# 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 X-ray Physics |
| Job Reference | 81008 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$89,926 to AU$98,504 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Lucas Heights, NSW |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All candidates |
| Position reports to the | Research Scientist |
| Client Focus – Internal | 80% |
| Client Focus – External | 20% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Brianna Ganly via email at [brianna.ganly@csiro.au](mailto:brianna.ganly@csiro.au) |
| 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 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.**

This Fellowship is part of the **Autonomous Sensors Future Science Platform,** offering new opportunities to work on frontier science to accelerate the generation of new tools to enable growth of digital decision making within domains; combining fundamental sensor research with autonomous engineering solutions to provide new advanced sensing and platform technologies for the environmental monitoring, health monitoring, mining, agriculture, and manufacturing domains.

The Postdoctoral Fellow will work with novel X-ray systems and be interested in developing new sensing-based methods to determine the elemental composition of ore beyond the limits of what can currently be measured using existing techniques. The postdoctoral fellow will be appointed in the CSIRO Mineral Resources’ X-ray Technologies Group at our Lucas Heights laboratory. The group develops novel X-ray analysis systems through research and development activities, with a strong focus on industry needs and commercialising successful technology.

### Duties and Key Result Areas:

* Assembly of X-ray equipment including X-ray tubes and detectors, to support development of new measurement methods. This can include procurement of hardware, set up of equipment and use computer programming to run the experiment and collect data.
* Using deep knowledge of experimental physics to appropriate existing experimental methods and create new ones for determining the elemental composition of ore samples using X-ray analysis techniques.
* Develop software for controlling laboratory prototype equipment.
* Run Monte Carlo simulations to test ideas and/or validate experiments.
* Analyse experimental data and communicate outcomes.
* Take part in technology field trials in Australia and overseas.
* Maintain safe working practices when working with hazardous materials.
* Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
* 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, 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 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.*

1. A doctorate (or will shortly satisfy the requirements of a PhD) in the physical sciences (physics, chemistry, environmental science, geosciences, mathematics, or a closely related field).

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

1. Excellent experimental and measurement skills and an expert-level understanding of at least one spectroscopic technique (for example XRF, LIBS, Fourier transform infrared – FTIR) and associated analysis.
2. Experience with computer programming, such as but not limited to Python, C, C++, and Matlab.
3. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, both written and oral.
4. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.
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.**

## **Desirable:**

1. Experience in X-ray spectroscopy and understanding of interactions of X-rays with matter.
2. Experience developing fundamental physical models, data analysis algorithms, and/or sensor concepts involving remote sensing for environmental, mineral extraction, or agricultural applications.
3. Familiarity with and/or development of spectral processing methods.
4. Familiarity with data science including analysis and reduction techniques, numerical algorithms, control systems, big data and deep learning concepts.
5. General electronics knowledge.
6. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
7. A current driver’s licence.

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 will be required to obtain and maintain a ANSTO security clearance to be allowed to enter CSIRO Lucas Heights site that is located at ANSTO.
* 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/
* Willing and able to travel within Australia and overseas for periods of 2-4 weeks at a time, and to participate in field trials in remote locations (COVID-19-permitting).
* From 17 January 2022 CSIRO staff members and Other Personnel are required to be fully vaccinated with a COVID-19 Vaccine as a condition of entry to an CSIRO occupied site.  The successful candidate will be required to provide relevant Vaccination Information to the line manager.

**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

**CSIRO is also a member of the Science in Australia Gender Equity (SAGE) pilot, holds Gold Employer Status through the AWEI (Australian Workplace Equality Index), which sets a comparative benchmark for LGBTIQ+ inclusion for employers across all sectors and is committed to reconciliation with Aboriginal and Torres Strait Islander Peoples’.**

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