# Position Details

## Research Scientist/Engineer- CSOF6

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| The following information is for applicants | |
| Advertised Job Title | Magnetic Theory and Measurement Scientist |
| Job Reference | 80401 |
| Tenure | Term 3 years  Fulltime |
| Salary Range | $117,917k - $138,176k (pro-rata for part time) + up to 15.4% superannuation |
| Location(s) | Lindfield |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian Citizens Only |
| Position reports to the | Team Leader – Quantum Materials & Devices |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Scott Martin [scott.martin@csiro.au](mailto:scott.martin@csiro.au) +61 2 9413 7746 |
| 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. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the area that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

### Role Overview

The role of Research Scientist Staff in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. You may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts.

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 Research Scientist in Quantum Devices and Materials will develop superconducting devices towards field testing and commercialisation in the role of measuring and characterising of the electrical and magnetic properties of superconducting devices.

ROLE SPECIFIC DESCRIPTION

### Duties and Key Result Areas:

The Electronics Engineer will be responsible for the design, construction, programming and documentation of electronic control and support systems for the various CSIRO projects.

* Under the supervision of more senior researchers, assist in the planning and preparation of research proposals and carry out research investigations, requiring originality, creativity and innovation.
* Electrical and magnetic characterisation measurements of experimental devices.
* Collation, analysis and interpretation of measurements using statistical analysis. Develop data fitting procedures to analyse array data where needed.
* Contribute to the improvement and development of measurement capability including system design and implementation
* Understand and utilise theoretical models to help inform HTS junction-based sensors.
* Perform cryogenic electrical transport measurements of superconducting devices.
* Develop data fitting & analysis procedures where needed and use this to inform future device designs.
* Preparation for and participation in field trials.
* Incorporate novel approaches to scientific investigations by adapting and/or developing original concepts and ideas for new, existing and further research.
* Select the most profitable line of attack upon a problem, prepare detailed design proposals and experimental protocols.
* Draw on professional expertise, knowledge of other disciplines and research experience to recognise opportunities for innovation and generate new theoretical perspectives by pursuing new ideas/approaches and networking with scientific colleagues across a range of disciplines.
* Present results in a meaningful format, prepare reports for clients and/or write scientific papers for publication.
* Address problems promptly and in a constructive manner.
* Undertake experimental and/or observational research activities and may supervise and/or train others to ensure experiments are established in accordance with research design.
* Provide supervision and coaching to students and technical staff as required.
* Maintain confidentiality when dealing with commercially sensitive information.
* 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, regionally dispersed research team to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* 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 teams as well as industry colleagues.
* **Influence and Communication:** Identifies critical stakeholders and influences them via an influential third party, for example through an established network, to gain support for sometimes contentious proposals/ideas.
* **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:** Anticipates and manages problems in ambiguous situations. Develops and selects an appropriate course of action and provides for contingencies. Evaluates, interprets and integrates complex bodies of information and draws logical conclusions, synthesises proposals and defends options with reasoned arguments.
* **Independence:** Assesses the risk and opportunity of identified strategies, options and actions. Overcomes problems and setbacks in achieving goals. Invariably includes consideration of value-added future impact on bottom line when determining the optimal and efficient use of resources.
* **Adaptability:**Demonstrates flexibility in thinking and adapts to, and manages, the increasing rate of organisational change by adjusting strategies, goal and priorities.

## **Selection Criteria**

#### Essential

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

1. A PhD (or an equivalent combination of qualifications and research experience) in a relevant field such as physics or engineering.
2. A sound knowledge of theoretical physics and/or condensed matter physics.
3. Demonstrated experience in undertaking laboratory measurements using electrical characterisation equipment and knowledge of the experimental considerations of electromagnetic measurements.
4. Demonstrated programming skills for control electronics and/or data analysis, in C++, Matlab, Python or similar.
5. Demonstrated capability in planning, organising and manipulating experimental data including statistical and fitting techniques.
6. Demonstrated cryogenic experimental measurements skills.
7. Demonstrated ability to undertake original, creative and innovative research by generating and pursuing novel ideas and solutions to scientific research problems.
8. A demonstrated publication history of authorship on scientific papers in peer reviewed journals and/or reports, grant applications or inventorship on patent applications.

## **Desirable**

1. Experience in electronics, electronic design and fabrication.
2. Demonstrated expertise and experience in superconductivity

Finite Element Analysis and/or Finite Difference Time Domain modelling using sophisticated packages such as COMSOL or CSSpecial Requirements

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

* 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 at the level NV2*.*

## **About CSIRO:**

We solve the greatest challenges through innovative science and technology. To find out more visit us [online](http://www.csiro.au/)!

Find out more about CSIRO [Manufacturing](https://www.csiro.au/en/Research/MF)