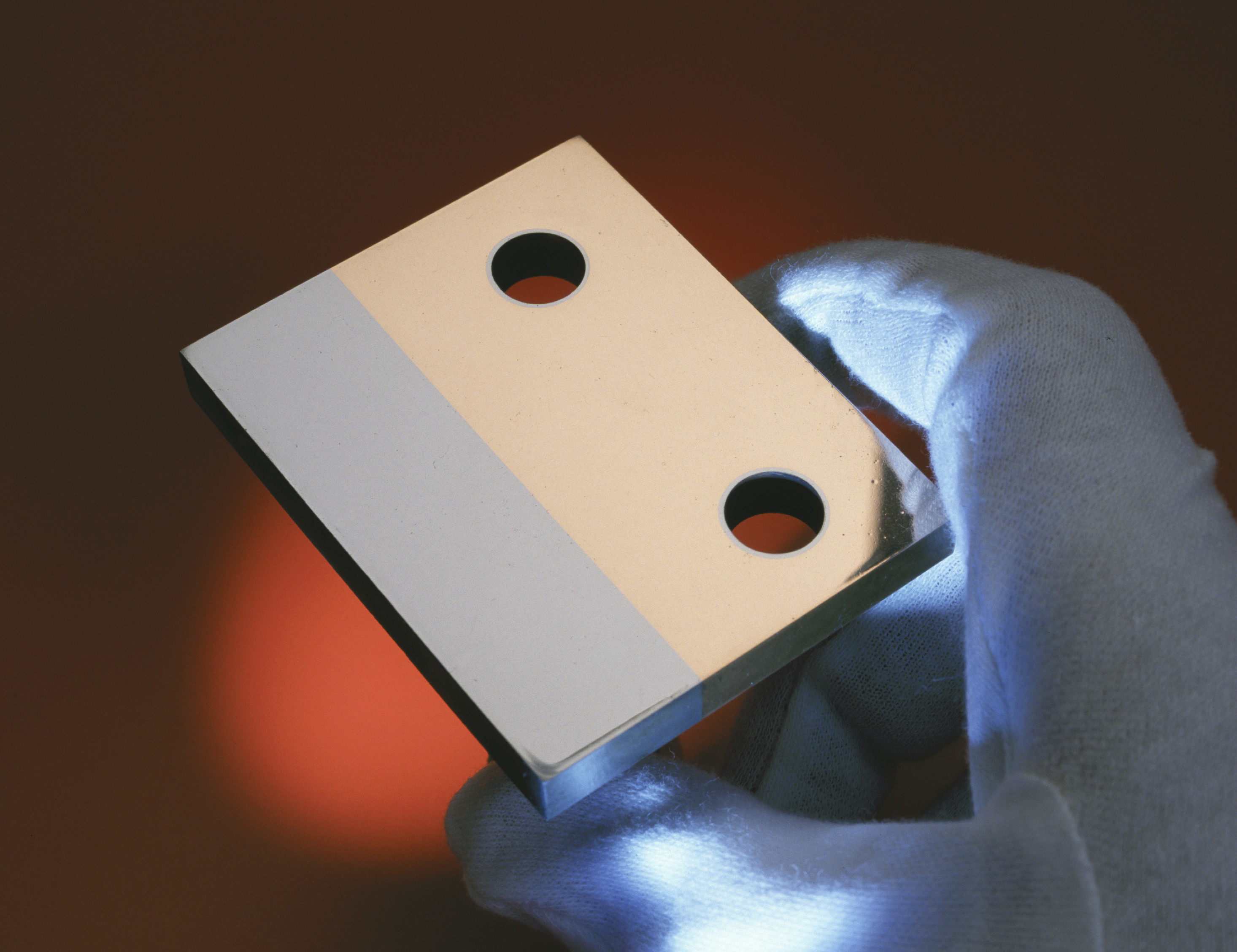


CSIRO Science Leader

Active Materials

Information for applicants



Introduction

**CSIRO’s Chief Executive**

***Larry Marshall***

I’ve spent a lifetime believing in the power of science to transform economies, countries and lives for the better, and there’s no better place in Australia to see that in action than at CSIRO.

Our Science Leader program is a significant investment and commitment to solving today’s challenges by imagining tomorrow’s solutions.

As Australia’s national science agency, we’re also securing Australia’s future by developing the next generation of STEM leaders, who will reinvent and create new industries for Australia and the world.

To solve the greatest challenges today and into the future, we recruit not only the best and brightest, but also those who are passionate, creative and driven to make a difference with their science and mentor the next generation.

