Area	Criteria	Stage
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Experience	Experience in signal acquisition and signal processing using solutions such as LabView	1, 3
	Experience in Instrumentation and Control applied to manufacturing	1, 3
	Experience within an experimental environment or conducted research applied to industry	1, 3
Skills and abilities	Capable of planning short and mid-term research activities within the framework of the project	3
	Capable of leading tasks of a project and managing them throughout	1, 3
	Ability to synthesize industrial needs into research activities	1, 3
	Experience in materials characterization (eg SEM, mCT, TGA) and mechanical testing procedures	1, 3
Qualifications	PhD in Engineering or Physics	1
Other	A good working knowledge of equal opportunities and understanding of diversity in the workplace	1, 3

## Conditions of Service

This position is **full time, fixed term until 30 March 2018**. Salary will be on Specialist and Supporting Academic Grade 6, (£29,301 - £30,175) per annum, at a starting salary commensurate with experience and qualifications and to be confirmed on offer of appointment.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff, details of which can be found [here](#).

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which are available at <http://www.lboro.ac.uk/services/hr/a-z/family-leave-policy-and-procedure---page.html>.

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: <http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html>)

In addition, the University is supportive, wherever possible, of flexible working arrangements. We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see <http://www.lboro.ac.uk/services/hr/athena-swan/>

## Informal Enquiries

Informal enquiries should be made to Dr Carmen Torres-Sanchez, Multifunctional Materials Manufacturing Lab Leader, Wolfson School of Mechanical, Electrical and Manufacturing Engineering by email at [c.torres@lboro.ac.uk](mailto:c.torres@lboro.ac.uk) or by telephone on +44 (0)1509 227518.

## Applications

The closing date for receipt of applications is **17 May 2017**.

Interviews will be held in **the week commencing 22 May 2017**.