

Position Description

Postdoctoral Fellow

Position Number: 63292
Position Title: Postdoctoral Fellow
Date Written: July 2018

Faculty / Division: Faculty of Engineering
School / Unit: School of Photovoltaic and Renewable Energy Engineering
Position Level: Level B

ORGANISATIONAL ENVIRONMENT

UNSW is currently implementing a ten year strategy to 2025 and our ambition for the next decade is nothing less than to establish UNSW as Australia's global university. We aspire to this in the belief that a great university, which is a global leader in discovery, innovation, impact, education and thought leadership, can make an enormous difference to the lives of people in Australia and around the world.

Following extensive consultation in 2015, we identified three strategic priority areas. Firstly, a drive for academic excellence in research and education. Universities are often classified as 'research intensive' or 'teaching intensive'. UNSW is proud to be an exemplar of both. We are amongst a limited group of universities worldwide capable of delivering research excellence alongside the highest quality education on a large scale. Secondly, a passion for social engagement, which improves lives through advancing equality, diversity, open debate and economic progress. Thirdly, a commitment to achieving global impact through sharing our capability in research and education in the highest quality partnerships with institutions in both developed and emerging societies. We regard the interplay of academic excellence, social engagement and global impact as the hallmarks of a great forward-looking 21st century university.

To achieve this ambition we are attracting the very best academic and professional staff to play leadership roles in our organisation.

UNSW BEHAVIOURS

UNSW recognises the role of employees in driving a high performance culture. The behavioural expectations for UNSW are below.

Please refer to the UNSW Behavioural Indicators for the expectations of your career level (level B).

Demonstrates Excellence

Delivers high performance and demonstrates service excellence

Drives Innovation

Thinks creatively and develops new ways of working. Initiates and embraces change

Builds Collaboration

Works effectively within and across teams. Builds relationships with internal/external stakeholders to deliver outcomes

Embraces Diversity

Values individual differences and contributions of all people and promotes inclusion

Displays Respect

Treats others with dignity and empathy. Communicates with integrity and openness

OVERVIEW OF RELEVANT AREA AND POSITION SUMMARY

The UNSW School of Photovoltaic and Renewable Energy Engineering (SPREE) is one of the eight schools within the Faculty of Engineering at UNSW. SPREE grew out of the Australian Research Council Photovoltaics Centre of Excellence in response to the growing renewable energy industry. Building on world-leading research, including holding the record for the most efficient silicon solar cell for over two decades, the school attracts leading international researchers in photovoltaic and renewable energy.

Black silicon texturing improves solar cell efficiency and enables the use of a wider range of starting materials than conventional texturing processes. Commercial versions of the technique are being implemented in advanced PV manufacturing lines with market share expected to grow over the next 10 years. However, the optical properties of industrial black silicon is reduced compared to the full potential of the technique and integration with solar cell processing steps remains a challenge.

The Postdoctoral Fellow will study and improve the integration of industrial black silicon with high efficiency solar cells in a diverse team. The team will work closely with major industry partners to investigate how black silicon textures interact with existing and next-generation solar cell production processes with the ultimate goal of improving conversion efficiency for lower cost silicon wafers. The role will involve fundamental studies as well as performing development of solutions to problems faced in current manufacturing lines.

The role of Postdoctoral Fellow (Level B) reports to Dr Malcolm Abbott and has no direct reports.

RESPONSIBILITIES

Specific responsibilities for this role include:

- Conduct research of high quality and high impact in the area of Black Silicon Texturing independently and as part of a team, including leading some areas of the project where the opportunity arises, and where appropriate;
- Disseminate research results through writing of scientific papers and reports for international journals and progress reporting to other researchers and industry partners;
- Participate in the definition of research directions and actively contribute to the coordination of research activities and research outputs to meet project milestones;
- Independently seek and apply for external funding opportunities to grow and enhance the research project, including the involvement in applications for competitive government and industry research funding;
- Participate in and/or present at conferences and/or workshops relevant to the project, as required;
- Assist with supervision/co-supervision of PhD and ME research students;
- Work with the collaborating partners and associated technology transfers including attendance in partner facilities of the industry partners as required;
- Participate in regular project meetings;
- Cooperate with all health and safety policies and procedures of the university and take all reasonable care to ensure that your actions or omissions do not impact on the health and safety of yourself or others.

SELECTION CRITERIA

- PhD in photovoltaics or a relevant material science field;
- Scientific background in solar cell devices, silicon texturing and light management;

- Laboratory experience in solar cell fabrication and characterisation techniques;
- Demonstrated ability to conduct independent research with limited supervision;
- Strong track record of publications and conference presentations relative to opportunity;
- Strong interpersonal skills with a demonstrated ability to communicate and interact with a diverse range of stakeholders;
- Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships;
- Demonstrated ability to supervisor honours and postgraduate research students.
- Knowledge of health and safety responsibilities and commitment to attending relevant health and safety training.

It is not the intention of the position description to limit the scope or accountabilities of the position but to highlight the most important aspects of the position. The aspects mentioned above may be altered in accordance with the changing requirements of the role.