We build teams of talented individuals whose diversity of experience, expertise and perspectives are the compass to guide us through the ambiguity of innovation.

At CSIRO, your knowledge, expertise, relationships and novel capabilities can develop the breakthrough science and cutting-edge technology platforms that will deliver unique value to Australia.

We look forward to welcoming you to the team.

**CSIRO’s Chief Scientist**

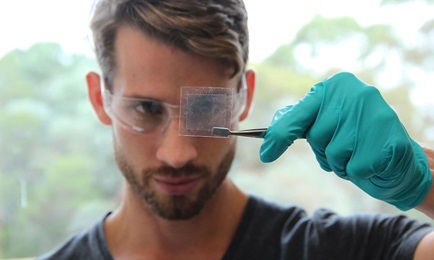
***Cathy Foley***

Australia’s future prosperity will be fuelled by science. Science that solves the greatest challenges while creating new industries, new jobs and shapes the minds and aspirations of our future leaders.

As Chief Scientist at CSIRO, I’m passionate about the brilliant science done by our world-class researchers, enabled by collaboration across disciplines and with industry, government and academia.

As a CSIRO Science Leader, you’ll share my passion for developing new relationships and mentoring our future science leaders.

I’m excited to work with you on bringing new capability and expertise into CSIRO to further grow our culture of science excellence.

Collaborate with talented people to solve the world’s biggest challenges

**Our purpose:** At CSIRO we provide innovative science and technology solutions to national challenges and opportunities that benefit industry, the environment and the community.

You can make a real difference, in an environment where we spark off each other, learn from each other, trust each other and collaborate to achieve more than we could individually - in a supportive, rewarding, inclusive and truly flexible environment.Be proud of what you do - be part of a better tomorrow.

Grow your skills. Apply your talent. Broaden your horizons.

Join the CSIRO team

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is one of the world’s largest and most successful publicly funded research and development organisations and is committed to complementing its world-class science and engineering capabilities with outcome-focused research that will generate economic, environmental and social benefits for Australia in a global context. We maximise the impact we deliver for the country by focusing on solving the greatest challenges.

As Australia’s national science and engineering agency our innovation and excellence places us in the top ten applied research agencies in the world. We’re the people behind Wi-Fi, soft contact lenses and the Hendra virus vaccine – and we’re Australia’s leading patent holder.

**Vision:** Australia’s innovation catalyst, collaborating to boost Australia’s innovation performance.

**Mission:** Create benefit for Australia through impactful science, engineering and innovation

Our facilities and physical infrastructure

Doing excellent science and engineering, and delivering services to the benefit of Australia requires appropriate physical and cyber-physical infrastructure.  We have over 50 locations Australia-wide in metropolitan and regional areas as well as internationally. We continue to explore advancements in technological solutions to improve operations.

Our leaders and their careers

‘The things that we do (at CSIRO) are captivating and continue to amaze every day; the people are so passionate and are here for the right reasons and the Australian public want us to be here to do the things we do.’

‘We have everything you need to bring ideas to life.’

‘It is a place where you can dare to dream.’

Benefits our staff value

* Continuous career development
* CSIRO specific experienced leadership skills development
* [Balance](https://www.csiro.au/en/Careers/The-CSIRO-Experience/Balance) in their lives via flexible work practices
* [Diversity](https://www.csiro.au/en/About/Policies-guidelines/Working-at-CSIRO/Diversity-strategy) and inclusion of ideas, individuals and cultures
* Generous leave conditions

Where are our staff?

We have more than 5,000 staff spread over 50 sites across Australia’s cities and regions and internationally.

What do we do?

We do research from the bottom of the ocean to deep space, from a micro to a mega scale from agriculture to digital. And we are custodians of some of Australia’s most valuable facilities and collections.

The breadth of our research allows us to tackle issues from a multi-discipline perspective.

CSIRO Science Leader Program

At CSIRO, we solve the greatest challenges through innovative science and technology by harnessing the incredible intellectual power and expertise of our people, collaborators and partners

The CSIRO Science Leader program attracts the best researchers from across the globe to deliver outstanding translational science and engineering impact. The purpose of the CSIRO Science Leader Program is to capture new capability and technology into areas which have been identified as strategic, and to assist our business units to manage and develop their capability for the future.

Over their five year appointment, CSIRO Science Leaders play an active role within and across business units and contribute to business goals through both scientific excellence and the translation of research outcomes into impact. They foster a culture of excellence in their teams and peers and have sufficient experience to supervise and mentor early-career researchers.

