World Leaders in Research

SFI Research Professor of Bioengineering

School of Engineering, Faculty of Engineering, Mathematics and Sciences
Trinity College Dublin

Expressions of interest by 17.00 GMT on Friday, 12th September 2014.
Trinity College Dublin

Trinity College Dublin is Ireland’s university on the world stage. Recognised for its transformative research and education conducted at the frontiers of disciplines, Trinity is ranked 61st in the world by the QS World University Rankings 2013.

The pursuit of academic excellence through research and scholarship is at the heart of Trinity’s academic endeavour. Trinity is known for intellectual rigour, excellence, interdisciplinarity, and research-led teaching. Home to Nobel prize-winners such as scientist Ernest Walton and writer Samuel Beckett, Trinity draws visitors from across the world to its historic campus each year, including to the Book of Kells and Science Gallery which capture the university’s connection to both old and new.

Trinity accounts for one-quarter of all spin-out companies from Irish higher education institutions, helping to turn Ireland into an innovation-intensive, high-productivity economy. That culture of innovation and entrepreneurship is a defining characteristic of our campus as we help shape the next generation of job creators and global citizens.

Founded in 1592, Trinity is situated at the nexus of tradition and innovation, offering undergraduate and postgraduate programmes across 24 schools and three faculties: arts, humanities, and social sciences; engineering, mathematics and science; and health sciences.

Spread across 47 acres in Dublin’s city centre, Trinity has a 17,000-strong student body, 3,000 staff and over 100,000 alumni around the world. Of the student body, 16% come from outside Ireland and, of those, 40% are from outside the European Union, making Trinity’s campus cosmopolitan and bustling, with a focus on diversity.

Trinity has developed significant strength in a broad range of research areas, including the 21 broadly based multi-disciplinary thematic research areas, see www.tcd.ie/research/themes. Trinity is home to Ireland’s first purpose-built nanoscience research institute, CRANN, housing 150 scientists, technicians and graduate students in specialised laboratory facilities. Meanwhile, the state-of-the-art Trinity Biomedical Sciences Institute is carrying out breakthrough research in areas such as immunology, cancer and medical devices. Trinity College Institute of Neuroscience (TCIN) leads brain research in Ireland and is the country’s only dedicated neuroscience research institute. TCIN is an interdisciplinary research institute with Principal Investigators from a wide range of disciplines including psychology, physiology, biochemistry, engineering, psychiatry and genetics.

The Old Library in Trinity is the largest research library in Ireland, with a collection of six million printed items, 500,000 maps, 80,000 electronic journals, and 350,000 electronic books. Some of the world’s most famous scholars are graduates of Trinity, including writer Jonathan Swift, dramatist Oscar Wilde, philosopher George Berkeley, and political philosopher theorist Edmund Burke. Three Trinity graduates have become Presidents of Ireland - Douglas Hyde, Mary Robinson and Mary McAleese.
Trinity is:

- Recognised internationally as Ireland’s leading university, ranked 61st in the world by the QS World University Rankings 2013 and 18th in Europe.
- Ranked 42nd in the world and ninth in Europe in terms of Research Performance (Leiden Ranking of World Universities, 2013).
- Ranked in the top 1% of research institutions in the world in 18 fields - an increase of over 150% from 2004 (Thomson Reuters Essential Science Indicators, September 2013).
- Ranked 22nd in the world in terms of International Outlook (Times Higher Education World University Ranking, 2013).

Trinity’s Global Rankings

Trinity is:

- Ranked in the top 200 world universities in 23 of the 30 disciplines in the 2014 QS World University Rankings by subject including:
  - **Biological Sciences**: in the top 100 universities in the world and the top 35 in Europe
  - **Medicine**: in the top 100 universities in the world and in the top 46 in Europe
  - **Pharmacy and Pharmacology**: in the top 100 universities in the world and in the top 40 in Europe
  - **English**: 25th in the world, 7th in Europe
Two Trinity scientists, Professor Luke O’Neill and Professor Jonathan Coleman, were recently included in the Thomson Reuters Highly Cited Researchers 2014 list. They are ranked among the top 1% most cited for their subject field and year of publication (between 2002 and 2012).

Trinity’s research leverages areas of multidisciplinary expertise where the University has critical mass of world-class primary investigation. Trinity’s research is across science, engineering, social sciences, medicine and the arts. These research areas address immediate and long-term challenges in society, as well as offering opportunities for economic development. Research is central to the generation of the new disruptive ideas that will underpin future sustainable businesses. The value created by Trinity is critical for Ireland’s economic and social development, as well as society globally.

