# Position Details

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

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| The following information is for applicants | |
| Advertised Job Title | CERC Postdoctoral Fellowship in Plastic-Munching Microbiomes for Biorecycling in a Circular Economy |
| Job Reference | 79513 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$89,926 to AU$98,504 pa + up to 15.4% superannuation |
| Location(s) | Perth, WA |
| 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 | 90% |
| Client Focus – External | 10% |
| Number of Direct Reports | 0 |
| Enquire about this job | Anna Kaksonen via email at anna.kaksonen@csiro.au or phone +61 8 9333 6253 |
| 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 area 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 full-time equivalent.**

This position will be part of CSIRO’s efforts in solving one of our most pressing sustainability challenges, the accumulation of plastic waste in the environment. The role will be part of Resource Sector Biotechnology Team, Industrial Biotechnology Group and Industry Environments Program in Land and Water Business Unit.

The Postdoctoral Fellow will engineer new microbial consortia to degrade plastic waste to organic material suitable for producing value-added products, supporting bio-based recycling and the transition to a circular economy. This will involve the design and testing of artificial plastic-degrading microbiomes composed of microbes with complementary capabilities.

Initially, the Fellow will use available literature to identify likely candidate species for the microbial consortia; however, they may need to prospect for organisms with specific functional capabilities as the project progresses. The Fellow will then optimize the growth conditions of the microbiomes to enhance plastics biodegradation, assess the degradation efficiency and degradation products, and the long-term stability of the microbiomes.

This project will provide the opportunity to characterize the genetic basis for plastic biodegradation abilities with new, automated, high-throughput methods of gene identification through the CSIRO Biofoundry. The Fellow will also use integrated omics and systems biology to further characterize the microbes. The plastic-degrading microbiomes will be used to develop a bioreactor process for plastics degradation and production of precursors for value-added products. The Fellow will design and construct a prototype bioreactor and test its performance under various operating conditions to evaluate critical process parameters to maximise plastic degradation rates and yields.

### Duties and Key Result Areas:

Under the direction of senior research scientists and engineers, CERC Fellows:

* + As part of a multidisciplinary research team, carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
  + Develop, lead, and manage the experimental program and deliverables on “plastic-munching microbiomes for biorecycling in a circular economy”, with support from the research team.
  + Design and engineer microbiomes for plastics degradation; and evaluate degradation efficiency and products.
  + Use integrated omics and systems biology to characterise plastic-munching microbes and microbiomes and identify molecular basis for plastics degradation.
  + Develop, construct and test a prototype for converting plastic waste to precursors for producing value-added products.
  + Recognise and exploit opportunities for innovation and the generation of new theoretical perspectives, and progress opportunities for the further development or creation of new lines of research
  + Utilise design thinking methodology to plan and prepare research proposals, and apply non-academic impact methodology to research projects
  + Carry out research investigations requiring originality, creativity and innovation
  + Record, manage, and analyse data/information using relevant domain data science techniques.
  + Produce progress updates and high-quality scientific papers suitable for publication in peer review journals together with co-authors.
  + Prepare appropriate conference papers and present those at national and international conferences.
  + 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, regionally dispersed project team, and business unit to carry out tasks in support of CSIRO’s scientific objectives.
  + Make a contribution to the effective functioning of the research team and help deliver CSIRO’s organisational objectives and plans.
  + Undertake appropriate training and development activities to proactively 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 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

## **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). The doctorate must be in a relevant discipline area, such as microbiology, molecular biology, biochemistry, biotechnology, omics, systems biology, synthetic biology or environmental engineering

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

1. Demonstrated experience in microbiology and aseptic culture techniques and/or developing and evaluating the performance of bioprocesses.
2. Demonstrated experience in the application of molecular biology, omics and/or systems biology approaches to characterise the composition and/or function of microbial cultures and/or molecular mechanisms of microbial activities.
3. Demonstrated experience in designing and conducting experiment, analysing data and delivering outcomes in agreed timelines.
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/or international conferences and/or seminars.
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. Experience in conducting experiments on the biodegradation of plastics and/or other persistent wastes or contaminants, and/or recovering value from waste.
2. Experience in physical-chemical methods for quantifying chemical compounds and/or characterising materials.
3. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
4. **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 Fellowship role within CSIRO, candidates will be expected to commence employment by 30 June 2022. 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 (AU$87,068). 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.

Include if relevant:

* 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.
* 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. 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 [Land and Water](https://www.csiro.au/en/Research/LWF)