Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Post Specification

Post Title:	Research Fellow in the field of high-throughput materials design for non-corrosive materials
Post Status:	Fixed Term (full-time); 1 year
Research Group/Department:	AMBER / CRANN, School of Physics
Location:	Main Campus, Trinity College Dublin
Reports to:	Prof. Stefano Sanvito
Salary:	Appointment will be made on the appropriate point of the SFI Grants Team Member Budgeting Scale for Post-Doctoral Researchers
Closing Date and Time:	

Post Summary

One postdoctoral researcher position is available immediately in the CRANN Institute (www.crann.tcd.ie) at Trinity College Dublin (Ireland) in collaboration with Nokia Bell Labs. The successful applicants will join a team of 8 PhD students and 8 Postdoctoral researchers and will be hosted by Prof. Sanvito's Computational Spintronics Group (www.spincomp.eu).

The project aims at developing a high-throughput electronic structure approach to the design of new metallic alloys withstanding corrosion from chemical agents present in the environment. It will combine advanced electronic structure theory with data-mining/artificial intelligence methods. In particular we will develop a range of descriptors for ranking materials relatively to their chemical reactivity, with parameters to be computed from large-scale density functional theory calculations. The project is sponsored jointly by Science Foundation of Ireland through the AMBER Centre (ambercentre.ie) and by the Nokia Bell Labs (www.bell-labs.com). There will

be a tight collaboration with scientists from Nokia Bell Labs with opportunities to travel to Murray Hill, US. The position is tenable for two years with further renewal depending on performance and availability of funding.

Standard duties and Responsibilities of the Post

- Perform industry-driven research on materials design
- Frequent interaction with industry stakeholders, including visits and short-term secondments to industry sites to report on activity, study process-material interactions and receive steering advice from industry experts
- Potential interaction with other groups across Trinity College and AMBER partner institutes (University College Cork and the Royal College of Surgeons in Ireland)

Funding Information

- This post is funded by Science Foundation Ireland through the AMBER Centre, grant number 12/RC/2278.

Person Specification

Qualifications

- A primary degree in an appropriate field such as Chemistry, Physics or Material Science (Essential)
- A PhD or equivalent industrial experience (4 years) relevant to the development of Advanced Polymer Materials (Essential)

Knowledge & Experience

- Strong overall motivation and a keen interest in materials theory and computation, as well as in interdisciplinary work between physics and materials science.

- Previous experience in UNIX/Linux environment and with programming in either Fortran and/or C/C++ is essential.
- Ability to work independently and also function as an active and efficient team player.
- Excellent writing skills.
- Previous knowledge of density functional theory and/or materials thermodynamics will be considered essential.

Further Information for Candidates

URL Link to Department	http://www.crann.tcd.ie/
URL Link to Research Group	http://www.ambercentre.ie/ http://www.sprincomp.eu
URL Link to Human Resources	https://www.tcd.ie/hr/

Application Procedure

Applications must include a cover letter detailing how you meet the selection criteria for the post, together with a CV and the name and contact details of three referees.
Informal enquiries and applications should be sent to:

Name:	**Prof. S. Sanvito**
Title:	**Director, CRANN**
Email Address:	**sanvitos@tcd.ie**

TRINITY COLLEGE DUBLIN, THE UNIVERSITY OF DUBLIN IS AN EQUAL OPPORTUNITIES EMPLOYER

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Overview of CRANN and AMBER

The Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN) comprises a team of over two hundred and fifty researchers from 45 different countries, led by eighteen principal investigators and seventeen investigators, each of whom is an internationally recognised expert in his/her field of research. CRANN principal investigators are based across multiple disciplines including physics, chemistry, medicine, biochemistry and immunology, engineering and pharmacy. CRANN works at the frontiers of nanoscience developing new knowledge of nanoscale chemical and physical phenomena, with a particular focus on new device and sensor technologies for ICT, biotechnology and medical sectors.

CRANN has two state-of-the art buildings, both custom designed and constructed for the purpose of leading edge nanoscience research. The Naughton Institute is a 6000m^2 research facility on the campus of Trinity College Dublin. The CRANN Advanced Microscopy Laboratory (AML) on Pearse Street was completed in 2009, housing Ireland's most advanced, internationally competitive microscopy instrumentation. The impact is shown in Ireland's 8th place global ranking in materials science, of which over 70% of the cited publications are linked to CRANN and partners in Trinity College Dublin.

CRANN presently hosts the Science Foundation Ireland funded Research Centre "AMBER"- a €60M euro state-enterprise investment in material research and innovation. AMBER partners with industry and academia in co-developing materials solutions. The Centre provides partnership between leading researchers in material science and their counterparts in leading-edge industry. As well as CRANN at Trinity College Dublin, the Centre members also include Trinity Centre for Bioengineering (TCBE), University College Cork (UCC) and the Royal College of Surgeons in Ireland (RCSI).

