# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants |
| Advertised Job Title | Research Scientist/ Engineer – Continuous Flow Catalysis |
| Job Reference | 94976 |
| Tenure | IndefiniteFull-time |
| Salary Range | AU$105,806 - AU$114,500 per annum plus up to 15.4% superannuation |
| Location(s) | Clayton (VIC) |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All candidates |
| Position reports to the | Team Leader - Continuous Flow Catalysis |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Thomas Kohl via email at thomas.kohl@csiro.au or phone +61 3 9545 7847 |
| 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).

**Child Safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

### 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 part of the Continuous Flow Catalysis team, this role will contribute to the development of catalytic process technology for chemical manufacturing and energy applications such as carbon capture and utilisation (CCU), hydrogenations, 3D printed reactor components, decentralised/mobile plants and operations for the Hydrogen Economy. The role will contribute into ongoing research efforts across continuous thermal, photochemical and electrochemical catalytic processes.

### Duties and Key Result Areas

* Developing new chemical manufacturing routes for industrial research projects using flow chemistry.
* Design and build bench-scale continuous flow reactor systems to carry out gas and liquid phase chemical transformations.
* Carry out research investigations, requiring originality, creativity and innovation.
* 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.
* Select the most profitable line of attack upon a problem, prepare detailed design proposals and experimental protocols.
* Apply discretion to decide and implement strategies appropriate to the successful completion of work.
* Liaise with clients to determine their needs and take personal responsibility for client satisfaction.
* Present results in a meaningful format, prepare reports for clients and/or write scientific papers for publication.
* Provide supervision and coaching to students and technical staff.
* 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 Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* 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.
* 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 research experience) in a relevant field such as Chemistry, Materials Science or Chemical Engineering
2. Demonstrated ability to undertake original, creative and innovative research by generating and pursuing novel ideas and solutions to scientific research problems.
3. A demonstrated publication history of authorship on scientific papers in peer reviewed journals and/or reports, grant applications or inventorship on patent applications.
4. Knowledge in the synthesis, characterization, and testing of various types of catalytic materials, including inorganic/organometallic materials.
5. In-depth fundamental understanding of and/or practical experience with thermal, photochemical, and electrochemical catalytic processes.
6. Demonstrated ability to use and interpret a relevant range of chemical analysis and characterisation techniques such as NMR, LCMS, IR, gas adsorption (e.g. BET) and X-ray spectroscopy to elucidate the structure of organic compounds and catalyst materials.
7. Excellent laboratory skills, including the design and engineering of bench-scale and/or pilot-scale experimental facilities.
8. The ability to communicate effectively, both verbally and in writing with evidence of ability to co-operate and perform effectively as part of a research team, and work in a multidisciplinary project.

## **Desirable**

1. Demonstrated track record of using continuous flow processing and liquid/gas -phase heterogeneous catalysis.
2. Knowledge in reaction engineering, including reaction kinetics, axial dispersion, residence time distribution and reactor design (PFRs and CSTRs).
3. Experience building techno-economic models to quantitatively estimate the relative costs and benefits of different technology solutions, in addition to their timeframes, risks and uncertainties.

## **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.

Special Requirements

Appointment to this role is subject to provision of a pre-employment background check and may be subject to 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 [Manufacturing](https://www.csiro.au/en/work-with-us/industries/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