Wolfson School of Mechanical, Electrical and Manufacturing Engineering

Loughborough University

Research Associate in Hybrid Machining Instrumentation and Testing

Job Ref: REQ170996

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.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 the Mechanics of Advanced Materials Research Group, Wolfson School of Mechanical, Electrical and Manufacturing Engineering, Loughborough University. The research group (https://moamrg.co.uk/) has an outstanding international reputation in performing multi-disciplinary research into the response of advanced engineering materials to various types of external loading and environmental conditions, using a combination of analytical, numerical and experimental techniques. The engineering Schools at Loughborough have outstanding research facilities second to none.

Job Description

Job Grade: Specialist and Supporting Academic, Grade 6

Job Purpose

This post is funded by the Engineering and Physical Sciences Research Council (EPSRC), UK's main agency for funding research in engineering. The project is a unique collaboration between academic (University of Manchester, University of Sheffield) and industrial partners (BAE Systems, Sandvik Coromat) with the final goal of making an industrially relevant technological breakthrough in the manufacture of aerospace components. See https://goo.gl/zScxjQ for details. The Research Associate will be responsible for designing and developing ultrasonic transducers subjected to high temperatures and harsh environments. Some critical experimentation at high strain rates will also be conducted which will require some knowledge and understanding of material characterisation. The Research Associate will be working as part of a multi-disciplinary team to manage and deliver the project.

Job Duties

Research

The work entails, primarily, the following activities under the direction and supervision of Dr Anish Roy, Professor Liguo Zhao, and Professor Vadim V Silberschmidt:

- To design, develop and manufacture/assemble a high-temperature ultrasonic transducer for installation in a lathe/CNC machine.
- To perform experimentation at high strain-rates to assess deformation characteristics of the workpiece material (aerospace grade alloys and composites) under study.
- To plan, manage and conduct the work to agreed deadlines.
- To carry out literature reviews, to write up technical reports and technical papers for publication of the results obtained and the generation of research posters and other publicity media.
- To work as part of a cross-university team (Loughborough, Manchester and Sheffield).
- To assist in guiding and training postgraduate research students.
- To assist in other related engineering research projects as required.
- To assist in developing new lines of research and the writing of research proposals.

- To maintain confidentiality where appropriate and to ensure that intellectual property (IP) agreements are met.
- To identify and report new opportunities for IP generation.
- Where necessary, to spend short periods of time travelling in the UK and overseas.

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.

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 and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to the project investigators named above.

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
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
	Good understanding of instrumentation and design	1, 3
	Some understanding of ultrasonics and ultrasonic transducers	1,3
	Experience in numerical modelling to design devices	1, 3
	Competent IT/ Internet user	1, 3
Skills and abilities	Demonstration of excellent technical ability	1, 2, 3
	Excellent inter-personal and communication skills - both written and oral.	3
	Knowledge of mechanical testing of materials	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	A good honours degree in mechanical/instrumentation/materials 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: 1. Instrumentation 2. Engineering/Physical Sciences 3. Experimental Characterisation 4. Mechanical Engineering 5. relevant subjects	1,3
Other	Ability to work on own initiative and as part of a team	3
	Commitment to observing the University's Equal Opportunities policy at all times	3

Desirable Criteria

Area	Criteria	Stage
Experience	Post-doctoral research in Engineering or equivalent experience	1, 3
	Knowledge of high strain rate testing	1, 3
	Knowledge of controls	1, 3
Skills and abilities	Track record in originating and developing new ideas	1, 3
	Experimentation: eg material characterisation, use of laser vibrometry, impedance analyser, etc	1,3

	Knowledge/Experience of metal-matrix composites	1,3
	Public engagement: eg participation in conferences, STEM ambassador, etc	1, 2, 3

Conditions of Service

This position is available either full time and fixed term for 12 months or part time (0.5 FTE) and fixed term for 24 months. The latest position end date will be 30 September 2021. Salary will be on Specialist and Supporting Academic Grade 6 (£29,799 – £30,688 per annum pro rata), 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 Anish Roy, Reader in Mechanics of Materials and Processes, Wolfson School of Mechanical, Electrical and Manufacturing Engineering by email at A.Roy3@lboro.ac.uk or by telephone on +44 (0)1509 227637.

Applications

The closing date for receipt of applications is **13 November 2017.**

Interviews will take place two weeks after the closing date. Expected start date Early January 2018.