AMBER strives to deliver internationally leading materials research that is industrially and clinically informed with outputs including new discoveries and devices in ICT, medical device and industrial technology sectors. AMBER has a strong emphasis on linking industry to research programmes, to develop products that directly impact quality of life, such as the development of the next generation computer chips or new medical implants and pharmaceuticals that improve patient care. AMBER brings together Ireland's leading material science researchers working across the disciplines of Physics, Chemistry, Bioengineering and Medicine; with an international network of collaborators and companies.

CRANN has also been highly successful in obtaining non-Exchequer funding (e.g. from European Union Framework Programmes) that enabled the establishment of an extensive academic partnership network involving over 100 universities in Europe and 160 universities globally.

Trinity College Dublin, the University of Dublin

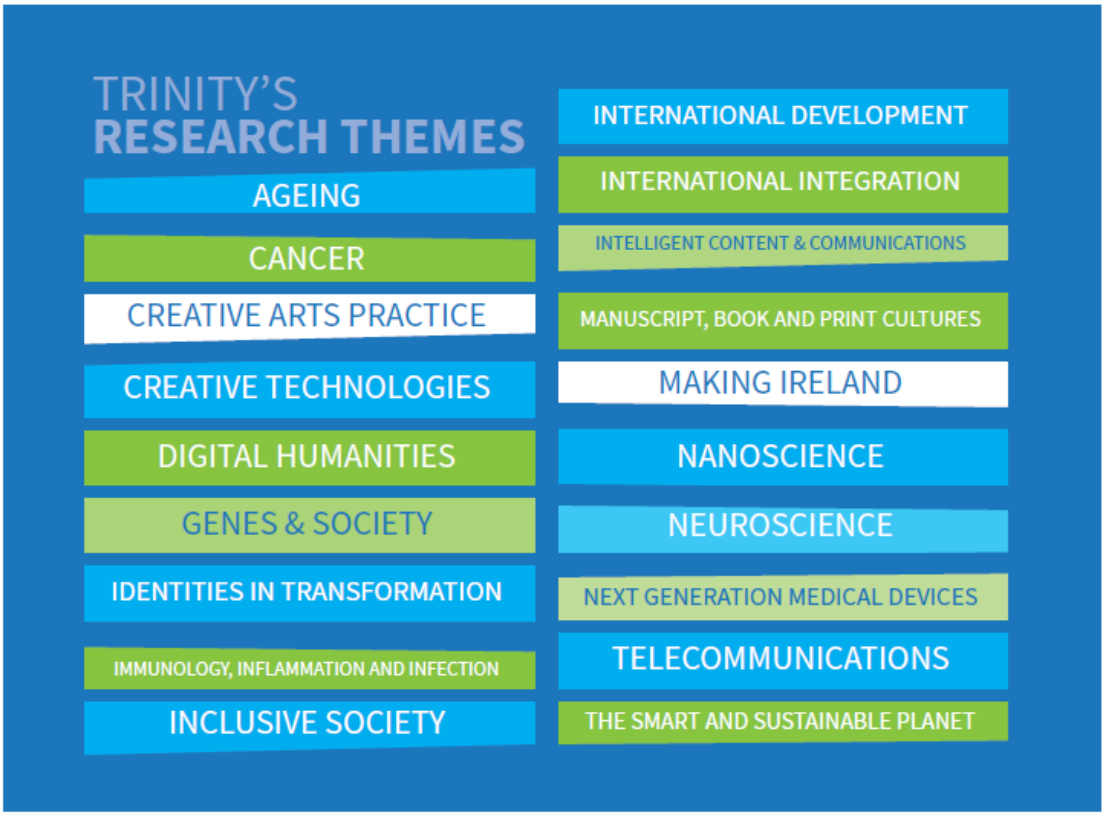
Founded in 1592, Trinity is at the nexus of tradition and innovation, offering undergraduate and postgraduate programmes across 24 schools and three faculties: arts, humanities, and social sciences; engineering, maths and science; and health sciences. Spread across 47 acres in Dublin's city centre, Trinity's 17,000-strong student body comes from all 32 counties of Ireland, and 16% of students come from outside the country. Of those, 40% are from outside the European Union, making Trinity's campus cosmopolitan and bustling, with a focus on diversity.

As Ireland's leading university, the pursuit of academic excellence through research and scholarship is at the heart of the Trinity education. 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-fifth 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.

Trinity has developed significant strength in a broad range of research areas, including the 19 broadly based multi-disciplinary thematic research areas.



