

Research Role Profile

Job Title:	Research Fellow A
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Responsible to:	Head of research group, or principal investigator
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Responsible for:	Not applicable
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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
<p>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.</p> <p>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.</p> <p>Continually to update knowledge and develop skills, and translate knowledge of advances in the area into research activity.</p> <p>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.</p> <p>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.</p> <p>The post holder may occasionally be required to supervise more junior research staff.</p>

Research Role Profile

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.

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:

Research Role Profile

This post is a 9 month research fellowship to carry out research on perovskite radiation detectors in the research group of Professor Paul Sellin.

Main Responsibilities/Activities

In this project the research fellow will produce and characterise prototype radiation detectors using a variety of types of perovskite materials. These could include single crystal lead halide perovskites, and low dimensional 1D and 2D perovskite materials. The perovskite radiation detectors could be fabricated as either semiconductor or scintillator devices, depending on the particular material properties. The project is divided into several phases:

1. Perovskite synthesis:

Solution growth methods will be used to synthesise a range of metal halide perovskite materials for use as radiation detectors, including bulk lead halide perovskites, and low dimensional 1D and 2D perovskite materials.

2. Materials characterisation

You will investigate the structure and morphology of various perovskite materials, and investigate their electrical and optical response to radiation as both semiconductor and scintillator radiation detectors. The structural quality and composition of the materials will be investigated using techniques which include XRD, Raman, STEM/EDX etc. Optical studies will use hyper-spectral photoluminescence mapping, low temperature photoluminescence spectroscopy and TCSPC photoluminescence decay measurements to study carrier dynamics in these materials.

3. Radiation detector performance

Using the detector processing laboratories at Surrey, a number of prototype devices will be fabricated with various electrode structures, including some basic pixel detector structures.

The performance of prototype devices will be assessed in terms of radiation response within a medical environment, in terms of (1) X-ray sensitivity and signal/noise ratio in diagnostic medical X-rays beams (eg 40-80 kVpeak); (2) gamma ray spectroscopy as required for nuclear medicine applications such as SPECT; (3) neutron sensitivity measurements using a AmBe neutron source.

Person Specification

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The post holder must have:

A PhD in a relevant discipline ideally including previous experience of perovskite materials and sensors.

Experience of perovskite crystal growth and synthesis methods

Experience of optoelectronic characterisation of perovskite materials

Experience of perovskite radiation detector fabrication and testing

Relationships and Contacts

The researcher will work in the research group of Professor Paul Sellin to deliver this project. The research may involve working with our collaborating partners, and the location of the work is flexible.