



Candidate Brief for the position of:

Post-Doctoral Researcher

**School of Physics, College of Sciences and Health
(Fixed Term Specified Purpose contract, up to 5
years)**

Dublin Institute of Technology

Reference: NA/208/15



Dublin Institute of Technology

DIT at a glance

- A history in Dublin city, dating back to 1887, in its current form since 1992
- 9% of all higher education students in Ireland
- 20% of student population come from outside Ireland
- 15% of DIT students are mature learners
- Students registered on programmes in four Colleges - Arts and Tourism; Business; Engineering and Built Environment; Sciences and Health
- One of the national degree-awarding bodies in higher education
- Circa 2,500 staff members of academic, administrative and support staff
- 800 students and academic staff actively engaged in research
- Ranked in the top 3% of universities internationally
- 4000+ graduates each year
- Active in civic and industry engagement
- Annual budget circa €170M

For further detail, please see www.dit.ie.

Dublin Institute of Technology:

DIT is committed to responding to the challenges and opportunities that have emerged in Irish higher education, engaging positively in institutional collaboration both nationally and internationally, and in developing a strategy of widening participation and community engagement. We are now preparing for the next phase of our development with the relocation of all DIT activities to an integrated, state-of-the-art campus in Dublin's city centre, and to the development of the Technological University for Dublin (TU4 Dublin).

College of Sciences & Health:

The College of Sciences and Health at the Dublin Institute of Technology was established in 2010 and is located at DIT's Kevin Street and Cathal Brugha Street sites. The College builds on 120 years of experience in science and technology education and now offers practical, professional and career-oriented education, training and research in mathematics, computing, sciences and health. The College's mission is to support economic and societal development by providing highly skilled graduates, trained researchers and an up-skilled workforce capable of anticipating and meeting demand in competitive global sectors including Food, Pharmaceutical and Life Sciences, ICT, Green Technology, Financial Services, Education and the Allied Health Professions.

The College's strengths come from its excellent teaching staff, its successful research profile and its close ties with industry, the professions and the health sector. Almost all of its programmes are linked with industry and relevant professions through placement opportunities and other engagement activities, and its research is guided and informed by the needs of relevant sectors.

School of Physics

Physics at Ireland's Dublin Institute of Technology is active in research areas from nanotechnology & materials science to optics to medical physics and has pioneered Problem Based Learning as a delivery method for undergraduate honours Physics degrees.

The School offers Level 7 and Level 8 primary degrees (BSc), as well as masters (MPhil) and doctorate (PhD) qualifications and was the first in Ireland to offer a nanotechnology undergraduate degree. These Dublin-based DIT degrees have been designed with industry input and emphasise the applied nature of the field and may include industrial placement or opportunities for travel abroad.

Project: Pressure activated colour changing optical device

The aim of this project is to evaluate the commercial potential of an optical security device that can change colour when a relatively low pressure is applied to it. For example the device has a form of plastic sticker/label that changes colour from red to green when pressed by a finger. This device in its simplest form is a volume reflection hologram of a mirror, thus producing a single colour in reflection, but it could also be a hologram of an object, which will make it even more difficult to copy. The technical work on this project will involve the development of photopolymer formulations (including nanocomposite materials) with tuneable mechanical properties suitable for recording of reflection holograms and the spectroscopic characterisation of the holograms under applied pressure. The design of colour-changing, pressure-sensitive devices for anti-counterfeit applications

and identification of a potential method for mass production of pressure-sensitive holographic devices are also part of the work plan.

This project will take place at the Centre for Industrial and Engineering Optics.

The Centre for Industrial and Engineering Optics

The Centre specialises in holographic and interferometric techniques and has developed novel technologies with applications in product authentication, sensing, vibration measurement and optical device fabrication.

The Centre has been in existence for more than fifteen years and research is carried out in well-equipped optical research laboratories in DIT Kevin Street and the FOCAS Institute.

Job Description

Role Overview:

The School of Physics is seeking a Physics graduate to work as a Postdoctoral Researcher in the Centre for Industrial Engineering Optics. The job involves carrying out research into Photopolymer Optical Devices Research Programme.

The successful candidate must have an honours bachelor degree or equivalent in physics or chemistry and a PhD in a relevant area. Substantial research experience in optics and a good publication track record are essential. Activities will focus on both theoretical analysis and design of the devices and experimental investigation with an emphasis on commercial applicability.

This is a fixed term specified purpose appointment for up to a maximum of 5 years which will run from date of employment until the end of the purpose or until the funding for this post comes to an end, whichever is the sooner. Initial funding is in place for 18 months from the date of employment.

The purpose of this position is to undertake a mentored training opportunity on the Industrial and Engineering Optics Research Programme, working initially on the Photopolymer Optical Devices project. The appointee may be assigned from project to project within the Research Programme.