Ireland's first purpose-built nanoscience research institute, CRANN, houses 150 scientists, technicians and graduate students in specialised laboratory

facilities. Meanwhile, the state-of-the-art Biomedical Sciences Institute is carrying out breakthrough research in areas such as immunology, cancer and medical devices.

The Old Library, which houses the Long Room, 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, and political theorist Edmund Burke. Three Trinity graduates have become Presidents of Ireland - Douglas Hyde, Mary Robinson and Mary McAleese.

Trinity is the highest ranked university in Ireland, and among the world's leading higher education institutions.

Trinity College Dublin World University Rankings

Overall

- Trinity College Dublin is Ireland's No.1 University (QS World University Ranking, THE World University Ranking, Academic Ranking of World Universities (Shanghai).
- Trinity College Dublin is ranked 71st in the World and 21st in Europe in the 2013/2014 QS World University Ranking across all indicators.

Internationalisation

- Trinity College Dublin is ranked 30th in the World in the Times Higher Education Top 100 Most International Universities.
- Trinity College Dublin is 46th in the World in the QS World University Ranking 2013/2014 in terms of International Faculty.

Research Performance

- Trinity College Dublin is ranked in the top 70 universities in the world in the Times Higher Education Ranking of World Universities in terms of overall research and in the top 75 universities in the world in terms of citations (research impact).
- Trinity College Dublin is 80th in the World and 27th in Europe in the 2014 Leiden University Ranking of World Universities based on research performance alone.
- Trinity College Dublin ranks in the top 1% of research institutions in the world in the following 17 fields (an increase of over 150% from 2004): Physics, Chemistry, Engineering, Social Sciences (General), Immunology, Neurosciences, Nanosciences, Materials Science, Pharmacy & Toxicology, Molecular Biology & Genetics, Biology & Biochemistry, Microbiology, Plant and Animal Science, Clinical Medicine, Agriculture, Psychiatry/Psychology, Environment/Ecology.

*Subject Rankings (high level)/QS Faculty Rankings 2014**

- In the QS Faculty Rankings 2014, Trinity College Dublin is ranked 63rd in the world in Arts and Humanities.
- In the QS Faculty Rankings 2014, Trinity College Dublin is ranked in the world top 100 universities in Life Sciences and Medicine (in 69th place).
- In the QS Faculty Rankings 2014, Trinity College Dublin is ranked in the world top 100 universities in Social Sciences and Management (in 89th place).

*Subject Rankings (QS 2014)***

Trinity College Dublin (TCD) features in the world's elite (Top 200) institutions in 23 of the 30 subjects featured the *QS World University Rankings by Subject 2014.*

- Trinity College Dublin is ranked 25th in the world in English Language & Literature.
- Trinity College Dublin is ranked 42nd in the world in Modern Languages.
- Trinity College Dublin is ranked 46th in the world in Politics & International Studies.
- Trinity College Dublin is ranked 48th in the world in History.
- Trinity College Dublin is in the World Top 100 in Accounting & Finance.
- Trinity College Dublin is in the World Top 100 in Biological Sciences.
- Trinity College Dublin is in the World Top 100 in Economics & Econometrics.
- Trinity College Dublin is in the World Top 100 in Geography.
- Trinity College Dublin is in the World Top 100 in Law.
- Trinity College Dublin is in the World Top 100 in Medicine.
- Trinity College Dublin is in the World Top 100 in Pharmacy & Pharmacology.
- Trinity College Dublin is in the World Top 100 in Psychology.

* QS 'Faculty' Rankings 2014: http://www.topuniversities.com/faculty-rankings
** QS Subject Rankings 2014: http://www.topuniversities.com/subject-rankings

Pension Entitlements

This is a pensionable position and the provisions of the Public Service Superannuation (Miscellaneous Provisions) Act 2004 will apply in relation to retirement age for pension purposes. Details of the relevant Pension Scheme will be provided to the successful applicant.

Applicants should note that they will be required to complete a Pre-Employment Declaration to confirm whether or not they have previously availed of an Irish Public Service Scheme of incentivised early retirement or

enhanced redundancy payment. Applicants will also be required to declare any entitlements to a Public Service pension benefit (in payment or preserved) from any other Irish Public Service employment.

Applicants formerly employed by the Irish Public Service that may previously have availed of an Irish Public Service Scheme of Incentivised early retirement or enhanced redundancy payment should ensure that they are not precluded from re-engagement in the Irish Public Service under the terms of such Schemes. Such queries should be directed to an applicant's former Irish Public Service Employer in the first instance.

Equal Opportunities Policy

Trinity College Dublin, the University of Dublin is an equal opportunities employer and is committed to the employment policies, procedures and practices which 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.