# 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 Characterization of Hydrogen-Rock Interactions in Sedimentary Basins |
| Job Reference | 91722 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$92,624 to AU$101,459 pa + up to 15.4% superannuation |
| Location(s) | Perth, Western Australia |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All 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 Claudio Delle Piane via email at [claudio.dellepiane@csiro.au](mailto:claudio.dellepiane@csiro.au) or phone +61 8 6436 8716 |
| 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. |

**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

**CSIRO Early Research Career (CERC) Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant research 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 Fellows **are appointed for three years or part time equivalent.**

This Postdoctoral Fellow will join the [**Deep Earth Imaging Future Science Platform**](https://research.csiro.au/dei/). Energy and mineral exports make significant contributions to Australia’s economy. To sustain these exports and reduce their emissions intensity will require advanced subsurface characterisation and monitoring approaches.

### Deep Earth Imaging science helps us more precisely image, monitor and understand the significance of subsurface rock properties, which will unlock the resource potential of the Australian vast and relatively under-explored continent and also contribute to the greenhouse abatement technologies. The development of low emissions intensity energy products in Australia will require development of new exploration strategies for clean energy resources, underground hydrogen and compressed air storage. Critical to the efficient deployment of these technologies is the development of fundamental understanding of natural and induced geochemical alterations of mineral, organic and pore structures in crystalline and sedimentary rocks targeted for energy exploration and storage.

As part of this effort, we are seeking an early career scientist specialising in the experimental characterization of hydrogen-rock interactions as a new member of an established team. The successful candidate will develop novel analytical approaches and data processing algorithms contributing to the development of imaging and monitoring technologies of the subsurface across multiple scales.

### Duties and Key Result Areas

Under the direction of a senior research scientist, the Postdoctoral Fellow will conduct innovative research aligned with the goals of Deep Earth Imaging Future Science Platform and of the Energy Resources Program that ideally lead to novel and important scientific outcomes:

* Build observation-based understanding of hydrogen-rock interactions at the nano- to micro-scale to inform predictive geochemical models.
* Develop novel analytical approaches and data processing algorithms contributing to the development of imaging and monitoring technologies of the subsurface across multiple scales.
* Actively engage with domain experts to link next generation nanoscale analytical methods to process-based numerical modelling.
* Develop deeper understanding of the impact and the risk quantification associated with modifications of in-situ chemical and physical properties during hydrogen storage and withdrawal operations.
* Undertake regular reviews of relevant literature and intellectual property.
* Produce high quality scientific and/or engineering papers suitable for publication in international scientific journals, presentation to clients, and/or applications for patents.
* Prepare and present conference papers as agreed with the Team Leader and relevant DEI-FSP Program Leader.
* Contribute to the development of innovative concepts and ideas for further research.
* Contribute to the Deep Earth Imaging research team's effective functioning and help deliver to CSIRO’s organisational objectives, plans, and strategies.
* Work collaboratively with colleagues within the Deep Earth Imaging FSP team, the Minerals, Energy and Environment Business Units or other CSIRO Business Units as required.
* Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Undertake an appropriate training and development program developed by CSIRO.
* Interact with relevant industry and government agencies partners and develop contact network to support research ideas.

The CERC Fellow learning, development and training programis developed between the CERC Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellow’s 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

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as Energy Geosciences, Geochemistry, Geology with an understanding of their applications for energy exploration and storage. Please note: To be eligible for this role you must have **no more than 3 years** (full time equivalent) of postdoctoral research experience.
2. Demonstrated experience and familiarity with one or more of the following characterization methods: X-ray and neutron scattering and tomography; microbeam techniques (electron and ion-based).
3. Experience in designing experiments and operating experimental equipment involving high pressure fluids and gases.
4. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including the presentation of research outcomes at national and international conferences.
5. A sound history of publication in peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
6. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable**

1. Familiarity with image processing and analysis software packages (e.g. Avizo, ImageJ).
2. Familiarity with petrophysical and geomechanical rock characterization.
3. Familiarity with programming packages (e.g. MATLAB, Python).
4. Familiarity with machine learning methods and applications.
5. **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.**

## **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.

To be appointed as a CERC Fellow within CSIRO, candidates are required to have **submitted** their doctoral thesis 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 ($89,680). 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 Clearance or equivalent. Please note that individuals 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/)

**Our value proposition**

We want CERC 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.

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

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) for more information.

Find out more about CSIRO [Deep Earth Imaging Future Science Platform](https://research.csiro.au/dei/)

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

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