Postgraduate Scholarship Information Sheet

Scholarship Project Title	A correlative atomic force microscopy study of aerosol jet printed all polymer next generation solar cells. (Ngen)
Advert Reference number	SETU_2025_08_WSCH_2
Supervisor(s)	Joseph O'Mahony (Waterford) Yvonne Kavanagh (Carlow)
Research Group	PMBRC
Department /School/Faculty	Engineering
Duration	4 Years/48 Months
Status: Full-time / part-time	Full Time
Funding information	SETU 2025 Presidents Scholarship Programme
Value of the scholarship per year for four years	Stipend: €22,500 per annum Fees of €5,750 per annum Research costs: €3,000 per annum
Closing date and time	Wednesday, 11 November 2026 at 4pm Irish time
Interview date	To be confirmed
PhD commencement date	1 December 2026

Project Key Words: Printed Electronics, Solar Energy Harvesting, Scanning Probe Microscopy

Post summary

The project aims to increase the industrial readiness and application of next generation printed all-polymer solar cells. An advanced Scanning Probe Microscopy study will reveal the nanoscale electrical and chemical characteristics of printed modules allowing the optimisation of devices via improved materials selection, processing and print optimisation. Nanoscale electrical measurements will complement full device performance parameters obtained using solar simulators. Photo-induced Force Microscopy methods will be used to study the chemical degradation mechanisms occurring within the devices while correlative nano-electrical measurements will reveal the impact of degradation on performance. Devices will be printed on both rigid and flexible substrates, in standard and inverted mode configurations. The performance of the solar modules will be assessed for indoor energy harvesting applications. The PhD provides career development opportunities in advanced Scanning Probe Microscopy techniques and printed electronics, with transferable skills in research management, open research and communications, leading to a career in the semiconductor and microelectronics industries or academia. The post has an immediate commencement date, it is therefore advisable that all applicants should hold the required study or work permits.

Knowledge & Experience

Essential

- Degree (Level 8 equivalent, 2nd class Honours or higher classification) in Engineering or Science from an approved University.
- Excellent laboratory skills demonstrated by final year project or previous work experience.
- Excellent literary skills, demonstrated by a final year project dissertation or similar substantive technical report.

Desirable

- Master's degree in Engineering or Science from an approved University.
- Good knowledge of Organic Solar Cells.
- Good knowledge of Scanning Probe Microscopy.

Skills & Competencies

Essential

- Applicants whose first language is not English must demonstrate on application that they meet SETU's English language requirements and provide all necessary documentation. See Page 7 of the Code of Practice.
- In order to be shortlisted for interview, you must meet the SETU English speaking requirements so please provide evidence in your application.
- Excellent programming skills.
- Excellent written and oral presentation skills.
- Excellent time management and reporting skills.
- Excellent team working skills.

Desirable

- Experienced in scanning probe microscopy techniques.
- Experienced in Aerosol Jet Printing and/or Ink Jet Printing
- Experienced in the Design of Experiments using Minitab or similar software.
- Experienced with using third party Software Development Kits for customising experimental setups.

Further information
For any informal queries, please contact Joseph O'Mahony on email Joseph.OMahony@SETU.ie

For queries relating to the application and admission process, please contact the Postgraduate Admissions Office researchadmissions@setu.ie or telephone +353 (0)51 302883.

For queries relating to the funding programme, please email scholarships2025@setu.ie

University Website https://www.setu.ie/

Application procedure

Download the application from the SETU website and return the completed application to researchadmissions@setu.ie quoting advert reference code SETU_2025_08_WSCH_2. Please note that paper submissions will not be accepted.

The University will short-list and interview those applicants who provide the most suitable information in terms of experience, qualifications and other requirements relevant to the scholarship.

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