

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>

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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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Addendum

This document provides additional information relating to both specific aspects of the post/faculty and any post specific person specification criteria. The information contained within this document should always be read in conjunction with the accompanying generic Role Profile.

Job Title:

Research Fellow in next generation concentrated solar power (CSP) technology

Background Information/Relationships

The main purpose of this role is to carry out research and development (experimental and theoretical), including writing up and presentation of results, in the area of concentrated solar power (CSP) design and application, within the School of Chemistry and Chemical Engineering in collaboration with Industry. The position is funded by an Innovate-UK Research Grant under the call, "Energy Catalyst round 8: clean energy access, feasibility projects".

Concentrated solar power (CSP) is an alternative energy capture technology that uses optical devices to concentrate the power of the sun onto a receiver and generate power via a thermal-to-electric conversion unit. When the CSP receiver is integrated with thermal energy storage (TES) materials, the problem of energy discontinuity in the absence of sunlight can be alleviated. Conventional CSP receiver technologies suffer from high levelized cost of energy (LCOE), due to the temperature limitations and the corrosive nature of the TES material, and the costly maintenance. To overcome the current bottlenecks of CSP technologies, it is important to identify appropriate TES material and receiver design to improve storage capabilities and increase the contact area available for heat transfer. Coupling fluidization with concentrated solar power shows a promising future for the next generation of CSP technology.

The goal of the project is to optimise and build a gas-solid fluidised bed solar receiver for CSP technology and boost access to affordable and clean energy. The success of this approach will be showcased by the design of a stainless steel prototype that can demonstrate the effectiveness, capabilities, and limitations of the novel technology.

The research fellow will be supervised by Dr Dimitrios Tsaoulidis and will be working closely with the industrial partners and other relevant consortium members, and academic collaborators to develop the technical datasheets through a combined theoretical and experimental approach for commercialising the novel concentrated solar power technology.

For informal queries, please email Dr Dimitrios Tsaoulidis (d.tsaoulidis@surrey.ac.uk)

Person Specification

This section describes the sum total of knowledge, experience & competence required by the post holder that is necessary for standard acceptable performance in carrying out this role. This is in addition to the criteria contained within the accompanying generic Role Profile.

**Essential/
Desirable**

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Have a PhD degree in Chemical/Process Engineering, Engineering, or cognate discipline. Individuals with considerable industrial experience in relevant field will be considered.	E
Research experience in chemical/process engineering, fluidised bed operation and design, techno-economic analysis, chemical reaction engineering.	E
Experience in conceptualising, designing, and overseeing the design process	E
A good understanding and/or industry experience in specifications of valves, pipes, heat exchangers, steam turbines, air blowers, and cooling towers.	E
Working experience in modelling transport processes (heat transfer, mixing, computational fluid dynamics (CFD), multiphase flows).	E
Experience in energy and heat transfer performance calculations either in industry or in academia	E
Experience in drafting and submitting papers to high-quality peer-reviewed journals.	D
Experience in presenting findings of research activity to colleagues for review purposes.	E
Experience in experimentation and analysis.	E
Ability to present complex information effectively to a range of audiences.	D
Written communication skills consistent with high-quality publications.	D
Ability to interact with technical staff efficiently to achieve objectives	D
Special Requirements	Essential/ Desirable
Ability to write research proposals	D
Key Responsibilities This document is not designed to be a list of all tasks undertaken but an outline record of any faculty/post specific responsibilities (5 to 8 maximum). This should be read in conjunction with those contained within the accompanying generic Role Profile.	
<p>N.B. The above list is not exhaustive.</p> <ul style="list-style-type: none"> - To plan and execute experimental and theoretically guided studies on novel concentrated solar power application. This encompasses the design of experiments, characterisation (hydrodynamics and heat transfer characteristics), and interpretation. - To lead on the specifications of the prototype build and process. - To contribute to the feasibility of the commercialisation of the prototype. - Take responsibility for ensuring that equipment to be used is safe and maintained in working order. - Collaborate with academic and industry colleagues in the project. 	

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- Contribute to the induction, direction, and management of research students (undergraduate and postgraduate) as requested.
- To contribute to the overall activities of the research group and the School as required.