UNIVERSITY OF SURREY

Research Role Profile

Job Title:	Research Fellow (1A)
Responsible to:	Head of research group, or principal investigator
Responsible for:	Not applicable

Job Summary and Purpose:

To undertake research in accordance with the specified research project(s) under the supervision of the principal investigator.

Main Responsibilities/Activities

To undertake a range of research activities within a specified research area, assuming responsibility for specific areas of projects and making use of new research techniques and methods, in consultation with the research award holder or supervisor. This may include fieldwork, interviews, laboratory experimentation, critical evaluation and interpretation, computer-based data analysis and evaluation or library research.

Using initiative and creativity to identify areas for research develop new research methods and extend the research portfolio. Analysing and interpreting results of own research. Write up results and prepare papers for submission to appropriate journals and conferences, and other outputs as required and/or appropriate. Attend appropriate conferences for the purpose of disseminating research results of personal development. The post holder may also contribute to writing bids for research grants and will contribute to collaborative decision making with colleagues in areas of research.

Continually to update knowledge and develop skills, and translate knowledge of advances in the area into research activity.

To plan and manage own research activity in collaboration with others. To carry out administrative tasks associated with specified research funding, for example risk assessment of research activities, organisation of project meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control.

To contribute to teaching in the Faculty by carrying out student supervision and/or demonstrating within the post holder's area of expertise and under the direct guidance of a member of departmental academic staff, as appropriate.

The post holder may occasionally be required to supervise more junior research staff.

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Person Specification

The post holder must have:

A doctoral degree in a relevant discipline (although individuals who have almost completed a doctoral degree may be appointed). Consideration may also be given to individuals who do not hold a doctoral degree but have required skills based on a number of years experience in specified / relevant fields

The post holder will have authority over some aspects of project work and must be capable of providing academic judgement, offering original and creative thoughts and be able to interpret and analyse results.

Relationships and Contacts

Direct responsibility to the principal investigator or academic supervisor. The post holder may be asked to serve on a relevant Faculty committee. There may be additional reporting and liaison responsibilities to external funding bodies or sponsors. The post holder may work on original research tasks with colleagues in other institutions.

Special Requirements

To be available to participate in fieldwork as required by the specified research project

All staff are expected to:

- Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities policy.
- Help maintain a safe working environment by:
  - Attending training in Health and Safety requirements as necessary, both on appointment and as changes in duties and techniques demand
  - Following local codes of safe working practices and the University of Surrey Health and Safety Policy
- Undertake such other duties within the scope of the post as may be requested by your Manager.

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Research Role Profile

Addendum to Role Profile

Job Title: Research Fellow (1A)

Job Summary and Purpose:

This information sheet should be read in conjunction with the accompanying generic Research RA1A Role Profile and will be used for shortlisting processes. More specifically the post holder will be expected to:

This project is to provide a fundamental understanding of the role of bioinspired microstructural features in determining the mechanical properties of novel bioceramic composites for dental crown applications. The aim is to provide new insights into addressing the longevity challenge of dental restorative products.

This research is funded by the UK's Engineering and Physical Sciences Research Council (EPSRC), the New Investigator Scheme (Dr Tan Sui, the grant holder, https://www.surrey.ac.uk/people/tan-sui), and is a joint collaboration between universities of Surrey, Bristol and Birmingham, the National Physical Laboratory (NPL) and the Agency for Science, Technology and Research.

Main Responsibilities/Activities

You will be mainly responsible of conducting advanced experimental activities using techniques such as focused ion beam & digital image correlation (FIB-DIC), in situ SEM mechanical testing

- To characterise the structures of zirconia-based and alumina-based composite samples manufactured using freeze casting techniques.
- To probe macroscopic elastic deformation and monitor crack propagation of the bioceramic composite samples subject to loads.
- To evaluate micro-scale residual stress and other micromechanical properties.

You will also be responsible of establishing and refining a numerical micromechanical model to gain a deeper understanding of how the strength and fracture toughness can be better controlled via microstructural optimisation, and hence direct the manufacturing and processing towards the development of new bioceramic products.

Additional duties:

- To manage own academic research and administrative activities, and to co-ordinate multiple aspects of work to meet deadlines, ensuring timely achievement of deliverables and milestones.

- To carry out project tasks, as instructed by the supervisor, and act as a source of information and advice to other group members on experimental and modelling protocols.
- To support experimental activities within this and related projects, both within the lab and during visits to other facilities in the UK and across the world, including synchrotron, neutron sources, and cutting edge microscopes.
- To maintain links and carry out collaborative projects with project partners in academia and industry.
- To prepare journal articles and present papers and posters in major national/international conferences.
- PDRAs may undertake some teaching activities.

Person Specification

The post holder must have:

- A PhD degree on a related subject, e.g. Materials Science, Engineering, Physics, Chemistry, Biology, obtained with a strong academic background.
- Experience in using some of the major techniques (electron microscopy; focused ion beam techniques; nanoindentation; X-ray diffraction, imaging) in experimental materials research.
- Experience in Finite Element method, programming, data interpretation and post-processing.
- Research skills: proficient in scientific literature, critical and analytical approach, willing to learn new techniques and approaches in experiment and modelling.
- Communication skills: proven ability to formulate problems, and to prepare high impact reports, and to present their work both orally and in written form to all levels of audience, from group meetings to major high impact international journals and large international conferences.
- Interpersonal skills: ability to maintain excellent collaborative links within the group and key collaborators; to organise and run workshops and meetings; to make presentations and give lectures and seminars; to help guide project students and junior group members.

Relationships and Contacts

For informal discussions regarding this post, please contact Dr Tan Sui, email: t.sui@surrey.ac.uk