Postdoctoral Researcher (Mechatronics or related)

School: School of Mechanical and Manufacturing Engineering with Fraunhofer Project Center at Dublin City University (FPC@DCU)

Post title: Post-doctoral Researcher

Level on Framework: Level 1

Post duration: Fixed Term Contract - 11 Months Full-time

As part of this role the researcher will be required to participate in the DCU Research Career Framework. This framework is designed to provide significant professional development opportunities to Researchers and offer the best opportunities in terms of a wider career path.

Background and Project
DCU has acquired funding for an exciting research project (MxNChip) to develop a proof-of-concept laboratory instrument. The post-doctoral researcher will join a team focussed on developing a novel PCR thermocycler and associate microfluidic chip which can greatly improve workflows in molecular biology laboratories. On successful completion of the project it is intended to apply to secure follow-on funding with the eventual aim of establishing a university spin-out company. The project will therefore appeal to a researcher with a strong interest in developing commercial technology.

The project will be based in a School of Mechanical Engineering and is of 11 months’ duration. The project will be conducted in conjunction with the Fraunhofer Project Centre at Dublin City University (FPC@DCU).

Principal Duties and Responsibilities
Reporting to the MxNChip Project PI the technical duties will include but will not be limited to:

- Conduct a specified programme of research within the MxNChip Enterprise Ireland Commercialisation Fund Project under the supervision and direction of the project PI
- Leading all activities relating to the mechanical design, system design, implementation and integration of during the development of a PCR thermocycler that can function both with micro-titre plates and DCU’s patented MxNChip format
- Testing the developed instrument prototype under various conditions and working to validate the performance of the system
- Inform the system usability and design
- Leading the design of the MxNChip fluidic cartridge and, where required, manufacturing these disposable cartridges
- Promote engagement with industry and other external parties in areas relevant to the project.
- Assisting with the reporting of project out-comes to Enterprise Ireland. Developing and maintaining relevant design control documentation
• Authoring of scientific publications, technical reports and marketing activities as may be required to assist the commercialisation activities as required by the project
• Engage in appropriate training and professional development opportunities as recommended/required by Dublin City University

Criteria
Applicants must have a solid technical expertise/aptitude for instrumentation, systems control & integration and communication. A track record of successful research and development projects and of bringing prototypes from concept to functional products is highly desirable. Industry experience in the key areas is also highly desirable.

Minimum criteria:
• A Ph.D., along with an MSc or Bachelor’s Degree in Mechatronic / Mechanical / Biomedical / Electronic Engineering; Biomedical / Applied Physics or a related Engineering / Science degree
• Practical laboratory experience designing and building experimental research platforms / test-rigs / instrumentation. Proven aptitude for laboratory work and a hands-on ability to build, test and validate functional prototypes/breadboard instruments
• Good communication and reporting skills

Desirable criteria:
• Experience with fluorescence detection of bio-samples particularly developing instrument systems
• Experience in microfluidics / Lab-on-a-Chip and micro-fabrication. Experience with heat-transfer in Lab-on-a-Chip
• Experience and expertise in SolidWorks CAD, LabVIEW control software and data analysis techniques is highly desirable
• Experience in common molecular biology (nucleic acid) methods, particularly PCR, is highly desirable
• Experience building, testing and validating functional prototypes/breadboard of laboratory instruments or test-rigs for biomedical experiments

Note that continuation of the position beyond 11-months is dependent on securing competitive follow-on funding.

Mandatory Training
Post holders will be required to undertake the following mandatory compliance training: GDPR, IP and Health and Safety. Other training may need to be undertaken when required.

Salary: *€37,874 - € 45,041
*Appointment will be commensurate with qualifications and experience will be made on the appropriate point of the salary scale, in line with current Government pay policy

Closing date: 7th February 2020

Candidates will be assessed on the following competencies:
**Discipline Knowledge & Research skills** – Demonstrates the ability to design and/or implement a substantial programme of research including initiating and leading new research programmes (for example by using critical judgement and an understanding of new research methodologies).

**Understanding the Research Environment** – Demonstrates a strong knowledge of the research environment both nationally and internationally, the ability to secure significant research funding and where relevant the ability to apply for intellectual property rights and/or patents for their research.

**Communicating Research** – Demonstrates excellence in communicating their research nationally and internationally (for example by publishing in high quality peer reviewed journals of international standing and through invitation to participate in commercial research) and the ability to deliver teaching based on their own research.

**Managing & Leadership skills** – Successfully leads and manages research programmes.

**Location**: This position will be based in the laboratory facilities of School of Mechanical Engineering and/or FPC@DCU on the Dublin City University Glasnevin campus.

Dublin City University is an equal opportunities employer and is committed to promoting gender equality reflected in its attainment of the Athena SWAN Bronze Award. Information on a range of university policies aimed at creating a supportive and flexible work environment are available at www4.dcu.ie/policies/policy-starter-packs.shtml.