One of the key objectives of the Institute is to attract and develop researchers through the provision of mentored research training opportunities in the Institute. It is intended that this opportunity will provide for intergenerational training in the methods and practice of research. It is intended that these research opportunities will provide qualified, skilled and experienced researchers for Irish employers.

- **Principal Accountabilities**

The key responsibilities of the job include:

1. Manage and conduct a specific programme of research and scholarship under the leadership of the Principal Investigator.
2. Disseminate the outcomes of this research and scholarship when agreed appropriate by the Principal investigator and DIT technology transfer office, including peer-reviewed academic publications of international standing and/or documentation for Intellectual Property protection.
3. Where appointed to do so by DIT, supervise or co-supervise with a full time member of DIT staff, graduate research students.
4. Take responsibility for and manage and conduct administrative and management tasks associated with the programme of research.
5. Engage in appropriate training and professional development opportunities as required by the Principal Investigator.
6. Play an active role in knowledge and technology transfer activities and intellectual property protection.
7. Prepare and present research findings to colleagues for review purposes.
8. Submit papers to appropriate journals and attend and present findings at appropriate conferences. Prepare progress reports on research for funding bodies as required.
9. Seek new areas of research and prepare and submit research proposals that will enhance the reputation of DIT.
10. Participate fully in the wider research and scholarly activities of the Research Centre / Institute and College/School.
11. The post holder will carry out any other duties within the scope, spirit and purpose of the job as requested by the line manager or Director of the College/School.
12. Comply with all DIT policies and regulations, including those in relation to Research Ethics and Health and Safety.
13. Assist in the future development of the Research Programme and in seeking and pursuing appropriate external funding.

Person Specification

The ideal candidate will demonstrate the appropriate mix of knowledge, experience, skills, talent and abilities as outlined below:

Knowledge

- An Honours Degree from an approved degree awarding institution or equivalent in an appropriate discipline (*essential*)
- A PhD degree in Physics, Chemistry or Material Sciences or equivalent(*essential*)

- Knowledge of research techniques and methodologies in the area of Experimental Optics (*essential*)
- Knowledge of one or more of the following research areas: photopolymer nanocomposites, holography, holographic recording materials, photopolymers, diffractive optical components, sensors, materials for development of optical sensors (*essential*)
- Evidence of a research profile and publication record within the requisite subject area (*essential*)
- Experience of research supervision
- Experience of commercialisation of research

Skills, talents & abilities

- Commitment to high quality research (*essential*)
- Effective communication and knowledge transfer skills with the ability to present complex information effectively to a range of audiences (*essential*)
- Ability to work collaboratively and as part of a team to an agreed work plan

Eligibility to compete

This is a mentored research training post and, is, therefore not open to applicants who have previously availed of, or benefited from, a similar mentoring or training post within the Institute. It is expected that the appointee will complete mentored research training with the Institute which will cease on expiry of the fixed term specified purpose. The expectation is that successful appointee will, at that point, further their knowledge and development in a different research environment.

Citizenship / Permit Requirement:

Eligibility to compete is open to candidates who are citizens of the European Economic Area (EEA) or Switzerland. The EEA comprises member states of the European Union along with Iceland, Liechtenstein and Norway. Other candidates may be eligible to compete subject to their having or obtaining an appropriate work permit for the nature and duration of the position.

Eligibility to compete may be affected where applicants were formerly employed by the Irish Public Service and previously availed of an Irish Public Service Scheme including:

- Incentivised Scheme for Early Retirement (ISER)
- Department of Health and Children Circular (7/2010)
- Collective Agreement: Redundancy Payments to Public Servants

Applicants should ensure that they are not precluded from re-engagement in the Irish Public Service under the terms of such Schemes. This is a non-exhaustive list and any queries should be directed to an applicant's former Irish Public Service Employer in the first instance.

Terms and Conditions of Employment

A full statement of terms and conditions of employment will be given to the successful applicant in accordance with Terms of Employment (Information) Acts 1994 and 2001.

The main terms and conditions of employment are as follows:

Tenure:

This is a fixed term specified purpose appointment which will run from the date of employment until the end of the fixed term specified purpose or until the funding for the post comes to an end, whichever is the sooner. The initial funding is in place for an 18 month period.

Location:

This post is currently located in DIT Centre for Industrial and Engineering Optics, although you may be re-assigned to another College or Centre in the future, at the discretion of the Institute.

In September 2017, programmes currently operating in the Cathal Brugha Street Campus, the Kevin Street Campus and part of the Rathmines Campus will transfer to the Campus in Grangegorman.