Trinity’s research themes are supported by a set of research institutes that provide the infrastructure needed to support multi-disciplinary research as well as engagement with enterprise and social partners working in partnership with Trinity’s 24 schools. Built on the foundations of individual excellence, clustering expertise into multi-disciplinary teams, Trinity has a portfolio of research activity presented as 21 themes, which have scale, resources and the ability to solve large scale research challenges. Trinity’s credentials in research and innovation are strong:

• According to Thomson Reuters Essential Science Indicators, in terms of research impact as measured by citations, Trinity ranks among the world's top 1% of research institutions in 17 STEM and social sciences fields, including immunology, materials science, and molecular biology and genetics;

• Trinity’s researchers have made major contributions to global society. Trinity’s mathematics gave us quaternions which underpin modern spaceflight while our chemists developed the world’s first commercial nicotine patch, in collaboration with Elan Pharmaceuticals;

• Trinity has an outstanding record of publications in high-quality journals and in terms of the impact of its research publications. The University is highly successful at securing research funding, with 1,526 research accounts totaling an annual expenditure of €79.1 million in 2012/2013.

• In the period 2008 to 2013, 70 commercial licenses have been granted to a wide range of companies, and 38 new Trinity campus companies have been formed to commercialize Trinity’s intellectual property. These eight Trinity spin-outs/licensees have attracted almost €60 million in venture capital investment in the past two years.

• In 2008, Trinity created Science Gallery on our Dublin campus, attracting over 1.5 million people to unique exhibitions, from living art experiments to materials science and from the future of the human race to the future of play.

• The Trinity Biomedical Sciences Institute (TBSI) opened in 2011. Among the key highlights so far are:
  - 76 companies working with researchers to develop new products in biomedicine;
  - €36 million raised for interdisciplinary research; and,
  - Three spin-out companies involved in drug discovery and development, and cancer treatment - Opsona Therapeutics, Trino Therapeutics and TriMod.

• CTVR, The Telecommunications Research Centre provides a cutting edge focus to not just communications research in Trinity, but also across related research in the country including industry. The Trinity Centre for Biomedical Sciences, in addition to a growing research record, provides key strategic linkages to the biosciences (TBSI) and nanomaterials (CRANN).

Trinity’s Flagship Research Institutes

Trinity’s research institutes provide the infrastructure to support multi-disciplinary research, working in partnership with Trinity’s faculties and schools. Full details of Trinity’s research and innovation strategies as well as international research collaborations are available at:

www.tcd.ie/research

www.tcd.ie/innovation

www.tcd.ie/research/worldleaders/brochure2014
Research in Ireland

Ireland is a country of 4.5 million people with a global diaspora of 70 million more, which has a significant impact on global affairs in terms of culture, business and research. Over the last decade, Ireland has demonstrated a clear commitment to the development of a knowledge-led economy, in good times and bad, with unprecedented investment on a national level in education, science and technology.

This strategy is based on harnessing its unique international success in attracting foreign direct investment, and ensuring that Ireland remains not just a global hub for manufacturing but also increasingly for research, development and innovation.

Ireland has proven to be the most effective gateway for international businesses into Europe. This small offshore island has successfully become a global economic centre with a truly remarkable cluster of world-leading businesses.

- Nine of the top ten global companies in medical technologies have a high volume manufacturing base here and a growing presence in Research and Development.
- Nine of the top ten global pharmaceutical companies are located in Ireland, with seven out of ten pharmaceutical blockbusters produced here.
- The ICT sector in Ireland attracts global investment with seven of the world's top ten companies operating here. The sector accounts for €50 billion in Irish exports and is continuing to grow.
- Ireland has in recent years become the internet hub for Europe with companies such as Google, Facebook, AOL, PayPal and a host of gaming companies picking Ireland as their European location.

Ireland is a leading location for business and innovation. The country is among the most competitive and successful in attracting foreign direct investment – both from companies which already are established here and new businesses. Indeed Ireland is now using its growing status as a knowledge-based economy to open new doors and avenues for investors. The sharp increase in new Research Development & Innovation (RD&I) projects is proof of success and international confidence in Ireland.

Advantages include:

- A politically stable country and respected regulatory regime.
- A thriving RD&I sector, with strong Government support for productive collaboration between industry and academia.
- A strong legal framework for development, exploitation and protection of Intellectual Property rights.
- Strategic location with easy access to the Europe/Middle East region.
- Excellent IT skills and infrastructure.
- Good telecommunications infrastructure, with state-of-the-art optical networks and international connectivity.
- Strategic clusters of leading global companies in Life Sciences, ICT, Engineering, Services, Digital Media, and Consumer Brands.
- An established reputation as a hub for business process improvement in the region.

