Position Description

Postdoctoral Research Fellow

Position Number: 00086592
Position Title: Postdoctoral Research Fellow
Date Written: September 2020

Faculty / Division: Faculty of Science
School / Unit: School of Physics
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.

VALUES IN ACTION: OUR UNSW BEHAVIOURS
UNSW recognises the role of employees in driving a high-performance culture. The behavioural expectations for UNSW are below.

- Delivers high performance and demonstrates service excellence.
- Thinks creatively and develops new ways of working. Initiates and embraces change.
- Works effectively within and across teams. Builds relationships with internal and external stakeholders to deliver on outcomes.
- Values individual differences and contributions of all people and promotes inclusion.
- Treats others with dignity and empathy. Communicates with integrity and openness.
OVERVIEW OF RELEVANT AREA AND POSITION SUMMARY

The School of Physics is one of the leading Physics schools in Australia. It offers a world class undergraduate physics degree, as well as a postgraduate PhD research program for over 50 students. 33 academic staff conduct theoretical and experimental research in quantum physics, astrophysics, fundamental physics; and condensed matter physics. UNSW is an international leader in quantum computing research and hosts the ARC Centre for Quantum Computation and Communication Technology. Major nodes of two other ARC Centres: Exciton Science; and Future Low-Energy Electronics Technologies are also based at UNSW.

For further information about the school please visit www.physics.unsw.edu.au

The role of Postdoctoral Research Fellow will be to fabricate and characterise devices based on atomically thin materials. The position is in the UNSW node of the ARC Centre for Future Low Energy Electronics Technologies (FLEET) and the Quantum Electronics Device Group in the School of Physics. The position will be responsible for the operation of advanced device fabrication and measurement infrastructure valued at over $1M

The role of Postdoctoral Research Fellow reports to Scientia Professor Alexander Hamilton and has no direct reports.

RESPONSIBILITIES

Specific responsibilities for this role include:

- Conduct research in the area of fabrication and measurement of atomically thin devices, independently and as part of a team, including leading some areas of the project where the opportunity arises and where appropriate.
- Fabricate atomically thin devices of interest in the field of topological materials and excitonic condensation.
- Develop and optimise infrastructure and techniques for atomically thin device fabrication.
- Perform low temperature measurements and analysing data.
- Disseminate research results through writing of scientific papers and reports for international journals and progress reporting to other researchers.
- Participate in the definition of research directions and actively contributes 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.
- Participate in and/or present at conferences and/or workshops relevant to the project as required.
- Joint supervision of honours and HDR students.
- 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 Science or related area.
- Demonstrated ability to conduct independent research with limited supervision.
- Demonstrated experience with assembly of van der Waals heterostructure devices in ambient and oxygen free environments.
• Strong track record of publications and conference presentations relative to opportunity.
• Proven ability to work in a team, collaborate across disciplines and build effective relationships.
• Strong interpersonal skills with demonstrated ability to communicate and interact with a diverse range of stakeholders and students.
• Demonstrated ability to supervisor undergraduate and/or postgraduate research students.
• Demonstrated experience in clean room processing techniques.
• Demonstrated experience in electron beam lithography techniques.
• Demonstrated experience with low temperature and low noise electrical measurement techniques.
• 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.