# Position Details

## Research Scientist/Engineer- CSOF7

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| The following information is for applicants |
| Advertised Job Title | Senior Quantum Device Physicist |
| Job Reference | 86211 |
| Tenure | Indefinite |
| Salary Range | $$ Attractive salary package |
| Location(s) | Lindfield, NSW |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * All Candidates
 |
| Position reports to the | Group Leader – Electromagnetic Sensors and Devices  |
| Client Focus – Internal | 60% |
| Client Focus – External | 40% |
| Number of Direct Reports | 5 |
| Enquire about this job | Contact Scott Martin via email at scott.martin@csiro.au or phone +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 or call 1300 984 220. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas 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/Engineer staff is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. The Research Scientist/Engineer may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. The Research Scientist/Engineer 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.

As a Senior Quantum Device Physicist, you will lead and develop a team of scientists developing quantum systems based on condensed matter physics, optics or photonics. Your activities will align with and complement CSIRO’s existing research capabilities in High Temperature Superconducting (HTS) electronic devices, circuits, advanced magnetometry, and emerging 2D materials and their device applications. Your team will engage on a range of projects from early-stage feasibility through to more commercially oriented projects to uplift Technology Readiness Levels of CSIRO technology towards commercial applications. This new role provides the flexibility to augment existing capability as well as to introduce a new research direction in quantum devices.

### Duties and Key Result Areas

* Applying experience and knowledge of theoretical and/or experimental physics for quantum research and device development.
* Supervision of a team of scientists/engineers engaged in sensor and device development.
* Creation of new Intellectual Property with strong end user applications.
* Undertake leading edge scientific research and maintain active research collaborations in order to access/share leading edge concepts and technology to advance project goals.
* Progress complex, sensitive or contentious research matters to finality.
* Lead the strategic research component of projects, contribute original ideas and concepts and determine the most appropriate strategies to achieve project goals.
* Lead and collaborate in the planning and preparation of research proposals and carrying out research investigations, requiring originality, creativity, and innovation.
* Contributing to defining scientific strategy of the research program particularly quantum-related facilities and capabilities
* Identify trends in research and development to inform portfolio analysis and influence the Business Unit’s research directions.
* Presenting results in a meaningful format, preparing reports for clients and/or writing scientific papers for publication.
* Provide scientific or engineering leadership to colleagues and students and coordinate, allocate and manage resources (people, equipment, facilities, and funds).
* Undertake feasibility studies, demonstrating a considerable degree of originality, creativity and innovation in solving problems and introducing new directions and approaches.
* Communicate research results to clients and the scientific community through oral and written reports, which may include the preparation of documents for patent applications.
* Incorporate novel approaches to scientific investigations by adapting and/or developing original concepts and ideas for new, existing, and further research.
* 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.
* Liaise with the business manager and/or account managers to assess commercial opportunities and to protect intellectual property.
* Work collaboratively as part of a multi-disciplinary research team to carry out tasks in support of CSIRO’s scientific objectives.
* Act as a trusted advisor to clients and promote an understanding of client needs amongst other employees.
* 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.
* Preparation for and participation in field trials.
* Other duties as directed.

## **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 significant research experience, in a relevant field such as physics or engineering.
2. A sound knowledge of quantum physics preferably superconductivity and/or condensed matter physics, optics, photonics and the ability to creatively apply this to the design of sensors and devices.
3. Track record of scientific leadership such as authoring successful funding submissions, setting research direction and science strategy.
4. Proven ability to lead projects and deliver outcomes – on time, on budget, on brief.
5. Demonstrated experience in undertaking laboratory measurements such as electrical, optical, photonics.
6. Demonstrated capability in planning, organising, and manipulating experimental data including statistical and fitting techniques.
7. A demonstrated publication history of authorship on scientific papers in peer reviewed journals and/or reports, grant applications or inventorship on patent applications.
8. Strong experience in leading a team of researchers with clear understanding of HSE and modelling workplace safety culture.

**Desirable**

1. Experience in electronics, electronic design, and fabrication.
2. Demonstrated cryogenic experimental measurements skills.
3. Demonstrated programming skills for control electronics and/or data analysis, in C++, Matlab, Python or similar.
4. Finite Element Analysis and/or Finite Difference Time Domain modelling using sophisticated packages such as COMSOL or CS.

## **Desirable**

## **Required Competencies**

* **Teamwork and Collaboration:** Creates and fosters an environment in which there is a high level of cooperation within and between teams. Facilitates positive team relationships to build interactions across Business Units and the organisation.
* **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:** Provides leadership that fosters an environment that encourages new ideas and provides support for the development of emerging skills. Creates trust by displaying consistency, understanding, integrity and patience. Plans, seeks, allocates and monitors resources to achieve outcomes.
* **Judgement and Problem Solving:** Resolves major conceptual scientific, technical, commercial or management problems, which have a significant impact upon the field of research, professional function, the Business Unit or the Organisation. Situations faced have little or no precedent and require original concepts and approaches.
* **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:**Is flexible in response to external change or when faced with external constraints. Identifies and promotes the opportunities arising as a result of change.

Special 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.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [CSIRO Manufacturing](https://www.csiro.au/en/about/people/business-units/Manufacturing) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted