University of Nottingham
UK | CHINA | MALAYSIA

Role profile

Job title	Research Associate/Fellow in Synthesis and Processing of polymers for Recovery of Platinum Group Metal	Job family and level	R&T Level 4a /4 Training Grade / 4
School/ Department	Faculty of Engineering – Chemical and Environmental Engineering	Location	University Park, Coates Building

Purpose of role

The post is associated with a Johnson Matthey (JM) initiative to develop novel polymers for the recovery of platinum group metals (PGMs). The aim of this work is to advance the synthesis methods for solid-phase metal recovery polymers at a lab scale. The candidate will employ strategies such as emulsion polymerisation, high-throughput screening, microfluidic flow chemistry techniques, and purification methodologies to enhance material yields. These methodologies are unique to this project team at the University of Nottingham's Engineering facilities and are not currently practiced by JM. The candidate will optimize material synthesis from lab-scale to industrial-scale production, ensure that scaled-up samples maintain their efficacy, and facilitate the establishment of a polymer facility within Johnson Matthey's operations.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	**% time per year**
1	a) To synthesise amphiphilic polymers for recovery of platinum group metals b) Characterisation of polymers using techniques such as NMR, GPC and DSC c) To design and develop polymer formulations that are capable of self-assemble into micelles. d) Surface functionalisation of microparticles for recovery of platinum group metals e) To develop understanding about the material performance, in collaboration with the project collaborators based on their material testing data.	65%
2	Production of reports, publications, presentations and travel to collaborators site for collaborative work (UK-based), scientific meetings and/or outreach to the industry, scientific community and general public.	15%
3	Maintenance of lab equipment and training of other researchers and students in the safe use of the equipment.	5%
4	Liaison meetings with partners.	5%

5	Supervision of project and PhD students.	5%
6	Any other duties appropriate to this post as required by their line manager.	5%

Person specification

	Essential	Desirable
Skills	• Relevant materials characterisation (e.g. NMR, MALDI, XRD, SEM, AFM, XPS, FTIR, GPC/MALLS, etc.). • Experience in controlled polymerisation and the construction of co-polymers with 3D structure. • Strong organizational skills and project management. • Excellent communication and presentation skills. • Effective laboratory note taking and logging experiments and data. • Practical experience of synthesis techniques relevant to polymer chemistry • Use of the relevant characterisation techniques used in the definition of polymerised molecular structures and experience in relating how this data will influence polymer properties.	• Training in health and safety/risk assessment. • Skills in writing bids for research grants.
Knowledge and experience	• Significant demonstrated ability of team work. • Experience of publication of academic journal papers and reports. • Demonstrated creativity and leadership in problem solving. • Experimental design, taking measurements, interpretation and analysis.	• Liaising with external partners. • Designing, building or maintaining equipment. • Maintenance of lab equipment.
Qualifications, certification and training (relevant to role)	• PhD (or be about to obtain) or equivalent in Chemistry or Chemical Engineering or similar Science / Engineering degree with background in polymer chemistry.	• PhD or equivalent with background in continuous processing of nanomaterials.

Athena SWAN Silver Award

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	Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
Taking ownership	Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
Forward thinking	Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
Professional pride	Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
Always inclusive	Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others