# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants | |
| Advertised Job Title | Research Scientist – Optical, Photonics and Quantum Biosensing |
| Job Reference | 80281 |
| Tenure | 3 year Term, Full-time |
| Salary Range | AU$102,724 to AU$111,165 pa + up to 15.4% superannuation |
| Location(s) | Clayton |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian/New Zealand Citizens and Australian Permanent Residents * Applicants who currently hold a visa for the duration of the contract without requiring sponsorship and are already residing in Australia |
| Position reports to the | Team Leader |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Helmut Thissen via email at helmut.thissen@csiro.au or phone +61 3 9545 2191 |
| 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 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.

Next generation biosensors are urgently required in a broad range of applications and industry sectors. In a biomedical context in particular the focus is on the detection of specific biomarkers and pathogens to enable a quick and highly specific diagnosis and enable effective, patient specific treatment. Here, the focus of the work at CSIRO is to provide diagnostic tools with ultra-high sensitivity that are scalable and suitable for industrial translation, with examples ranging from point-of-care devices to wearable and implantable biosensors. Progress in this field requires the highly effective control of biointerfacial interactions, and in turn the integration of a range of interdisciplinary skills, ranging from surface modification to bioconjugation and the exploitation of biophysical phenomena. Moreover, it is also often important to consider complex biological responses in vitro and in vivo.

### The successful candidate will work on novel biosensing approaches, including in particular optical, photonics and quantum based approaches. The biosensor device manufacturing will include work at the Melbourne Centre for Nanofabrication (MCN). The successful candidate will work closely with industry partners on the translation of these technologies. This translation will be facilitated by CSIRO’s Biomedical Materials Translational Facility (BMTF). Moreover, the successful candidate will work closely with CSIRO’s Infectious Disease Resilience (IDR) Mission and Antimicrobial Resistance (AMR) Mission.

### Duties and Key Result Areas:

* Design and manufacture of optical, photonics and quantum based biosensors with ultra-high sensitivity for the detection of a broad range of biomarkers and pathogens.
* Development of next-generation optical, photonics and quantum based transducer platforms that are suitable for integration into biosensors.
* Development of novel technologies enabling improved selectivity and sensitivity including nanostructured materials and coatings
* Detailed characterisation and validation experiments.
* Evaluation of biological responses in vitro and in vivo.
* Liaise with clients to determine their needs and take personal responsibility for client satisfaction.
* Under limited direction, assist in the planning and preparation of research proposals and carry out research investigations, requiring originality, creativity and innovation.
* 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, selecting the most profitable lines of attack upon a problem, preparing detailed design proposals and experimental protocols.
* Undertake in experimental and/or observational research activities, often requiring the supervision and/or training of others to ensure experiments are established in accordance with research design, or as required.
* Draw on professional expertise, knowledge of other disciplines and research experience, recognise opportunities for innovation and generate new theoretical perspectives by pursuing new ideas/approaches and networking with scientific colleagues across a range of disciplines.
* 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, often regionally dispersed research team, and business unit to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s 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:** 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:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **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

1. A doctorate in a relevant discipline area, such as Chemistry, Physics, Materials Science, Biomedical Science or related disciplines.
2. Relevant postdoctoral research experience in the field of diagnostic technologies.
3. Relevant postdoctoral research experience in the field of optical, photonics and/or quantum based biosensing methods.
4. Demonstrated ability to work effectively in a multi-disciplinary, regionally dispersed research team.
5. Proven ability to collaborate widely with diverse stakeholders both within the organisation and externally.

## **Desirable:**

1. Demonstrated experience in the field of biomedical devices.
2. Proven experience in surface modification and analysis.
3. Demonstrated experience in bioconjugation.
4. Demonstrated experience in mammalian and/or bacterial cell culture methods.
5. Proven experience related to animal experiments.
6. Demonstrated experience in obtaining funding.

Special 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.

This role has child safety obligations. Accordingly, the successful candidate will be required to obtain or provide evidence that they hold a working with children check prior to confirmation of appointment.

## **About CSIRO:**

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