# Position Description

## Postdoctoral Fellowship– CSOF4

The following information is for applicants

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| Advertised Job Title**:** | Postdoctoral Fellowship in Geomechanics |
| Job Reference: | 59356  |
| Relocation Assistance**:** | Will be provided to the successful candidate if required. |
| Applications Are Open To: | * All Candidates
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| Percentage of Client Focus - Internal: | 80% |
| Percentage of Client Focus - External: | 20% |
| Reports to the: | Team Leader |
| Number of Direct Reports: | 0 |
| Name and Contact Details For Applicant Enquiries: | Dr Thomas Poulet via email: Thomas.Poulet@csiro.au or phone: +61 8 6436 8665 |
| Contact Details For Applying: | Call 1300 984 220 or email csiro.online@csiro.au  |
| How to Apply: | Please apply online at [jobs.csiro.au](https://jobs.csiro.au/) and enter the requisition number**.** Internal applicants please apply via ‘Jobs Central’ through the ‘People Hub’ icon  |

## Role Overview:

**Postdoctoral Fellowships** at CSIRO provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships will help launch their careers, provide experience that will enhance their career prospects, and facilitate the recruitment and development of potential leaders for CSIRO.

Postdoctoral Fellows **are appointed for up to three years or part time equivalent** and will work closely with a leading Research Scientist or Engineer in their respective field. They carry out innovative, impactful research of strategic importance to CSIRO with the possibility of novel and important scientific outcomes. They present the findings in appropriate publications and at conferences.

This Postdoctoral Fellow will develop a novel non-destructive rock characterisation methodology, in collaboration with Curtin University (Western Australia) and Duke University (USA), using a multiphysics theoretical and numerical framework based on geomechanical laboratory experimentation.

This role will be part of a multi-disciplinary team of researchers collaborating across institutions to develop an approach of high interest both in academia and industry. The Postdoctoral Fellow will perform laboratory experiments at CSIRO's Geomechanics and Geophysics Laboratory in Perth (CSIRO Energy) and contribute to the development of the project’s underlying theoretical and numerical models.The position will achieve impact by developing analysis strategies that reduce the required number of laboratory experiments to characterise rock responses to varying conditions in terms of temperature, confining pressure and deformation rate.

## Duties and Key Result Areas:

* Under the direction of senior research scientists, carry out innovative, impactful research of strategic importance to CSIRO that will lead to important scientific outcomes.
* Perform geomechanical experiments and assist with the identification and resolution of any problems in methodology, results, etc. to ensure the quality of the output data.
* Develop new theories, tools, and techniques related to the analysis, integration and processing of experimental data.
* Collaborate with the theoretical and numerical modellers to develop the multiphysics numerical simulator at the core of the project, including running numerical simulations and contributing to specific aspects of the code development
* Undertake regular reviews of relevant literature and patents.
* Produce high quality scientific papers suitable for publication in leading journals, reporting to clients, and application for granting of patents.
* Prepare conference papers and present those at conferences as agreed with your supervisors.
* Develop new lines of research in collaboration with supervisors.
* Contribute to the effective functioning of the research team (across groups of Rock Properties at CSIRO Energy and Geoscience Analytics at CSIRO Mineral Resources) and help deliver CSIRO’s organisational objectives and plans.
* Work collaboratively and professionally with colleagues within the team, the business unit, across CSIRO, and other institutions.
* Communicate effectively and respectfully with all staff, clients, and suppliers in the interests of good business practice, collaboration, and enhancement of CSIRO’s reputation.
* 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.
* Other duties as directed.

**CSIRO’s postdoctoral training program**is developed between the Postdoctoral Fellow and a CSIRO scientist or engineer. 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

<http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships>

## CSIRO Competencies:

1. **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.**
2. **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.**
3. **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.**
4. **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
5. **Independence: Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).**
6. **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:

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

***Essential Criteria:***

* A doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as Civil/Mechanical/Mining/Petroleum Engineering or a related field with a focus on theoretical and applied geomechanics. **Please note:** *To be eligible for this role you must have* ***no more than 3 years*** *of relevant postdoctoral experience.*
* **A record of publications in quality, peer reviewed journals** **relevant to theoretical and applied geomechanics**.
* Demonstrated experience in conducting standard geomechanics laboratory experiments, including but not limited to: operating pressure/triaxial vessels, data acquisition (strain, ultrasonic).
* Demonstrated experience in multiphysics geomechanical modelling (either theoretically or numerically).
* Demonstrated experience in conducting numerical modelling and simulation.
* **The ability to work effectively as part of a multi-disciplinary, geographically dispersed research team, plus the motivation and discipline to carry out autonomous research.**
* A record of science innovation and creativity, plus the ability & willingness to incorporate novel ideas and approaches into scientific investigation.

**Desirable Criteria:**

* Good programming skills (e.g. C/C++, Python).
* A strong **mathematical/analytical** background.

To be appointed as a 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 *(AU$82,450).* 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 security/national police/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents 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/>

## About CSIRO:

We imagine. We collaborate. We innovate. To find out more visit us [online](http://www.csiro.au/)!

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