Ireland’s growing international reputation for research excellence is primarily due to research funded by Science Foundation Ireland (www.sfi.ie). SFI has invested over €1,400 million in research at Irish universities over the last decade. This investment, guided solely by international peer review and research excellence, has taken the form of both individual PIs awards and the development of ten Centres for Science, Engineering and Technology. The research investment has led to significant improvements in the quantity and quality of the published output.

Ireland is now ranked in the top 20 countries globally in scientific global rankings and ranks 3rd for immunology and 8th for material science. (Source: Thomson Reuters Essential Science Indicators) The investment has also transformed the competitiveness of Irish universities such as Trinity College Dublin, Ireland’s leading university.
Did you know? Ireland is...

- Forbes’ Best Country for Business 2013
- First in Europe for completion of higher education. 60% of students go on to higher education.
- Ranked ninth overall (out of 141 countries) in the Global Innovation Index 2012 (Insead).
- Highlighted as one of five up and coming countries in the world to watch for scientific research excellence (Nature)
- In the top 20 countries in scientific global ranking for international scientific citation per paper and higher in specific disciplines
  - First in Immunology
  - First in Animal and Dairy
  - Third in Nanosciences
  - Fourth in Computer Sciences
  - Sixth in Materials Sciences

Ireland has a rich history of achievements in Science and Technology and continues to invest in its research and technology capabilities:

- Robert Boyle – founder of modern chemistry
- Ernest Walton – split the atom with John Cockcroft
- Sir William Rowan Hamilton - modern maths and gaming
- Sir Charles Parsons – engineer
- Sir Francis Beaufort – devised the Beaufort wind force scale.

Dublin is ranked as the best city in the world for human capital.
Trinity College Dublin, in collaboration with Science Foundation Ireland (SFI), wishes to recruit a number of high calibre Research Professors in targeted scientific areas within Biotechnology, Information and Communications Technology (ICT) and Sustainable Energy and Energy Efficiency sectors. Funding of up to €5 million will be provided to successful candidates for a five-year programme of work.

**Background**

In recognition of the need for Ireland to build capacity in key areas of economic importance, Science Foundation Ireland (SFI) has consulted with Irish universities to identify areas, aligned with national and institutional strategic priorities, where the recruitment of eminent research professors will be targeted. Research Professors with world class research profiles will build on ongoing significant research activities in Ireland, help to foster and develop emerging areas of strategic opportunity and catalyse future expansion in these targeted areas.

To this end, SFI has launched the SFI Targeted Research Professorship Programme 2014 and will provide funding of up to €1 million per year for five years (€5 million maximum) in direct costs to each successful applicant to the Programme in selected thematic areas.

This funding is perhaps the most generous package available to stellar researchers surpassing ERC advanced grants, which offer a maximum of €3.5 million over five years. These SFI grants can also be used by current ERC award holders to supplement their research activities. Potential candidates wishing to apply to the Programme should contact Trinity directly. Submission of full proposals to SFI will be by invitation only, following the submission and evaluation of Expression of Interest phase during which SFI will work closely with the research body.

Science Foundation Ireland (SFI) is the largest funder of scientific research in Ireland. The SFI Research Professorship Programme assists research bodies in the recruitment of world-leading researchers for Professorial Chairs, or similar research leadership positions in targeted scientific areas. The programme may also act as a mechanism to support the recruitment of individuals who possess a strong industry background, as well as directorship roles in established research centres within eligible research bodies in Ireland.
Trinity College Dublin invites applications for a full-time permanent SFI Research Professor of Bioengineering in the School of Engineering who will be a research leader of international standing in the area of Bioengineering. In addition to providing key strategic research leadership, the successful candidate will be expected to contribute strong academic drive to associated academic programmes and to the wider E3 Project. This position is tenable from March 2015.

The successful candidate will have an internationally recognised research profile in the area of bioengineering, and have an established track record of achievement and impact in research supervision and teaching at all levels, along with a demonstrated ability to raise research funding. The candidate will be expected to strengthen and build on the School’s capacity for collaboration with other academic disciplines and institutions and with practitioners in clinical practice, industry and the public sector.

Trinity is embarking on a major strategic development embracing Engineering, Energy, and the Environment – the E3 Project – which is also strategically linked to a recently launched policy on Innovation and Entrepreneurship. This development incorporates a re-focussing of research activities related to bioengineering, a significant increase in associated student and staff numbers, and new purpose-built facilities for the School of Engineering.

Post Specification

SFI Research Professor of Bioengineering
Permanent (full time) and research funded for 5 years

Summary

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The E3 Project centres on a unique strategic collaboration between the School of Engineering and the School of Natural Sciences which seeks to exploit and build on synergies across the two schools in the areas of engineering, energy and the environment. In aligning with the broader University policy on Innovation and Entrepreneurship, the E3 project will capitalise on the notion of bio-inspired design. Existing areas of E3 expertise include Raw Materials, Environment, Networks and Communications, Device Design, Energy Systems and Energy Infrastructures. The Device Design theme incorporates a particular focus on medical devices and advanced therapy medical products (ATMPs) and the underpinning materials science. As the application of engineering principles to healthcare problems clearly demonstrates, bioengineering is a defining example of the kind of multi-disciplinary research that is at the heart of E3.

Bioengineering research is focused around the Trinity Centre for Bioengineering (TCBE), a key research centre in Trinity combining fundamental research with translation to clinical practice.

The Centre has five research themes: Biomaterials, Regenerative Medicine, Musculoskeletal Research, Cardiovascular Systems and Neural Engineering. These themes based on the intersection of biomedical science and engineering, form the research foundation for enabling technologies for advances in key areas of active and passive implantable devices, surgical and medical device design, as well as informing clinical studies and interventions in ageing, neurodegeneration and rehabilitation.

The Trinity Centre for Bioengineering provides a structure to bring bioengineers, basic scientists and clinicians together to focus on important clinical needs. Further details are available at: www.tcd.ie/bioengineering.

Professors are senior members of the University and are expected to demonstrate a strong leadership capacity along with excellence in research, some involvement to teaching and administration and to make significant contributions to the wider University community and in the governance of their School.

In the context of the School of Engineering and the E3 Project, the Professor of Bioengineering will be expected to generate a stimulating and supportive work environment that excites existing faculty, attracts high calibre researchers and teachers and encourages their contribution to overall scholarship. S/he will also be expected to provide significant drive to the overall E3 Project, including the winning of funded research contracts. The successful candidate will promote a multi-disciplinary and collaborative approach to bioengineering research and teaching, along with building and strengthening of links between relevant disciplines both within the School and the wider E3 community, and between Trinity and external stakeholders.

The Professor of Bioengineering will be expected to engage in public and policy debates on both national and international fronts, enabling Trinity to make a distinctive contribution to the intellectual life of the country and internationally.
Duties of the Post

The Professor of Bioengineering will be required to:

• Lead and develop a research and teaching agenda related to bioengineering both on an individual and on a collaborative basis. Research in this area is expected to become a core competence of the School. It is envisaged that the Professor will be active in seeking and securing research, and other funding for these activities.

• Contribute to the strategic leadership of the overall E3 Project while acting as a focal point for the Medical Device Design research theme.

• Contribute to the Biomedical Engineering teaching programmes in the School of Engineering while ensuring the delivery of research-led teaching.

• Supervise undergraduate and postgraduate student project and dissertation activity.

• Interact in a multi-disciplinary capacity across both the School and the University, including participation in the overall life of the University and, if called upon, contribute to University-level initiatives in other capacities.

• Maintain, expand and strengthen the School's links with non-university stakeholders and the media.

• Enhance the public and institutional profiles of the School and of Bioengineering in Ireland.
Person Specification

The successful candidate will be expected to provide evidence of and demonstrate clearly the following:

• The vision and leadership skills necessary to direct and drive the strategic development of a school or project, such as the School of Engineering or E3 Project, within a university which is competing and collaborating at a high level both nationally and internationally.

• Successful engagement /experience with a leadership role in an engineering school environment.

• An outstanding research record relating to Bioengineering that includes evidence of sustained and recent publication ideally in high-impact international journals.

• A history of strategic leadership within the Bioengineering academic community through engagements such as chairmanship of international societies, committees, conference and editorial boards, and through reviewing and refereeing activities.

• Successful engagement with support for innovation and entrepreneurship.

• The ability to build and sustain a research group benchmarked to an international standard, to pursue vigorously their own research programme, and to manage large research projects and teams.

• Multi-disciplinarity in research and an ability to work with academics from a range of disciplinary backgrounds.

• The ability to raise significant amounts of research funding from a variety of sources.

• Experience in the design of curricula and demonstrable commitment, innovation and flair in devising and delivering modules in the area of Bioengineering, at undergraduate and postgraduate levels.

• Experience in successfully supervising to completion doctoral theses, and also undergraduate and masters’ projects and dissertations.

• Excellent interpersonal skills and an ability to present and communicate ideas and concepts clearly in an educational and societal context along with strong media experience and capability.

