



<b>Research Unit</b>	<b>School of Electronic Engineering</b>
<b>Research Lab</b>	<b>Radio and Optical Communications Laboratory (ROCL)</b>
<b>Post title</b>	<b>Postdoctoral Researcher</b>
<b>Post Duration</b>	<b>Up to 24 Month Fixed Term Contract</b>

### **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, over 1,800 taught postgraduate students and around 3,000 distance education students. DCU is a research-led university, which has developed its own research specializations and 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 Programs), Marie Curie Actions and Erasmus. We offer a dynamic and internationally-focused environment, in which to advance your academic career.

**The Radio and Optical Communications Laboratory (ROCL)** at DCU is a research group that focuses on the simulation and demonstration of novel technologies for future broadband photonic communication systems. The research carried out in this laboratory encompasses a wide array of domains, including optical communications systems, a wide array of high-speed semiconductor devices, optical transmitters and receivers, optical pulse and frequency comb sources, high speed detection, photonic sensing as well as optical and digital signal processing. The group has strong linkages with academic and industrial partners in Ireland and abroad and work on a mix of fundamental and applied research topics in the domains of radio and optical systems.

### **The Project**

This research project is in the area of next generation elastic optical networks that have been proposed to meet the network capacity and dynamicity challenges. PROTON project is funded by Science Foundation Ireland (SFI) and comprises DCU (lead) and three national and international industrial collaborators. During the course of the work, the successful candidate will have the opportunity to collaborate with the mentioned partners.

Specifically, PROTON investigates spectrally efficient high capacity optical networks. Focus is placed on multicarrier transmitters, as the platform technology to satisfy the growing capacity needs of next generation optical networks and also cater for the dynamic traffic and network conditions. The project aims to develop a programmable transmitter based on optical frequency

combs (OFC) that will enable denser channel spacing and software controlled flexible transmitters, to deliver performance tailored to the network demand.

The Postdoctoral Researcher will specifically work on investigating and designing OFCs, using different generation techniques and types of semiconductor lasers. Characterisation, programmability and the employment of these OFCs in various optical communication systems will also be vital aspects to be investigated. The experimental activities described will be carried out in line with modelling/simulation of devices, sub-systems and systems.

### **Principal Duties and Responsibilities**

The primary focus of the Postdoctoral Researcher (PDR) will be to perform research on the SFI funded project PROTON as described above. However, the PDR's activity will be broader and the PDR is also expected to:

- Conduct a specified programme of research under the supervision and direction of the Principal Investigator
- Engage in the dissemination of the results of the research in which they are engaged, as directed by, with the support of and under the supervision of the Principal Investigator. (Actively publish research findings in high impact journals and at key conferences as part of the research group effort to disseminate research outputs).
- Engage in the wider research and scholarly activities of the research group, School or University
- Interact closely with postgraduate research students associated with the same research group and possibly have an agreed role in supporting these students in their day to day research in conjunction with an academic supervisor
- Take leadership and contribute to generation of papers, reports and other funding proposals
- Carry out administrative work to support the program of research where required, including regular funding agency reports and internal reports etc.
- Carry out additional duties as may reasonably be required within the general scope and level of the post
- Contribute to the financial management of a research project
- Support collaboration with industry in areas relevant to the research group
- Liaise with different DCU units such as STEP, RIS and Finance in aspects related to the research activities performed
- Engage in appropriate training and professional development opportunities as required by the Principal Investigator, School or University, in order to develop research skills and competencies.
- Gain experience and contribute to grant writing with the support of and under the supervision of the Principal Investigator
- Acquire generic and transferable skills (including project management, business skills and postgraduate mentoring/supervision)
- Contribute to broader outreach and engagement activities such as organising technical meetings, outreach to schools and other interested parties etc.

### **Minimum Criteria**

- PhD qualification required, preferably in an Electronic Engineering or Physics related discipline (preferably with 12 months postdoctoral experience)
- Appropriate technical competence and research experience in areas related to Photonics, such as:

- Semiconductor laser characterisation
- Multi-carrier (optical frequency comb) generation, characterisation and optimization
- Long haul transmission and associated technologies
- Spectrally efficient modulation schemes
- All optical signal processing
- Excellent experimental skills with optical components and test and measurement equipment
- Evidence of accomplishment in research and development in the area of optical communications
- A capability of working within a project team to achieve group-oriented results, in parallel to individual productivity and top quality publications
- Good communication, organisation and interpersonal skills
- Experience in presentations to international conferences are preferable
- A commitment to gaining practical experience working on a research project

**Salary:** \*€36,854 - €42,603

***\*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:** 26<sup>th</sup> March 2018

**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.

**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/postgraduate students.

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

**Informal Enquiries to:**

Dr. Prince Anandarajah, School of Electronic Engineering, Dublin City University, Dublin 9, Ireland.

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*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://www4.dcu.ie/hr/vacancies/current.shtml> and also from the Human Resources Department, Dublin City University, Glasnevin, Dublin 9. Tel: +353 (0)1 700 5149.

**Please clearly state the role that you are applying for in your application and email subject line: Job Ref #813: Postdoctoral Researcher, School of Electronic Engineering**

Applications should be submitted by email to [hr.applications@dcu.ie](mailto: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***