

Research Unit	Advanced Processing Technology Research Centre
Research Lab	Déantús
Post title	Postdoctoral Researcher
Post duration	3 Years

Research Career Framework

As part of this role the researcher will be required to participate in the DCU Research Career Framework <http://www.dcu.ie/hr/ResearchersFramework/index.shtml>. 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

Dublin City University (DCU) is one of the largest universities in Ireland. Its student population is approximately 13,000, including 500 research postgraduates and over 1,800 taught postgraduate students, plus around 3,000 distance education students. DCU is a research-led university which has developed its own research specialists, established internationally recognized centres of excellence that have substantive collaborative links with leading universities and industrial partners.

DCU has a strong track record in attracting both Irish and European Union research funding under Horizon 2020 (and all previous Framework Programmes), Marie Curie Actions and Erasmus. We offer a dynamic and internationally-focused environment in which to advance your academic career.

Déantús Advanced Manufacturing Research Centre: The Déantús Advanced Manufacturing Research Centre has been established by Science Foundation Ireland (SFI) to deliver high-impact, innovative science and engineering research. Déantús - 'manufactured' in Irish - has particular focus on additive manufacturing ('3D printing') combined with advanced digital technologies applied in a precision manufacturing environment, see <http://www.deantus.ie/>.

The Centre brings together a multi-disciplinary team of over 70 PhD and Post-Doc researchers in manufacturing engineering, materials and data science, in a cross-disciplinary and translational research environment. Déantús operates in close collaboration with a global network of companies and collaborators.

algorithms (incl. design of experiments) is a requirement for this position.

Principle Duties and Responsibilities

Project : Use of non-invasive techniques for SLM process monitoring

We will explore the application of a selection of techniques to monitor the process and component quality during Selective Laser Melting (SLM). The SLM process lasers (or parallel probe lasers) can produce thermal waves in the manufactured component, which in turn lead to the generation of localised acoustic or component thermal deflections. The emphasis will be placed on non-contact with the manufactured component, and photoacoustics (PA), photothermal deflection (PTD) of sample surfaces and/or spatially resolved acoustic spectroscopy (SRAS) techniques will be explored. In addition, a SLM process laser can produce a plasma plume above the metal surface, which will produce radio frequency (rf) electromagnetic radiation. Using DCU's proprietary rf monitoring tools, non-contact, non-invasive, real-time process monitoring of the molten region during SLM processing will be developed, and will be correlated with PA/PTD/SRAS and post-process metrology of the solidified components such as microstructure analysis via x-ray diffraction and similar techniques.

Minimum Criteria

Applicants must have a PhD and proven experience in the use of laser-based metrology and/or spectroscopy techniques for low pressure and atmospheric pressure plasma analysis and monitoring. Complementary experience in x-ray diffraction-based materials analysis would also be desirable

The team is looking for high performance aspiring applicants with a desire to discovering new knowledge and to drive forward advanced manufacturing technologies. Applicants are invited from high achieving graduates with the specific related backgrounds noted above. Ideally the applicant will have demonstrated:

- An ability to design and/or implement a substantial programme of research including initiating and leading new research programmes.
- Demonstrated ability in communicating their research nationally and internationally (for example by publishing in high quality peer reviewed journals of international standing, presentation at conference and through interaction with industrial partners).
- Experience in assisting with the supervision of postgraduate students would also be desirable as would financial management of a research project.
- A demonstrated ability of good communication skills will be sought.

Salary: *€36,488 – €47,255

*** *Appointments will be commensurate with qualifications and experience and will be made on the appropriate point of the salary scales, in line with current Government pay policy.***

Closing Date: Friday, 01 September 2017

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.

Communication 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/postgraduate students.

Application Procedure

Informal enquiries to:

Professor Patrick McNally, School of Electronic Engineering

E-mail: Patrick.mcnally@dcu.ie, Phone: +353 (0)1 700 5119

Please do not send applications to this email address, instead apply as described below.

Application Procedure

Application forms are available from the DCU Current Vacancies (open Competitions) website at <http://www.dcu.ie/vacancies/current.shtml> and also from the Human Resources Department, Dublin City University, Dublin 9. Tel:+353 (0) 1 7005149.

Please clearly state the role that you are applying for in your application and email subject line: Job Ref#629 : Postdoctoral Researcher, School of Mechanical & Manufacturing Engineering.

Applications should be submitted by email to hr.applications@dcu.ie or by Fax: +353 (0)1 7005500 or by post to the Human Resources Department, Dublin City University, Dublin 9.

Dublin City University is an equal opportunities employer