# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants | |
| Advertised Job Title | Research Scientist/Engineer in Electrochemistry |
| Job Reference | 72387 |
| Tenure | Specified Term of 3 years |
| Salary Range | AU$98,735 to AU$106,848 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Clayton, Melbourne, VIC |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian/New Zealand Citizens and Australian Permanent Residents * Australian temporary residents currently residing in Australia (visa sponsorship may be provided to eligible candidates) |
| Position reports to the | Team Leader – Electrochemical Processing |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Dr Theo Rodopoulos via email at theo.rodopoulos@csiro.au or phone +61 3 9545 8713 |
| 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.

In recent years the Electrochemical Processing team in CSIRO Mineral Resources has been developing an electrochemical cell to improve electrochemical processing. This platform technology has wide application and is currently being explored for hydrogen production, storage and transport. Hydrogen has attracted considerable attention in the last two decades because of rising energy cost and the expected increased global demand. It is considered an important energy source of the future. However, it is difficult to generate and store in a commercially sensible manner thus development of new energy technologies that are safe, sustainable and environmentally responsible but also have a short technology development timescale are highly desirable.

As part of the Electrochemical Processing team, the Research Scientist/Engineer will conduct cutting-edge research to optimise the proprietary electrochemical technology for hydrogen applications. The role will be part of a multi-disciplinary team comprised of electrochemists, synthetic chemists, modellers and engineers to help with project delivery. Furthermore, there will be a commercial focus, working with a client to ensure delivery of a commercially acceptable technology.

### Duties and Key Result Areas

* 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.
* Contribute to the electrocatalytic hydrogen production and storage project as a member of the Electrochemical Processing Team. Tasks will include:
* Contribute to the modification, redesign and fabrication of the CSIRO electrochemical flow cell.
* Assist with the characterisation and evaluation of new cell designs.
* Use techniques to measure and validate cell performance.
* Suggest and evaluate worthwhile catalyst materials for alkaline water electrolysis and hydrogenation/dehydrogenation of liquid organic hydrogen carriers.
* Carry out tasks in a timely manner under limited direction in support of scientific research.
* Participate in project planning, experimental design, scheduling and completion of project tasks.
* Provide critical feedback on all aspects of the project in order to improve outcomes.
* Contribute to the development of innovative concepts and ideas for further research.
* Contribute to the preparation of high-quality scientific papers for publication in high-quality journals, conference papers, client reports and any patents arising from the research.
* Undertake regular reviews of relevant literature and patents.
* Contribute to the effective functioning of the Electrochemical Processing Team and the project team and help deliver CSIRO’s organisational objectives and plans.
* 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.
* Liaise with clients to determine their needs and take personal responsibility for client satisfaction.
* 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:** 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 responses 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 change.

## **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 electrochemistry, electroanalytical chemistry, chemical engineering, electrometallurgy or material chemistry.
2. Sound knowledge of electrochemical science and technology, including its practice in a research environment.
3. A good working knowledge of material requirements for electrochemical applications.
4. Knowledge of electrocatalytic hydrogen production and hydrogenation of organic materials including how to analyse catalytic efficiency.
5. Proven experience designing and undertaking complex electrochemical measurements and resolving difficult problems where the recorded data may be ambiguous.
6. The ability to work effectively as part of a multi-disciplinary research team, plus the motivation and discipline to carry out autonomous research.
7. Strong oral and written communication skills.
8. Demonstrated ability to undertake original, creative and innovative research by generating and pursuing novel ideas and solutions to scientific research problems.
9. 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. Skills in the design of electrochemical cells.
2. Skills in modelling electrochemical data and processes (e.g. computational fluid dynamics (CFD) modelling skills).
3. Understanding of a variety of non-electrochemical techniques that help solve electrochemical problems (e.g. SEM, XRD, NMR, synchrotron-based measurements, UV absorption spectroscopy etc)
4. A practical understanding of the role commercial imperatives place on innovation.

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.

* 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.
* If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- https://ielts.com.au/

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

* 1. People First
  2. Further Together
  3. Making it Real
  4. Trusted

Find out more about CSIRO [Mineral Resources](https://www.csiro.au/en/Research/MRF)