Job Description

Job title	Research Associate
Department/School	Mechanical Engineering
Job family	Education and Research
Grade	7
Reporting to	Dr James Roscow
Responsible for	There may be a requirement for: day to day supervision of other staff e.g. technical staff or, co-supervision of doctoral or undergraduate students
Location	University of Bath premises

Background and context
You will work to create novel fabrication approaches, based on the freeze-casting method combined with slip- and tape-casting, to produce high performance piezoelectric composites with mechanical and electrical properties that can be easily tailored depending on the desired application. These methods are inherently scalable and mitigate the need for additional processes such as machining of sintered piezoceramic blocks, reducing the cost, energy and waste associated with manufacturing. The properties of piezoelectric composites depend strongly on local interactions between electric and mechanical fields and the material structure over a range of length scales, from ferroelectric domains through to macro-structure of the composites. This project aims to advance the understanding of these interactions and design microstructures to exploit beneficial effects accordingly. This role is part of EPSRC-funded project “Microstructural Engineering of Piezoelectric Composites”

Job purpose
To provide subject-specific research expertise and undertake specific research work to a Principal Investigator (PI)/Co-Investigator (CI) and their research team for a specified grant/project.

Main duties and responsibilities	
	Responsible to the PI/CI for (as appropriate to discipline):
1	Conduct individual and/or collaborative research projects. Contribute to the design and execution of the project e.g. timetabling and meeting project milestones; participating in regular discussions with collaborative partners. Generate, collect and analyse existing data related to the project using qualitative and/or quantitative techniques.
2	Writing up results of research and contributing to the publication of results in high-quality peer-reviewed academic literature.
3	Disseminating results of research project as appropriate to the discipline through activities such as • overseas research visits • conference presentations • public engagement activities
4	Participate in departmental/group meetings and prepare and deliver presentations/seminars to project team, internal and external stakeholders or funders.
5	Assist with the supervision of postgraduate students and undergraduate project students and the assessment of student knowledge.
6	Continually update knowledge and understanding in field or specialism to inform research activity.
7	Identify sources of funding and provide assistance with preparing bids to funding bodies. Develop ability to secure own funding e.g. travel grants.
8	Contribute to the development of research objectives and proposals for own or joint research projects, with assistance of a mentor, if required.
9	Disseminate knowledge of research advances to inform departmental teaching.
	You will from time to time be required to undertake other duties of a similar nature as reasonably required by your line manager. You are required to follow all University policies and procedures at all times and take account of University guidance.

Person Specification

Criteria	Essential	Desirable
Qualifications		
A PhD degree in material science or a subject area of direct relevance for the project, or equivalent significant relevant experience and professional qualification	√	
Experience/Knowledge		
Post doctoral experience		√
Demonstrated significant depth and breadth of specialist knowledge of subject matter to contribute to research programmes and to the development of departmental research activities	√	
Demonstrated awareness of latest developments in the field of research and in research design	√	
Demonstrated potential to publish in high quality, peer reviewed journals	√	
Experience in the characterisation of piezoelectric and ferroelectric materials and/or advanced ceramic processing methods		√
Skills		
Ability to prepare research proposals, to conduct individual research work and to disseminate results		√
Ability to organise and prioritise own workload to meet required deadlines	√	
Ability to write research reports and to effectively disseminate outcomes	√	
Excellent oral, interpersonal and written communication skills	√	
Proficiency in appropriate techniques (as appropriate to discipline)	√	
Proficiency in IT skills (as appropriate to discipline)	√	
Attributes		
Commitment to working within professional and ethical codes of conduct	√	

Innovation and developing creative solutions	√	
Commitment to excellence in research	√	
Enthusiasm and self-motivation	√	
Tenacity – working to achieve own and team objectives and to overcome obstacles	√	
Ability to be an effective team worker	√	
Commitment to safe working practices	√	