Applications are invited from suitably qualified candidates for the following position:

Research Centre	School of Chemical Sciences
Post title	Postdoctoral Researcher MultiMAT Development of Functional 3D printable advanced (bio)inks.
Level on Framework	Level 1
Post duration	Fixed Term Contract 12 Months

Dublin City University

Dublin City University (DCU) is a young, ambitious and vibrant university, with a mission 'to transform lives and societies through education, research, innovation and engagement'. Known as Ireland's 'University of Enterprise', DCU is a values-based institution, committed to the delivery of impact for the public good. DCU was named Sunday Times Irish University of the Year 2021.

DCU is based on three academic campuses in the Glasnevin-Drumcondra region of north Dublin. More than 18,000 students are enrolled across five faculties – Science and Health, DCU Business School, Computing and Engineering, Humanities and Social Sciences and DCU Institute of Education.

DCU is committed to excellence across all its activities. This is demonstrated by its world-class research initiatives, its cutting-edge approach to teaching and learning, its focus on delivering a transformative student experience, and its positive social and economic impact. The university continues to develop innovative programmes in collaboration with industry, such as the DCU Futures suite of degrees, which are designed to equip graduates with the skills and knowledge required in a rapidly evolving economy.

DCU's pursuit of excellence has led to its current ranking among the top 2% of universities globally. It is also one of the world's Top Young Universities (QS Top 100 Under 50, Times Higher Top 150 Under 100). In the Times Higher Education University Impact Rankings 2021, DCU ranked 23rd in the world for its approach to widening participation in higher education and its ongoing commitment to eradicating poverty, while it ranks 38th globally for its work in reducing inequality and 89th globally for gender equality.

The university is ranked 23rd in the world and first in Ireland for its graduate employment rate, according to the 2020 QS Graduate Employability Rankings. Over the past decade, DCU has been the leading Irish university in the area of technology transfer, as reflected by licensing of intellectual property.

As part of this role the researcher will be required to participate in the DCU Research Career Framework. This framework is designed to provide significant professional development opportunities to Researchers and offer the best opportunities in terms of a wider career path.

Background and Role

The School of Chemical Sciences at Dublin City University invites applications for a Postdoctoral Researcher in materials science, polymer science and (bio)ink formulation to work on the formulation and optimisation of multicomponent bioactive bioinks, e.g., biomolecules incorporation in a conductive stimuli-responsive polymers matrix, that will enable the sensors to be 3D printed at low temperatures. The position is available from June 2022, initially for one year, with the possibility of extension for two years. The goal of this specific project is to develop stable advanced functional bioinks, e.g., active biomolecules incorporated in an electronically conducting, stimuli-responsive polymer matrix, allowing sensor platforms to be 3D (bio)printed at low temperatures in complex printed architectures. The project will be developed in collaboration with Prof. Yann Pellegrin - Nantes University (France) and Prof. Robert Forster – DCU (Ireland).

We are seeking a Postdoctoral Researcher with a PhD in materials science/polymer science/ biosensor/electrochemistry focused strongly on the formulation and optimisation of inks for 3D (bio)printing as well as experience in 3D (bio)printing and ink/materials characterisation.

Successful candidates will be required to have good understanding of the interaction between (conductive) polymers, organic solvents and biomolecules (antibodies) within the bioink. Also, the stability, biodegradability, cytotoxicity and bioactivity of the 3D bioprinted structures will also be investigated by the PD.

The PD will join a multidisciplinary research team working to formulate a multicomponent smart bioink, optimise and test the 3D (bio)printed sensor structures. The bioinks developed will be applied on the creation of a reliable, stable and reproducible (bio)sensors platform that allows multianalyte detection, e.g., pathogen detection – E. Coli and Salmonella.

Knowledge of the key aspects of electrochemical biosensor design, e.g., sensitivity, background noise, available potential window, and how these are influenced by the ink composition is an advantage.

Principal Duties and Responsibilities

Please refer to the job description for a list of duties and responsibilities associated with this role.

Minimum Criteria

- Applicants should have a PhD in material sciences, materials chemistry, polymer science, or 3D printable bioinks for electrochemical application.

- Laboratory experience in (bio)ink formulation using nanomaterials, biomolecules (proteins, nucleic acids and cells), 3D bioprinted structures characterisation (e.g., rheology, cytocompatibility, bioactivity loss, layer stacking, filament fall, extrusion force, shelf-life and compression tests).
- Demonstrated strong work ethic, as well as an independent and creative mind set and a deep commitment to problem-solving.
- Excellent interpersonal skills as well as verbal and written communication skills.
- Very good organisational skills with an ability to prioritise workloads and to work successfully on their own initiative.

In addition, it is desirable that the candidate has experience in:

- Postdoctoral experience, graduate qualification, e.g., in bioink formulation, optimisation and characterisation.
- Knowledge in electrochemistry is desirable.
- Demonstrated ability to work as part of a collaborative team and to innovate in an organisational environment with multiple academic, clinical and industrial stakeholders.

Candidates will be assessed on the following competencies:

Discipline knowledge and Research skills – Demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline

Understanding the Research Environment – Demonstrates an awareness of the research environment (for example funding bodies) and the ability to contribute to grant applications

Communicating Research – Demonstrates the ability to communicate their research with their peers and the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students

Managing & Leadership skills - Demonstrates the potential to manage a research project including the supervision of undergraduate students

Essential Training

The postholder will be required to undertake the following essential compliance training: Orientation, Health & Safety and Data Protection (GDPR). Other training may need to be undertaken when required.

Salary Scale:

IUA Postdoctoral Researcher Salary Scale - €39,523 - €46,906

Appointment will be commensurate with qualifications and experience and in line with current Government pay policy

Closing date: ***15th July 2022***

For more information on DCU and benefits, please visit Why work at DCU?

Informal Enquiries in relation to this role should be directed to:

Dr Loanda Cumba, School of Chemical Science, Dublin City University.
Email: loanda.cumba@dcu.ie

Application Procedure:

Application forms are available from the DCU Current Vacancies website at https://www.dcu.ie/hr/vacancies-current-vacancies-external-applicants (external applicants)

Applications should be submitted by e-mail with your completed application form to loanda.cumba@dcu.ie

Please clearly state the role that you are applying for in your application and email subject line: Job Ref #RF1678 Postdoctoral Researcher MultiMAT Development of Functional 3D Printable Advanced (bio)inks

Dublin City University is an equal opportunities employer. In line with the Employment Equality Acts 1998 – 2015, the University is committed to equality of treatment for all those who engage with its recruitment, selection and appointment processes. The University's Athena SWAN Bronze Award signifies the University's commitment to promoting gender equality and addressing any gender pay gaps. Information on a range of university policies aimed at creating a supportive and flexible work environment are available in the DCU Policy Starter Packs