# Position Details

## Research Projects- CSOF5

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| The following information is for applicants | |
| Advertised Job Title | Senior Process Engineer – Device Fabrication |
| Job Reference | 67562 |
| Tenure | Specified Term of 30 months  Full-time 73 hours and 30 min per fortnight |
| Salary Range | AU$98,735 to AU$106,848 pa + up to 15.4% superannuation |
| Location(s) | Lindfield, NSW |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian Citizens Only |
| Position reports to the | Senior Principal Research Scientist and Team Leader, Quantum Devices and Materials |
| Client Focus – Internal | 80% |
| Client Focus – External | 20% |
| Number of Direct Reports | 0 |
| Enquire about this job | Wendy Purches via email at [wendy.purches@csiro.au](mailto:wendy.purches@csiro.au) or phone +61 2 9413 7477 |
| How to apply | Apply online at <https://jobs.csiro.au/>  Internal applicants please apply via **Jobs Central**  If you experience difficulties when applying, please email [careers.online@csiro.au](mailto:careers.online@csiro.au) or call 1300 984 220. |

### Role Overview

The Quantum Devices & Materials team uses CSIRO’s world-leading scientific capability in High Temperature Superconducting (HTS) electronic devices, circuits and sensors to develop advanced magnetometry. The purpose of this role is to support the team to manufacture its HTS Josephson junction technology.

The Process Engineer will work to enhance the performance of thin film HTS devices and their manufacturability. The role involves oversight of large-scale fabrication equipment installation and acceptance, such as photolithography and other related equipment. To achieve the commercial deliverables of improved manufacturability, the role will carry out device fabrication process development and the implementation of quality control procedures, including a manufacturing management database. Automation, documentation and HSE will also be important outputs for the role.

Research Projects staff in CSIRO collaborate in scientific and technological activities with other research staff usually by assisting with detailed planning, undertaking or assisting with experimental, observational or technology development work, and in carrying out the more practical aspects of the work.

### Duties and Key Result Areas:

With minimal supervision, and with the direction of the project leader, the Process Engineer will:

* Work closely with the team to develop, implement and optimise HTS device fabrication processes and develop/maintain a database for controls, in anticipation of technology transfer. 80 % of this role is hands-on laboratory work.
* Adhere to strict deadlines for commercial project deliverables and clearly communicate ongoing progress and challenges to the project leader.
* Set up, maintain and perform regular fabrication process checks and formal analysis protocols
* Track all process control parameters and drive plans for quality improvements.
* Design and carry out experimental work to optimise HTS device fabrication processes, including photolithography processes and reactive ion etching process.
* Prepare documentation such as standard operating procedures, progress reports and risk assessments.
* Oversee installation, maintenance, repair and upgrades of equipment within tolerances to assure manufacturing quality standards are satisfied.
* Prepare specifications for equipment and/or consumables and negotiate with vendors.
* Design, develop and adapt experimental methods and systems, software and/or user experience, requiring high levels of initiative, ingenuity and skills (some of which are outside a single discipline).
* Produce novel techniques and enhanced results, providing researchers with new or improved approaches to research or technological problems.
* Participate in project scoping and planning, making significant contributions to the research or technological direction, and advising the level and type of services that are provided.
* Collaborate with staff from other teams in meeting their objectives.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work collaboratively as part of a multi-disciplinary team and business unit to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Adapt to project requirements as required; the overarching goal of this role is supporting the manufacture of CSIRO’s HTS Josephson junction technology.
* Other duties as directed.

## **Required Competencies:**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other team as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **Resource Management/Leadership:** Sets up and maintains effective and efficient work teams and manages performance and resources, to achieve objectives. Chooses appropriate management strategies and communication styles to maintain high levels of motivation and productivity. Gives feedback for development purposes and provides support and direction for improvement.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. Bachelor’s/Master’s degree in Physics, Chemistry, Materials Science or Engineering or equivalent experience.
2. Experience using formal process control analysis techniques such as Six Sigma, DOE, pareto analysis, failure mode effects analysis and fault tree analysis.
3. Experience in a minimum of three typical electronic device fabrication techniques such as photolithography, dry etching, thin film deposition, metal deposition and associated metrology with demonstrated attention to detail.
4. Experience in system design, database development and statistical graphing packages.
5. The ability to work effectively as part of a multi-disciplinary research team.
6. Demonstrated experience in receiving feedback and communicating complex ideas to a range of stakeholders.
7. Solid organisational skills including attention to detail when developing documentation, processes and reporting.
8. Ability to deliver results and complete tasks on time, to specification and following safety requirements.

## **Desirable:**

1. Experience working in a manufacturing or industrial environment, for example working to ISO quality standards.
2. Experience working in research and development.
3. Programming experience for instrumentation and data analysis, and fluency in at least one scientific programming language.
4. Cryogenic liquid and compressed gas handling.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security clearance requirements.

Include if relevant:

* The successful candidate will be asked to obtain and provide evidence of a National Police Check or equivalent. Please note that people with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* The successful candidate will be required to obtain and maintain a security clearance and undergo negative vetting (level 1).

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