



School of Physical Sciences and National Centre for Plasma Science & Technology
Postdoctoral Researcher - PPSAD: Plasma Processes for Selective Area Deposition –
materials characterisation

Fixed Term Contract up to 36 months

Background & Role

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.

Ultimately, selective area deposition processes need to be compatible with existing deposition methods such as atomic layer deposition (ALD). DCU has recently taken delivery of a new state-of-the-art integrated ALD and x-ray photoelectron spectroscopy tool and one of the key responsibilities of this position will be the development of processes and design of characterisation experiments to exploit the full potential of this tool.

Principle Duties and Responsibilities

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

- 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 commissioning and development aspects specifically around in-situ atomic layer deposition and interface characterisation methods.
- Disseminate the outcomes of the research in which he/she is engaged including publishing in high quality peer reviewed journals of international standing, presentation at relevant conferences etc., with appropriate regard to IP considerations.
- Liaise with other participants in the project, including both academic and industrial partners
- Assist with the supervision 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 PhD in a discipline relevant to surface and interface characterisation methods. A broad knowledge of surface and interface characterisation methods and vacuum technologies is essential. Particular expertise in atomic layer deposition, x-ray photoelectron spectroscopy, and/or Fourier transform infrared spectroscopy would be advantageous.

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)

Equipment commissioning and development – Demonstrates 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

Understanding the Research Environment – 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

Communicating Research – Demonstrates excellence in communicating their research nationally and internationally (for example by publishing in high quality peer reviewed journals of international standing, presentation at conference and through interaction with industrial partners)

Managing & Leadership skills – Demonstrates the potential to successfully lead and manage a research programme including the management and supervision of a small research team and the financial management of the present research programme.

Starting salary range: *€37,7223 - €41,827 (Point 1-5)

**Appointment will be commensurate with qualifications and experience, and will be made on the appropriate point of the Postdoctoral Researcher salary scale in line with current Government pay policy*

Closing date: 15th April 2019

Application Procedure

Informal enquiries to:

Informal enquiries may be addressed to Dr. Robert O' Connor and/or Professor Enda McGlynn, School of Physical Sciences and National Centre for Plasma Science & Technology, DCU, Dublin 9, Ireland.

E-mail: robert.p.oconnor@dcu.ie; enda.mcglynn@dcu.ie

Phone: +353 (0)1 700 5743; +353 (0)1 700 5387

Please do not send applications to these email addresses, instead apply as described below.

Application procedure:

Application forms are available from the DCU Current Vacancies (Open Competitions) website at <http://www4.dcu.ie/hr/vacancies/current.shtml> and also from the Human Resources Department, Dublin City University, Dublin 9. Tel: +353 (0)1 700 5149; Fax +353 (0)1 700 5500 Email: hr.applications@dcu.ie. **Along with the application form, please submit a CV and cover letter.**

Please clearly state the role that you are applying for in your application and email subject line: Job Reference #1139A Postdoctoral Researcher - PPSAD – DCU School of Physical Sciences and National Centre for Plasma Science & Technology.

Applications should be submitted by e-mail to hr.applications@dcu.ie or by Fax: +353 (0)1 700 5500 or by post to the Human Resources Department, Dublin City University, Dublin 9. With your completed application form, you may also send a Cover Letter and a CV (maximum 2-3 pages).

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