



## **Research Assistant**

**PPSAD: Plasma Processes for Selective Area Deposition – Atomic Layer Deposition and X-ray**

**Photoelectron Spectroscopy Tool Manager**

**School of Physical Sciences and National Centre for Plasma Science & Technology**

**Fixed Term Contract up to 18 months**

### **Background and Role Profile**

PPSAD: Plasma Processes for Selective Area Deposition is an AMBER SFI Funded Industry-Led Research Project.

The overall goal of this project is to develop a novel process for selective area deposition using block co-polymer infiltration with the goal of sub-10 nm feature size realisation for large scale CMOS process integration in the semiconductor manufacturing industry. Selective area deposition is seen as a 'grand-challenge' in integrated circuit (IC) manufacture as it allows development of features on a substrate surface without the need for lithographic steps.

The project includes both materials characterisation and plasma physics/engineering elements. The present role is a technical researcher role comprising both research and equipment maintenance and development aspects specifically around in-situ surface and interface characterisation methods.

### **Principle Duties and Responsibilities**

Reporting to the DCU Head of the PPSAD project, the Researcher will

- Operate and ensure the smooth running of a hybrid, FlexAl atomic layer deposition / Scienta Omicron x-ray photoelectron spectroscopy tool.
- Execute particular technical and research projects that may be agreed from time to time with the DCU Head of the PPSAD project, including (but not limited to) research and equipment maintenance and development aspects specifically around in-situ surface and interface characterisation methods
- Liaise with other participants in the project, including both academic and industrial partners
- Assist with the project work of doctoral and other students working in the general area of in-situ surface and interface characterisation methods
- Liaise with the DCU Science and Technology Enhancement Platform (STEP) on matters of technical and financial reporting of PPSAD activities
- Contribute to broader outreach and engagement activities relevant to the research, such as organising technical meetings, outreach to schools and other interested parties, *etc.*

- Contribute to the teaching activities of the School of Physical Sciences, in ways to be agreed with the Head of the School.
- Engage in appropriate training and development opportunities as required by the DCU Head of the PPSAD project, the School, Faculty, or the University.

### **Minimum Criteria**

Applicants should have a Degree (BSc/BEng) in a discipline relevant to surface and interface characterisation methods. A broad knowledge of surface and interface characterisation methods and vacuum technologies is essential.

### **Desirable Criteria**

#### **The successful candidate will:**

- Demonstrate 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 comprehension of new research methodologies)
- Demonstrate the ability to design, commission and further develop surface and interface characterisation experimental set-ups and techniques, utilising surface science and vacuum technologies, for novel in-situ analyses
- Demonstrates a thorough understanding of the research environment both nationally and internationally, the ability to assist in securing research funding and where relevant the ability to apply for intellectual property rights and/or patents for their research

### **Mandatory Training**

Post holders will be required to undertake the following mandatory training: Orientation, GDPR, and Compliance. Other training may need to be undertaken when required.