In early 2016 it is expected that – through legislation – the three institutions in the Dublin region – Dublin Institute of Technology (DIT), Institute of Technology, Blanchardstown (ITB) and Institute of Technology, Tallaght (ITT) will merge into a single institution to form the new Dublin Institute of Technology, prior to seeking designation as a Technological University for Dublin. Thereafter, staff may be assigned or re-assigned to any of the buildings/centres in the new Dublin Institute of Technology, at the discretion of the Institute and in accordance with collective agreements arrived at from time to time.

For further information please see www.tu4dublin.ie and www.dit.ie/grangegorman

Salary:

This post is aligned to the Post-Doctoral Researcher salary scale. Starting pay will be at the minimum of the scale i.e. €37,750 gross per annum. Remuneration may be adjusted from time to time in line with Government pay policy.

Hours of work:

A 39 hour working week is in operation. This can be reviewed by collective agreement, with the Minister for Education & Skills. Having regard to the nature of the work, attendance outside these hours may be required from time to time.

Probation:

The terms of the Institute's Staff Induction and Probation Policy will apply.

Annual leave:

Annual leave and Public Holidays shall be granted as per the Holidays (Employees) Act 1973 and Organisation of Working Time Act 1997. The annual leave for this post is 25 days inclusive of any compulsory leave days as determined by the Institute.

Pension:

The appointee will not be entitled to join the Education Sector Superannuation Scheme; however the Institute has a PRSA in place. A PRSA is a straightforward pension product that was introduced in 2003 by the Pensions (Amendment) Act 2002. It is a contract between an individual and the authorised PRSA provider in the form of an investment account that can be used to save for retirement.

Sick Leave:

Up to 7 single days' per two years uncertified sick leave plus a maximum of 14 days certified sick leave per annum pro rata may be granted. Pro rata sick leave entitlements will apply to contracts of less than one year's duration. Payments in respect of sick leave will be adjusted by reference to any disability benefit received from the Department of Social Protection. Sick Leave will be in accordance with the arrangements authorised by the Minister for Education and Skills from time to time.

Certificates:

Persons appointed will be required to furnish:

- a) Documentary evidence of educational attainments/qualifications
- b) Two satisfactory references, one of which will be requested from current manager

Nature of the post:

This is a fixed term specified purpose appointment for up to 5 years and it will run from date of employment until the end of the fixed purpose or earlier if the funding for this post comes to an end. Initial funding is available for 2 years.

The provisions of the Dublin Institute of Technology Act, 1992 to 2006 and any subsequent Acts replacing or amending these Acts and any orders and regulations made under these Acts will apply.

External Funding:

This contract post is a fully "externally funded post" as envisaged by the Employment Control Framework for Higher Education Sector' published by the Higher Education Authority pursuant to the Moratorium on Recruitment and Promotions in the Public Service as currently implemented by the Government. It is a condition of this contract that if such external funding ceases or if the Institute is obliged to terminate the post for other reasons outside of its control (such as State policy), a redundancy will arise in respect of this position.

Application Process

Application Form:

Applications will be accepted through the online application service at <https://recruit.dit.ie>. A CV will be required in addition to the application form. All correspondence from the Institute regarding

your application will be by email. Please ensure that the security filters on your email provider will accept emails from DIT.

Closing Date:

The closing date for applications is **5.00 pm on 11 September 2015**. Late applications will not be accepted.

Contact information :

For further information about this post please contact: Izabela Nadenova at izabela.naydenova@dit.ie

For queries regarding the application process, please contact Sophie Evans, Human Resources, at 01 402 7528 between 9.30 and 5.00pm, Monday to Friday or email sophie.evans@dit.ie or hr@dit.ie.

Further Information for Candidates:

- Canvassing will automatically disqualify.
- Late applications will not be accepted.
- You are also advised that you can only submit one application per competition. Should you have any issues with your submission, please contact us.
- Candidates will be shortlisted based on the information contained in the application
- It is Institute policy to seek written references from your referees, one of whom must be your current or most recent employer. Candidates are advised to please ensure the nominated referees are aware of this requirement.
- DIT is an equal opportunities employer.
- DIT operates a policy of Garda Vetting & Disclosure of Criminal Convictions. All applicants will be asked to disclose criminal convictions and may have to undergo Garda Vetting as part of the selection process.

Persons appointed for the first time to a whole-time position within the Institute will be required to furnish:

- a satisfactory Health Certificate from a medical practitioner nominated by the Institute;
- as evidence of age, a certified extract from a Public Register of Birth;
- a passport (if a passport is not currently held, a birth certificate and a form of photographic identification is required);
- Proof of PPS Number (e.g. social services card);
- Income Tax - Certificate of Tax-Free Allowance or Cessation Certificate (P45 Form);

- Qualifications: the successful candidate will be required to submit parchments of Degrees, Diplomas, Certificates and other professional qualifications.

DIT acknowledges the support of the European Regional Development Fund in supporting research and research training initiatives.