# Position Details

## CSIRO Early Research Career (CERC) Postdoctoral Fellowship– CSOF4

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| The following information is for applicants | |
| Advertised Job Title | CSIRO Postdoctoral Fellowship in Plasma Enhanced Solar thermal CO2 Transformation |
| Job Reference | 75325 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$88,163 to AU$96,573 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Clayton (Melbourne) |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian/New Zealand Citizens, Australian Permanent Residents and Australian temporary residents currently residing in Australia (visa sponsorship may be provided to eligible onshore candidates) |
| Position reports to the | Team leader |
| Client Focus – Internal | 80% |
| Client Focus – External | 20% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Yunxia Yang via email at Yunxia.Yang@csiro.au or phone +61 3 95458384 |
| 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

**CSIRO Early Research Career (CERC) Postdoctoral Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships aim to develop the next generation of future leaders of the innovation system through:

* A differentiated career development program to deliver capability excellence and breadth across all facets of the national innovation system.
* Research training via strategic research and development projects with a clear focus that will deliver real impact through science and engineering excellence;
* An innovative culture supporting the development and demonstration of original thinking and expertise leading to peer-recognition; and
* Opportunities to develop skills and experience in collaborative research teams to effectively work within national and global multi/transdisciplinary and multi-stakeholder environments.

CERC Postdoctoral Fellows **are appointed for three years or part time equivalent.**

The Postdoctoral Fellow will lead a project that will encompass a broad range of leading-edge technologies. They will benefit from working with a wide range of subject matter experts in the areas of material synthesis, catalysis and plasma technology while independently delivering the experimental program.

CSIRO’s Clayton site has world-class facilities for catalyst synthesis, characterisation and testing. These include a High-Throughput Flow Testing facility for fast screening of the catalysts and versatile testing rigs for long term evaluation. The Lindfield laboratories have excellent facilities for development and diagnostics of plasma processes, which include power supplies and diagnostics that are readily transferrable to the Clayton site.

The supervisory research team has a well-established reputation in catalysis and plasma technology. During the course of the project, the Postdoctoral Fellow will be encouraged to spend time in the mentor’s and supervisor’s laboratory and various CSIRO laboratories as an immersive learning experience and to establish a broad network of scientific contacts.

Ample opportunity will be provided for the Postdoctoral Fellow to present scientific outcomes at local and international conferences as well as to CSIRO industrial collaborators and partners (as appropriate).

### Duties and Key Result Areas:

Recent research indicates that the plasma-enhanced reaction process can achieve high levels of CO2 conversion and selectivity at significantly reduced temperatures. However, the energy efficiency of the process is lower than required for commercial applications since the catalysts have been developed for thermal not plasma processes.

In this context, the Postdoctoral Fellow will be expected to conduct the following specific activities:

* + Work with the supervisory team to design and fabricate a novel plasma reactor with optimised energy efficiency.
  + Optimise the synthesis of catalyst materials for these plasma conditions.
  + Carry out experiments to evaluate materials and reactors.
  + Utilise both internal and external science networks to broaden expertise and guide delivery of project objectives.
  + Carry out innovative, impactful research that is strategically important to CSIRO and that will, where possible, lead to novel and important scientific outcomes.
  + Recognise and exploit opportunities for innovation, generate new theoretical perspectives, and progress opportunities for further development or new research directions.
  + Utilise design thinking methodology to plan and conduct research work, and work closely with internal and external network to assist commercial project developments.
  + Carry out research investigations requiring originality, creativity and innovation.
  + Record, manage, and analyse data/information using relevant domain data science techniques.
  + Being able to communicate data and results in both oral and written format, generating impact in both research and relevant industry community.
  + Proactively undertake development to grow effective researcher capabilities to support career goals.
  + 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.

[**The CERC Postdoctoral Fellow learning and development program**](http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships)is developed between the CERC Postdoctoral Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellows’ capabilities to the level expected of an independent researcher and will include on-the-job and course-based development encompassing:

* Discipline-specific techniques and protocols
* Professional growth
* Project management
* Communication and influencing skills
* Working and collaborating with others

## **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:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **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

*Under CSIRO policy only those who meet all essential criteria can be appointed and it is recommended that the applicant describes how they meet the selection criteria.*

1. A doctorate in a relevant discipline area, such as Chemical Engineering, Materials Science, Chemistry, Physics or related disciplines.

Please note: To be eligible for this role you must have **no more than 3 years** (or part time equivalent) of postdoctoral research experience.

1. Experience related to catalyst materials synthesis and catalysis.
2. Knowledge and experience related to reactor design, fabrication and testing.
3. High level written and oral communication skills with the ability to represent the research effectively to both internal and external audiences, including presentation of research outcomes at national and international conferences.
4. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.
5. A sound track-record of publications in peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.

## **Desirable:**

1. Knowledge and experience related to solar thermal applications.
2. Knowledge and experience related to CO2 hydrogenation.
3. Knowledge and experience in plasma reactor design and handling.
4. Problem solving skills, being able to identify and leverage resources to tackle problems.
5. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
6. The ability to work effectively as part of a multi-disciplinary, potentially regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.

To be appointed to this CERC Postdoctoral Fellowship role within CSIRO, candidates will be expected to commence employment by December 2021/January 2022. To be appointed as a CERC Postdoctoral Fellow within CSIRO, candidates are required to have **submitted** their PhD at the time of commencement, as a minimum requirement, if PhD conferment has not been obtained. If a candidate has submitted, but their PhD has not yet been formally attained, the starting salary will be CSOF4-1 ($85,361). Upon CSIRO receiving written confirmation that the PhD has been awarded (within a six month period from commencement date), the salary will be increased to the negotiated level and the difference will be back-paid to the Officer’s start date.

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.
* The successful candidate may be required to undertake a pre-employment medical examination prior to commencement.
* 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/

**Our value proposition**

We want CERC Postdoc Fellows to join our world class science, engineering and digital teams to solve big, complex problems that make a real difference to the future of Australia and the world.

You'll get to work with some of the most talented minds in their fields, not just in Australia, but in the world. At CSIRO, we spark off each other, learn from each other, trust each other and collaborate closely to achieve more than we could individually.

CSIRO Early Research Career (CERC) Postdoctoral Fellow Experience Employee Value Proposition (EVP). Find out more [here](https://www.csiro.au/en/careers/postdoctoral-fellowships)!

## **About CSIRO:**

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

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 [Energy](https://www.csiro.au/en/Research/EF)