• Enthusiasm and commitment for engagement with wider University initiatives.
Qualifications and Experience:

Candidates must have a PhD in Bioengineering or Biomedical Engineering with a demonstrable research focus overlapping the Bioengineering research themes at Trinity College Dublin such as Tissue Engineering and Regenerative Medicine, Neural Engineering, Medical Device Design and Development, Biomaterials and Biomechanics. International work experience is desirable and a sustained record of published research output in high-impact ISI ranked international journals in Bioengineering or Biomedical Engineering is essential. It is desirable that the successful candidate will have experience of engineering practice along with a capacity to engage with and build relationships with practitioners and external organisations. The successful candidate will have a demonstrable ability to provide strategic leadership and excellent management in an engineering school context. A capacity to provide research leadership and a record of high achievement in teaching and research supervision is expected along with a capacity for strong engagement with the university and wider communities.

Contact Information

Interested applicants may contact the following in the first instance with informal enquiries:

Professor Brian Foley, Head of School, e-mail: brian.foley@tcd.ie

Further information may be obtained at the following web addresses:

Trinity College Dublin: www.tcd.ie
School of Engineering: www.tcd.ie/engineering

Application Details

Applicants must provide the following information in applying for this position:

- A comprehensive curriculum vitae including full data on publications.
- Names and contact details (i.e., addresses, e-mail addresses) of three referees.
- Statement on his/her vision for the future development of the role.

PLEASE NOTE: Interested applicants should contact by noon (GMT), Friday, 12th September 2014, our Executive Search Partners, Perrett Laver.

Contact Person: Dr. Liam O’Hara, Tel: +44 (0) 20 7340 6204
E-mail: liam.ohara@perrettlaver.com

For application details and job specification, please visit www.perrettlaver.com/candidates, quoting reference number 1752.

Equal Opportunities Policy

Trinity College Dublin is an equal opportunities employer and is committed to the employment policies, procedures and practices that do not discriminate on grounds such as gender, civil status, family status, age, disability, race, religious belief, sexual orientation or membership of the travelling community.
The Trinity Centre for Bioengineering (TCBE) was established in May 2002 and is a key research centre in Trinity combining fundamental research with translation to clinical practice. It has twenty-three principal investigators drawn from the Schools of Engineering, Medicine, Dental Science and Natural Sciences in Trinity, and from the Royal College of Surgeons in Ireland, University College Dublin, Dublin City University and the University of Limerick. The aim of the centre is to facilitate the development of bioengineering research and to support interdisciplinary teaching initiatives in the field of biomedical engineering.

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The Trinity Centre for Bioengineering provides a structure to bring bioengineers, basic scientists and clinicians together to focus on important clinical needs. TCBE's role in the scientific and medical communities is exemplified by the significant research funding the Centre's researchers receive from national and international funding agencies including EU-FP7, European Research Council, Atlantic Philanthropies and industrial contracts as well as its presence in peer-reviewed literature.
The School of Engineering in Trinity College Dublin was founded in 1842. Initially, the duration of the engineering course was two years but was extended in 1845 to three and in 1957 to four years. Diplomas were awarded at first and the Degree of ‘Baccalaureus in Arte Ingeniaria’ (BAI) being instituted in 1872.

In the early development of the School, the accent was on Structural and Hydraulic Engineering, but in the 1960s, alternative courses were established to enable the study in the later years of Civil Engineering, Mechanical/Production Engineering, Electronics or Computer Science.

In 1969, a major restructuring of the curriculum took place. During the first three years, the course provided was a basic one in engineering science and computer science, with a wide range of options in the final year in the general areas of Civil, Electrical/Electronic, and Mechanical/Manufacturing Engineering and Computer Science.

In 1981, a new curriculum was introduced to meet the needs of the government expansion in technological education. During the first two years, students follow a common curriculum of basic courses, and may choose from a number of modules in the third and fourth years of the degree programme. These modules are grouped in such a way as to permit students to specialise in one of the following streams of the engineering profession:

- Civil, Structural and Environmental Engineering
- Mechanical and Manufacturing Engineering
- Electronic Engineering
- Electronic and Computer Engineering
- Computer Engineering

Further information on choosing between streams is given to students towards the end of their second year and students are normally permitted to change stream up until Christmas in the third year.

The Bachelor of Engineering Science degree (BAI) is accredited by Engineers Ireland (EI), the statutory body responsible for awarding the title Chartered Engineer (CEng) to those holding recognised primary degrees and following a period of post-graduate training and experience. Honors BAI graduates are automatically entitled to become ordinary members of Engineers Ireland and use the designation MIEI. The BAI is also recognised by a large number of major engineering institutions outside Ireland.