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POSITION DESCRIPTION

Postdoctoral Research Fellow

Position Level	Level B
Faculty/Division	Engineering
Position Number	00084574
Original document creation	24/05/2021

Position Summary

The Postdoctoral Research Fellow (PDRF) is to support the newly found research group led by Dr Tuomo Tantt in the School of Electrical Engineering & Telecommunications. Dr Tantt's group undertakes work in the area of silicon nanoelectronics and quantum metrology. This PDRF will undertake the key hands-on cryogenic experimental measurements, together with device modelling and components of the nanofabrication; disseminate research outcomes through the production of journal publications, conference and seminar presentations, and reports to funding bodies. Dr Tantt's group closely collaborates and gets support from Professor Dzurak's group that is a world leading group in the area of silicon nanoelectronics and quantum computing. They will be specifically working on the project relating to Discovery Grant DP200103515 - "A Transportable Self-referenced Quantum Current Standard on a Silicon Chip". This research will be focused on developing a silicon based electrical standard based on single-electron transport. This work will be undertaken in collaboration with Aalto University, Finland; National Physical Laboratory, UK; University of Strathclyde, UK; and National Measurement Institute, Australia.

The role of Postdoctoral Research Fellow reports to Dr Tuomo Tantt and has no direct reports.

Accountabilities

It is expected that the appointee will progress on a continual satisfactory and upward trajectory in their performance and specific performance expectations will be set individually with the Head of School/Supervisor.

Specific responsibilities for the role include:

- Development of nanoelectronic devices in support of core research goals, including:
 - Nanoelectronic device and portable enclosure design and fabrication;
 - Cryogenic measurements;
 - Data analysis and modelling.

- Conduct research in the area of silicon nanoelectronics and quantum computing independently and as part of a team, including leading some areas of the project where the opportunity arises and where appropriate.
- Disseminates research results through writing of scientific papers and reports for international journals and progress reporting to other researchers and industry partners.
- Participates 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, and supervision of research-support and administrative staff involved in the staff member's research.
- Assistance in the training and supervision of undergraduate and graduate research students.
- Involvement (where appropriate) in the promotion of research links with outside bodies.
- Attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or departmental and/or faculty meetings.
- Align with and actively demonstrate the [UNSW Values in Action: Our Behaviours](#) and the [UNSW Code of Conduct](#).
- 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.

Skills and Experience

- PhD in Electrical Engineering or Physics
- Demonstrated ability to conduct independent research supported by strong track record of publications, conference papers, reports and/or professional and/or technical contributions in a relevant discipline area, with limited supervision.
- Strong background in semiconductor device physics.
- Experience in nanofabrication techniques, including electron beam lithography, and in electrical measurements at cryogenic temperatures.
- 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 honours and postgraduate research students.
- An understanding of and commitment to UNSW's aims, objectives and values in action, together with relevant policies and guidelines.
- Ability and capacity to implement required UNSW health and safety policies and procedures.

PRE EMPLOYMENT CHECKS REQUIRED FOR THIS POSITION

Verification of qualifications

About this document

This Position Description outlines the objectives, desired outcomes, key responsibilities, accountabilities, required skills, experience and desired behaviours required to successfully perform the role.

This template is not intended to limit the scope or accountabilities of the position. Characteristics of the position may be altered in accordance with the changing requirements of the role.