Post Specification

<table>
<thead>
<tr>
<th>Post Title:</th>
<th>Research Fellow in Polymer Composites for Medical devices</th>
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<tr>
<td>Post Status:</td>
<td>1 year contract – Full Time</td>
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<tr>
<td>Research Group/Department/School:</td>
<td>AMBER/CRANN/School of Physics</td>
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<tr>
<td>Location:</td>
<td>Main Campus, Trinity College Dublin</td>
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<td>Reports to:</td>
<td>Dr Ramesh Babu</td>
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<td>Salary:</td>
<td>Appointment will be made on the appropriate point of the IUA Post Doctorate Level 2 scale. €33,975 - €46,255 gross per annum at a point in line with Government pay policy.</td>
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<td>Closing Date and Time:</td>
<td>12 Noon on 31st January 2015</td>
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Post Summary

An experienced researcher is required for an Industry driven project in the development of new nanocomposite materials for medical device applications. The Project will require working with exfoliated two dimensional materials (graphenes, MOS2, BN) and nanoadditives such as nanoclays, nanotubes and the subsequent production of polymer composites. The research focus will be characterising the properties of nano additives and incorporating them into the selected medical grade polymers by melt processing.

Standard duties and Responsibilities of the Post

This position is part of the Science Foundation Ireland funded Advanced Materials and BioEngineering Research Centre (AMBER) and Dr Ramesh Babu’s Polymeric Materials and NanoComposites (PMNC) group. (http://physics.tcd.ie/pmnc/ and www.ambercentre.ie ). PMNC is primarily engaged in applied research. The mission is to provide world class research in polymer nanocomposites, to act as an intellectual powerhouse and a catalyst for the development of a smart, globally competitive polymer industry sector in Ireland and Europe.

Funding Information

Funding for this post is provided by a collaborative industrial programme under the SFI funded Advanced Materials and Bio Engineering Research Centre (AMBER)

Person Specification

The candidate must hold a PhD in Materials Science, Physics, Chemistry or a related discipline or equivalent industrial experience. Candidates must have demonstrated a proven knowledge of Materials Science (including thermoplastic polymers, Medical grade polymers and fillers) with the ability to solve challenging problems related to the development of superior composite materials. Experience in polymer Rheology, solution and melt mixing of niche additives would be
an advantage. Must have working experience with Thermal Analysis (TGA, DSC, DMA), Optical and electron microscopy of polymeric materials to generate data to provide insight into the composition and performance of polymeric materials.

The individual must be a self-determined individual with a capacity to apply new, pre-existing or adjacent technologies to problem solving with minimal supervision. They must also have excellent communication and written skills. Good leadership skills with the ability to maintain excellent working relationships with both internal and external customers is also required.

Qualifications

- A PhD in Materials Science, Physics, Chemistry or a related discipline or equivalent industrial experience. (Essential).

Knowledge & Experience (Essential & Desirable)

Essential Knowledge and/or Experience:

- Proven knowledge of Materials Science (including thermoplastic polymers, Medical grade polymers and fillers)
- Experience in polymer Rheology, solution and melt mixing of niche additives would be an advantage
- Working experience with Thermal Analysis (TGA, DSC, DMA), Optical and electron microscopy of polymeric materials to generate data to provide insight into the composition and performance of polymeric materials.
- Ability to solve challenging problems related to the development of superior composite materials
- Willingness to travel to collaborators across Europe and to conferences to disseminate results.

Desirable Knowledge and/or Experience:

- A strong publication record in internationally peer-reviewed journals
- Experience of working with industrial collaborators.

Skills & Competencies

- Well-organised and self-motivated with the ability to manage the day-to-day running of a research project, to identify research objectives and to carry out appropriate research activities within a given timescale.
- Excellent oral and communication skills, including the proven ability to write in English at a suitable standard for the preparation of written reports, publications and presentations of the work at generalist and specialist levels, including discussions with engineers and scientists in different fields.
Further Information for Candidates

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<thead>
<tr>
<th>URL Link to School</th>
<th><a href="http://www.crann.tcd.ie/">http://www.crann.tcd.ie/</a></th>
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<tr>
<td>URL Link to Human Resources</td>
<td><a href="http://www.tcd.ie/hr/">http://www.tcd.ie/hr/</a></td>
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CRANN Overview

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 hosts the new Science Foundation Ireland Research Centre AMBER- a €60M euro state-enterprise investment in material research and innovation. AMBER will partner with industry and academia in co-developing materials solutions. AMBER (Advanced Materials and BioEngineering Research) is a Science Foundation Ireland funded centre that provides a partnership between leading researchers in material science and industry. It is jointly hosted in Trinity College Dublin (TCD) by CRANN and the Trinity Centre for Bioengineering (TCBE), in collaboration with University College Cork and the Royal College of Surgeons in Ireland (RCSI).

This centre will deliver internationally leading materials research that will be 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 and the aim of the centre is to develop products that directly impact everyone’s quality of life such as the development of the next generation computer chips and new medical implants and pharmaceuticals that will 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 two state-of-the-art buildings both custom designed and constructed for the purpose of leading edge nanoscience research. The Naughton Institute is a 6000m2 research facility on the campus of TCD. The CRANN Advanced Microscopy Laboratory (AML) was completed in 2009. This facility is on Pearse Street and houses Ireland’s most advanced microscopy instrumentation, enabling Ireland to compete internationally in terms of this capability. The impact is being measured in terms of Ireland 8th place ranking in materials science, of which over 70% of the cited publications are linked to CRANN and its partner schools.

Through its SFI funded Centre for Science, Engineering and Technology (CSET), CRANN has a specific remit to work with industry. CRANN presently has active research engagement with over seventy companies in Ireland and Europe, including multinationals such as Intel and HP and indigenous companies such as Cellix and Eblana Photonics. CRANN has also been very successful in obtaining non-Exchequer funding (e.g. European Union Frameworks) that enabled
the establishment of an extensive academic partnership network involving over 100 European universities and 160 universities globally.

On a national basis CRANN leads the INSPIRE consortium (www.inspirenano.com) which comprises the foremost nanoscience researchers in Ireland based across eight academic institutions. CRANN, in partnership with the Tyndall National Institute, will co-host the Competence Centre for Applied Nanotechnology. This is a new initiative to enable research provider organisations to partner one another on an industry defined research programme.

CRANN has been funded predominately by Science Foundation Ireland and has also obtained competitive funding from the Higher Education Authority, Enterprise Ireland, industry, the EU commission through FP6 and FP7 and philanthropic sources, notably Dr Martin Naughton.

**Trinity College 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.

**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 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.

**Application Procedure**

Candidates should submit a cover letter together with a full curriculum vitae to include the names and contact details of 3 referees (email addresses if possible) to:

Name: Dr. Ramesh Babu  
Title: Senior Research Fellow  
Email Address: babup@tcd.ie  
Contact Telephone Number: +353 1 896 2602

**TRINITY COLLEGE IS AN EQUAL OPPORTUNITIES EMPLOYER**