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

Job Description

Job Title:	Research Fellow
School/Department:	School of Physics
Job Category and Level: Scale, Level 3, Point 1: €67214	Appointment will be made on the Research Ireland Salary

The Purpose of the Role

The primary purpose of the role is to drive and coordinate the Rinn Semiconductor Sustainable Energy and Environment Theme. Within the theme we will develop integrated photonic solutions for environmental sensing, specifically distributed acoustic sensing for marine environments and photonic integrated chips for greenhouse gas sensing.

The successful candidate will be experienced in PIC platforms, heterogeneous integration and waveguide routing constraints, packaging constraints for transceiver-class PIC etc. They will have an established research profile in their specialist area, including a strong publication record. They will lead and define design rules, constraints and integrated system-level decisions. The research fellow will coordinate between the postgraduate students and postdoctoral researchers to ensure system level coherence within the theme.

The research fellow will be based in Trinity College Dublin and will have access to Rinn Semiconductor facilities in Tyndall. It is envisaged that they will spend time regularly in Tyndall to engage with the members of the theme based in Tyndall.

Context

Rinn Semiconductors is part of a constellation of seven major new centres which collectively represent an investment of €460M in advanced research by the Government of Ireland. Rinn Semiconductors aims to lead Ireland's response to the end of Moore's Law scaling, the point where traditional improvements in computer chips slows down or ends, by pioneering modular integrated

circuit-based (chiplet-based) semiconductor design and integration. With deep expertise in the areas of Heterogeneous Integration and Advanced Packaging, the Rinn Semiconductors team propose to enable transformative advances in these technologies and to apply them in three main application areas: Future Internet, Sustainable Energy and Environment, and Digital Healthcare. A key objective of the Rinn is to foster deep collaboration across the seven universities and institutions involved, by leveraging the semiconductor fabrication facilities at Tyndall, ultimately creating a cohesive "atom to systems" value chain in Ireland, connecting everything from basic materials research through to complete technology solutions. The Rinn will operate in close collaboration with Ireland's vibrant semiconductor industry sector which supports 20,000 high skilled jobs and includes world leading multinational companies, small and medium sized enterprises and start-ups.

The successful applicant will:

- Join a world-class and highly diverse community of more than 100 PhD students, more than a 100 Postdoctoral Researchers and around 35 experienced PIs and Research Fellows
- Engage with over 30 industry partners to learn about their work and future career opportunities
- Become an in-house entrepreneur and explore the opportunity to commercialise your research through a Spin-Out company
- Follow in the footsteps of our current trainees where over 86% of PhDs have transitioned into industry with some of the world's leading semiconductor companies, in Ireland and the EU.
- If you aspire to be a future PI and academic research leader our programme will support you to build your research track record and vision, equipping you to take the next steps on your career journey.

Main Responsibilities

- Work with the theme lead PI, workpackage PIs and team researchers (postdoctoral researchers and postgraduate students) to deliver integrated photonic solutions for environmental gas sensing and distributed acoustic sensing systems.
- Define the system level requirements for optical and electronic integration compatibility.

- Interact with the other Rinn Semiconductor themes to develop the collaborative interdisciplinary requirements for programme delivery including design, fabrication, characterization and packaging.
- Interface with external partners including foundries and industry partners for system delivery.
- Compete for research funds from national, European and International sources that will finance the growth of the research theme.
- Interact with the other researchers to build collaborative research programs and ultimately to raise funds to support such programs (e.g. ERC Synergy Grant).
- Work with the PIs to define and deliver an engaged researcher public facing outreach activity.

Person Requirements

The role-holder will require the following knowledge, skills and attributes for successful performance in the role.

Qualifications

- The successful candidate will have a PhD in Physics or neighbouring discipline (essential qualification) with their background focusing on an area of PIC platforms and heterogeneous integration.

Knowledge & Experience

The successful candidate will be expected to clearly demonstrate the following:

Research

- At least three years of post-doctoral experience (essential).
- A promising or established track record in independent research in photonics, including PIC platforms and heterogeneous integration (essential).
- Evidence of a growing publication record (essential).
- Evidence of project delivery (essential).
- Experience in working with PhD students (desirable).

Administration, Contribution to University and Engagement with Discipline & Society

- Ability to undertake administrative responsibilities associated to the project, as required by Rinn Semiconductor, the University and research funders (essential).
- Ability to represent Rinn Semiconductor with national and international external stakeholders (essential).

Skills

- Demonstrated potential as an independent researcher.
- Evidence of readiness and ability to provide input and leadership within Rinn Semiconductor.
- Well-developed written and verbal communication skills and interpersonal skills.
- Ability to attract research funding from national and international agencies will allow them to perform excellent research at an international standard, publishing in appropriate high impact journals.

Personal attributes

- Capability and confidence to take ownership of problems and seek long term solutions.
- Career driven, enthusiastic and motivated.
- Commitment to own professional development.
- Interest in science education and outreach beyond the scientific community.

Application Procedure

Applicants should submit the following when applying:

1. A cover letter outlining their interest in the position.
2. A comprehensive curriculum vitae, including a full list of publications.
3. The names and contact details (i.e. addresses, e-mail, etc.) of three referees.
4. Research Overview (summarising the candidate's research accomplishments to date, and their experience relevant to this role, maximum of 2 pages).

Please Note:

- Applicants who do not address the application requirements above will not be considered at the short list stage.
- Applicants should note that the interview process for this appointment will include the delivery of a presentation.

Applications should be made to Prof. Louise Bradley, Email: bradlel@tcd.ie

Applications should have the subject line: RF-Rinn Semiconductor.