# Position Description

## Postdoctoral Fellowship– CSOF4

The following information is for applicants

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| Advertised Job Title**:** | Postdoctoral Fellowship in Environmental Sample Characterisation |
| Job Reference: | 60301 |
| Relocation Assistance**:** | Will be provided to the successful candidate if required. |
| Applications Are Open To: | All Candidates |
| Percentage of Client Focus - Internal: | 50% |
| Percentage of Client Focus - External: | 50% |
| Reports to the: | Team Leader, Coal Logistics Research Team |
| Number of Direct Reports: | 0 |
| Name and Contact Details For Applicant Enquiries: | Dr Karryn WarrenEmail: Karryn.Warren@csiro.au Phone: 07 3327 4414 |
| 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 Please do not email your application directly to Chad Hargrave.   Applications received via this method will not be considered by the selection panel. |

## 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.

The postdoctoral scientist will have a key role in the application of CSIRO’s Coal/Component Grain Analysis (CGA) method to the assessment of coal and other components in dust and other environmental samples and to undertake research to investigate whether this method could be applied to other types of materials such as biochars. CGA is a method of particle analysis based on petrographic techniques. It uses image analysis techniques to analyse images of petrographic sample mounts collected from an optical reflected light microscope to provide a calibrated reflectance fingerprint of individual particles greater than one micron for characterisation and interpreted for specific applications. CGA information is currently able to inform all steps in the coal value chain as well as help address environmental concerns.

Two new research areas in which we would expect the post doc to have a key role are:

• Integration of CGA and other technologies to provide enhanced analysis of dust and other environmental samples (e.g., sediments, tailings, etc.).

• Use of advanced analytical methods, such as Scanning Electron Microscopy (SEM) and the Australian Synchrotron's IR or X-ray beam line, to obtain chemical information of different types of particulates present in urban dust samples to substantiate characterisation of reference particulates for the optical CGA system.

Research findings will be published in industry reports, conference papers and peer reviewed journal publications and presented at appropriate national and international conferences.

## It is anticipated the post doc will form collaborative links with aerosol scientists in other CSIRO business units, such as Oceans and Atmosphere, other research organisations, such as the University of Newcastle or the University of Tasmania, government agencies and environmental laboratories. Over time it is anticipated that the post doc will have a key role in the development of research proposals and in the management and reporting of the findings from these projects.

## Duties and Key Result Areas:

* Analyse dust and other environmental samples using the CGA system and report the results to clients. This will be done under the supervision of the Coal Characterisation Laboratory Coordinator initially and over time it is anticipated that the post doc will take a leadership role in this area.
* Lead research which demonstrates that the CGA method can provide valuable information for other environmental samples (e.g., sediments, biochars, tailings). This may require the integration of CGA information with information obtained from other analytical methods.
* Develop collaborative links and ultimately projects with national and international researchers undertaking aerosol research to quantify the amount of coal and the size distribution of coal particulates in urban areas associated with high coal usage (mining, ports, steel mills, power stations).
* Provide support as required for projects which apply CGA to coal exploration and utilisation studies.
* Undertake regular reviews of relevant literature and patents.
* Produce high quality scientific and/or engineering papers suitable for publication in quality journals, for client reports and granting of patents.
* Prepare appropriate conference papers and present those at conferences as agreed with your supervisor.
* Contribute to the development of innovative concepts and ideas for further research.
* Make a contribution to the effective functioning of the research team and help deliver CSIRO’s organisational objectives and plans.
* Work collaboratively with colleagues within your team, the business unit and across CSIRO.
* 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.*

1. A doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as Material Science, Chemical Engineering or Environmental Science*.*
2. Experience in the use of advanced analytical methods for the analysis of environmental samples.
3. Advanced skills in the analysis and integration of complex data sets obtained using multiple methods. This may have been obtained at university or through external activities.
4. **The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.**
5. A record of science innovation and creativity, plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## Desirable Criteria:

1. Experience in the analysis of particulates in urban dust samples using analytical methods such as a microscopic imaging method.
2. Experience in the use of software, such as SAP or confluence, for project management, documentation and reporting.
3. Knowledge of environmental legislation and standards for assessment of air particulates in Australia and internationally.

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/>

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