Job title	Research Associate/Fellow in Material Surface and Interface Analysis (Title will be Associate where an appointment is made before PhD is completed)	Job family and level	Research and Teaching Level 4 (Appointment will be Level 4 career training grade where an appointment is made before PhD is completed)
School/ Department	School of Pharmacy	Location	University Park Campus

Purpose of role

This position will be based in the School of Pharmacy as part of a large ongoing multi-disciplinary, multi-institutional project funded by the EPSRC award 'Enabling next generation Additive Manufacturing' (EP/P031684/1) led by Prof Richard Hague, School of Engineering, University of Nottingham. This cross-sector project with industrial partners including AstraZeneca, Pfizer, DSTL and Texas Instruments, aims to drive disruptive change, rapid development and adoption of next generation Additive Manufacturing by establishing the fundamental knowledge and advanced methods of control to enable targeted 3D multifunctionality, and to translate these advances for the benefit of scientific and industrial users. It is core to our vision that in the medium to long-term, multifunctional AM will not only be a valuable manufacturing tool for industry but will also significantly benefit academia by becoming an enabling tool for researchers covering a plethora of basic and applied research activities.

You will be responsible for the analytical challenges of determining interface/interphase evolution at the microscale as related to adjacent voxels in 3D printed functional objects formed from different materials. You will help coordinate work between researchers from Nottingham, Birmingham and Warwick Universities and many disciplines as part of this larger project with other investigators, PDRA's and PhDs. To meet the objectives of the role you will use a suite of complementary techniques including time-of-flight secondary ion mass spectroscopy, electron microscopy and Raman microscopy for post deposition analysis of the interface of deposited materials. Determination and, indeed, evolution of the appropriate methods for deposition, observation and, particularly, characterisation will be a major challenge. You will take the lead in dissemination of these advances within the project, on-line, in print and at conferences. Publications related this activity already from the project include, https://doi.org/10.1038/s43246-021-00151-0 and https://doi.org/10.1002/adtp.201900187.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	Plan and conduct supervised research using recognised approaches, methodologies and techniques within analytical sciences. This will include but it's not limited to: • Novel sample preparation methods to reveal buried interfaces	25%

	• Physical and chemical characterisation interfaces at the micro and nano scale. ▪ Development of novel analytical approaches suitable for mixed material samples.	
2	Develop research objectives and proposals for own and/or collaborative research area. Help identify opportunities and assist in writing bids for research grant applications. Prepare proposals and applications to both external and/or internal bodies for funding, contractual or accreditation purposes.	15%
3	To analyse and illuminate data, produce and interpret reports, evaluate and criticise texts and bring new insights to research area and potential industrial application.	20%
4	To build relationships with both internal and external contacts within the academic and industrial partners in order to suitably exchange information, to form relationships for future collaborations and identify potential sources of funds and/or opportunities for collaboration.	10%
5	**Outputs** ▪ Contribute to internal meetings meetings and work in conjunction with the research team to achieve objectives. ▪ Prepare research results for publication, read relevant literature and offer new insights to the research area. ▪ Contribute to dissemination at scientific meetings, resulting in successful outputs.	15%
6	**Research Team** ▪ Work in conjunction with others in the research team to achieve objectives and make an active contribution to the success of the team. ▪ Assist in the supervision of undergraduate and postgraduate students as appropriate.	10%
7	**Laboratory upkeep** ▪ Contribute to the undertaking of general laboratory duties ▪ Contribute to the upkeep and maintenance of key laboratory equipment, where appropriate.	5%

Person specification

	Essential	Desirable
Skills/Training	- Excellent information technology and computing skills. - Careful experimentalist with high level data processing capabilities. - A strong commitment to interdisciplinary research. - Excellent oral and written communication skills including the ability to clearly communicate complex information. - Excellent problem solving and organisational skills. - Ability to build relationships and collaborate with others. - Ability to work independently and as part of a team. - Flexible, proactive and dedicated approach.	Experience in one or more of the following: - Mass spectrometry - Magnetic resonance imaging (MRI) - Optical microscopy - Glioblastoma multiforme - Familiarity with in vivo techniques
Knowledge and experience	- Present work effectively to a variety of professional and academic audiences at meetings and conferences. - Ability to write high quality reports and high impact papers for publication.	- Experience with secondary ion mass spectrometry (SIMS) and/or MRI data acquisition and interpretation. - First author publications in high impact journals. - Experience in multi-disciplinary teams. - Evidence of working across chemistry/biology/pharmacy/medicine subject boundaries. - Recognition by external peer review (e.g. poster or conference prizes).
Qualifications, certification and training (relevant to role)	- A first degree in Chemistry, Physics, Pharmacy, Biology, or related discipline. - PhD thesis submitted or awarded in chemistry, biochemistry, pharmacy, or related disciplines, with a significant analytical component (such as mass spectrometry or MRI).	Home office personal licence.

The University is a signatory of the Declaration on Research Assessment (DORA). As such we commit to focus on the scientific content of publications (where requested or provided as part of the recruitment and selection process) as a basis for review of quality, and consideration of value and impact of research conducted, rather than any proxy measures such as Journal Impact Factor.

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

Line manager

Professor Clive Roberts

Role holder

Research Associate/Fellow

Key stakeholder relationships

Colleagues

Students