



Job title	Research Associate/Fellow in 3D Printing of Biocatalytic Flow Reactors (Fixed Term)	Job family and level	R&T Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
School/ Department	Engineering /Food Water Waste and Resource Circularity Research Group	Location	University Park Campus and Jubilee Campus

Purpose of role

This post is part of the EPSRC Programme Grant “Dialling Up Performance for On Demand Manufacturing”, a collaboration between the Universities of Nottingham, Cambridge, Strathclyde and Reading. The overall project aim is to rapidly formulate 3D printable materials into products with functional properties. The focus of this specific role within the team is the design and development of biocatalytic flow reactors, with enzymes immobilised within (hydro)gel networks that are 3D printed to form the reactor internal structures.

We identified a range of promising materials and developed a platform to test different reactor internal geometries. The candidate will be expected to immobilise a range of industrially relevant enzymes (cofactor-dependent oxidoreductases) within these materials, to generate 3D printed structures and to optimise the performance of the resulting biocatalytic flow reactors. The job holder will have to coordinate with members of the team focused on reactor design optimisation, to select and 3D print suitable reactor geometries for testing.

The candidate will be required to work within a small team of researchers and liaise with academic and industry partners and collaborators.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	Biocatalytic reactor development - To prepare and characterise enzymes immobilised within (hydro)gel materials, by casting and 3D printing - To design, build and test 3D printed continuous flow immobilised enzyme reactors - To assess the applicability of the reactors to single and multiple enzymes - To optimise reactor performance by varying different parameters of the printed structures - To liaise with team members to identify optimal internal designs for the biocatalytic reactors.	65 %
2	Dissemination Production of reports, publications, presentations, participation at scientific meetings and/or outreach to the industry, scientific community and general public.	15 %

3	Laboratory housekeeping, training and safety ▪ Maintenance of lab equipment and training of other researchers and students in the safe use of the equipment. ▪ Organisation and assistance in general laboratory duties such as ordering of reagents and laboratory housekeeping.	5 %
4	Liaison meetings with partners	5 %
5	Assistance in the supervision of undergraduate and postgraduate students	5 %
6	Any other duties appropriate to this post as required by their line manager.	5 %

Person specification

	Essential	Desirable
Skills	- Competent in the setup and analysis of biocatalytic reactions - Ability to immobilise biocatalysts on support materials. - Ability to apply relevant (bio)chemical analysis techniques (GC, HPLC, NMR, UV-Vis, etc) - Strong organisational skills and project management. - Excellent communication and presentation skills. - Effective laboratory note taking and logging experiments and data	- Ability to build and operate biocatalytic flow reactors - Experience in formulating materials and understanding their interactions with proteins - Understanding of polymer chemistry and formulation - Effective safety management within laboratory environments - Skills in writing bids for research grants. - Knowledge of additive manufacturing techniques
Knowledge and experience	- Significant demonstrated ability of teamwork in interdisciplinary setting. - Demonstrated creativity and leadership in problem solving. - Experience with biocatalysis experimental design, data acquisition and interpretation - Experience of publication of high quality academic journal papers and reports.	- Liaising with external partners. - Designing, building or maintaining equipment. - Maintenance of lab equipment.
Qualifications, certification and training (relevant to role)	PhD (or about to obtain) or equivalent in Biocatalysis, (Bio)chemical engineering, Chemistry or a related discipline	



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 friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
Taking ownership	Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
Forward thinking	Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
Professional pride	Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
Always inclusive	Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others



