



Job title	Research Fellow in Propulsion Futures	Job family and level	Research and Teaching Level 4
School/ Department	Engineering	Location	University Park Campus

Purpose of role

The purpose of this role will be to have specific responsibility for research and for developing research into new coatings for propulsion futures working across Engineering and Science faculties in Advanced Materials, Power electronics, Physics and Chemistry. They will have expertise in PVD coating deposition across multiple platforms such as multiple target magnetron sputtering, MBE. They will also be expected to integrate with other coating activity within the beacon in other physical and chemical deposition techniques to meet the visions of the beacon MBE etc. In particular they will be expected to develop unique single, multilayer and nanostructured coatings for applications in propulsion futures such as insulating but thermally conducting structures pushing TRL of devices and improving efficiency of electric machines and systems. They would also be expected to work in other beacon areas such as energy generation and storage involving thin films. The role holder will be expected to work across the many different PVD capabilities in the different departments and integrate and support the different visions of the beacon

The role holder will have the opportunity to use their initiative and creativity to identify areas for research, develop research methods and extend their research portfolio.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1.	To develop research objectives for the collaborative research area.	10%
2.	To plan and conduct new research in coatings and thin films using methodologies and techniques within the research area working in Advanced Materials in Engineering, Physics and Chemistry.	10%
3.	To characterise fully thin films and coatings using the comprehensive suite of characterisation equipment available in the Nottingham micro and nano centre, Engineering, Chemistry and Physics. This includes a range of physical and chemical characterisation relevant to the applications. To analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights and innovations to the research area.	10%
4.	To write up research work for publication and/or contribute to the dissemination at national/international conferences, resulting in successful research outputs.	10%
5.	To identify opportunities and be proactive in writing bids for research grant applications in collaboration with the team	10%



6.	To build relationships with both internal (across faculties) and external contacts in order to exchange information, to form relationships for future collaborations and identify potential sources of funds and/or opportunities for collaboration.	10%
7.	To learn new skills and implement them rapidly and also transfer skills effectively. Such as to provide support, guidance and supervision to other users of PVD and other coatings equipment	10%
8.	To supervise undergraduate and/or postgraduate students projects, fieldwork and placements, as appropriate.	10%
9.	To collaborate with academic colleagues on areas of shared interest for example collaborative or joint research projects.	10%
10.	To plan and manage own research activity and resolve problems, if required, in meeting own/team research objectives and deadlines in collaboration with others.	10%

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> ▪ Excellent oral and written communication skills, including the ability to communicate with clarity on complex information. ▪ High analytical ability to analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights. ▪ Ability to creatively apply relevant research approaches, models, techniques and methods. ▪ Ability to assess and organise resource requirements and deploy effectively. ▪ Ability to build relationships and collaborate with others, both internally and externally. 	<p>Expertise in other coating technologies</p> <p>Experience in problem solving combined with characterization to determine maximise the physical, chemical and functional performance of coatings.</p>
Knowledge and experience	<ul style="list-style-type: none"> ▪ Ability to design and maintain ultra-high vacuum equipment. ▪ Proven ability in developing new thin film and coating structures for particular functional performance 	<ul style="list-style-type: none"> ▪ Experience performing experiments at synchrotron radiation facilities (desirable for taking relevant experiments beyond the capabilities of a lab-based instrument)



	<ul style="list-style-type: none"> Experimental expertise in PVD coatings, thin films and nanostructures 	
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> PhD or equivalent in relevant subject area 	



The University strongly endorses Athena SWAN principles, with commitment from all levels of the organisation in furthering women’s careers. It is our mission to ensure equal opportunity, best working practices and fair policies for all.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University’s strategy, vision and values. The following are essential to the role:

Valuing people

Role models the highest ethical standards to cultivate a collaborative workplace that develops talent and enhances wellbeing, whilst also balancing the needs of the various stakeholders.

Taking ownership

Translates the vision into a strategy for own area, enabling people to take the right action for the wider organisation. Can resolve complex problems, balancing the needs of varied stakeholders.

Forward thinking

Always has the overall strategic goal in mind, manages to stimulate agile and forward thinking in others, motivating them and giving them the confidence to drive for continuous improvement.

Professional pride

Goal is to be best in class; ensuring this can be achieved in line with long term strategy regardless of short term challenges. Supports people to do what is best for both the organisation and the department.

Always inclusive

Promotes how collaboration and positive partnerships are essential to success, constantly looking ahead to explore how to involve other potential stakeholders.



Key Relationships with others