In addition to the Science Leader’s salary, the Science Leader has generous operating funds, and support for two three-year Postdoctoral Fellowships and two three-year Postgraduate Students top-up scholarships.

Approved CSIRO science leader priority areas will be externally advertised as competitive positions on [CSIRO’s Vacancies site](https://jobs.csiro.au) in consultation with the CSIRO Science Council and business unit.

Eligibility and essential selection criteria

The program is directed towards mid-career researchers who have between 10 to 15 years post-doctoral experience.

CSIRO Science Leaders need to:

* have established expertise and knowledge aligned to the strategic priority areas;
* bring novel capability into CSIRO; and
* develop cutting edge technology platforms not already in CSIRO.

*CSIRO policy states that to be appointed to a position in CSIRO you must meet all the essential selection criteria.*

Essential Selection Criteria:

* A PhD in Chemistry, Engineering, Materials Science, or related discipline, with experience in the development of functional compounds and materials.
* Knowledge and experience in making metal Additive Manufacturing (AM) more functional, via modification and tailoring of feedstock powder chemistry, working towards either embedding functionality into AM, or creating components that are themselves active in their environments, together with an understanding of the importance of material selection and compatibility.
* The ability to provide examples of proficiency in a range of materials characterisation techniques (e.g. XRD, NMR, SEM, optical spectroscopy etc), and knowing under what scenarios to apply them for the discovery of new functional materials.
* A strong track record in scientific leadership, initiative and creativity for the generation of new ideas, scientific outcomes, and publications, as well as experience in resource planning, time management, and reporting.

Science Vision:

* We ask that all candidates who intend to apply, prepare a one to three page (max) document outlining your vision for the active materials and embedding functionality into metal-based additive manufacturing, highlighting the critical skills that you will bring to this role (see below under ‘How to Apply’).

A successful science leader will:

* be recognised by their peers as making a significant contribution in their field of science or engineering;
* have a track record of translating scientific outcomes into impact;
* demonstrate the ability to collaborate at the intersection of disciplines;
* bring an extensive network which they will actively share across the whole organisation, engaging and satisfying multiple stakeholders; and
* have the ability to mentor a team of talented postdoctoral fellows and postgraduate students and attract distinguished visiting researchers.

Priority area and duties

The science leader will be responsible for developing a new scientific research area and applied manufacturing capability in CSIRO’s Manufacturing Business Unit, within its Metal Industries Research Program. Metal Industries (MI) leads CSIRO’s research into advanced metal-based manufacturing processes and materials, in particular its metallic Additive Manufacturing (AM) work within its ‘Lab22’ Innovation Centre.

Priority area:

**Active and Functional Materials for Metal-Based Additive Manufacturing (AM)**

Metal-based AM (also known as 3D printing) is now becoming mainstream, with a global industry accelerating beyond aerospace and biomedical niches. Decades of research interest also continues to expand, into fields as broad as computational modelling and *in situ* monitoring and control. As the field progresses, so does interest in making AM more functional through embedding functionality into components manufacturing using this technology, and creating components that are themselves active in their environments. It is envisaged that such components will incorporate functional materials, or be made from novel alloys and/or composites, so that they can offer a variety of enhancements and capabilities, such as in-situ particle nucleation, new phase formation, sensing and actuation.

Challenges of advanced manufacturing with active and functional materials are many. Some of those identified already include: chemical compatibility with a metal matrix; survival during manufacturing conditions (often high temperatures); ensuring – if relevant - that mechanical properties are retained; and the ability to design for, elicit, visualise, or interrogate responses and signals emanating from the constructed material(s).

In parallel with scientific discovery, end-use applications will contribute to the careful selection of appropriate active and functional materials for exploration. These may include materials that can be combined with a bulk metal matrix (e.g. Titanium, Stainless Steel, or others suitable for metallic AM). The work may also develop novel alloys, metal-matrix composites, other novel materials, and the manufacturing processes for achieving real-world functionality.

Duties

Research Scientists at CSIRO conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. You may be engaged in scientific activities ranging from fundamental research to the investigation of specific industry or community problems. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts.

* Lead the creation of a new scientific research and advanced manufacturing capability in Australia, including the development of a long-term strategy and roadmap for materials and applications opportunities globally, in collaboration with Australian and international partners.
* Selection and development of appropriate functional materials, both active and passive, and the synthesis/manufacturing techniques that will yield the desired functional output of a system.
* Chemical and Structural characterisation (including but not limited to phase and microstructure via X-ray diffraction, neutron/synchrotron, optical and electron microscopy, and Raman mapping), and mechanical testing.
* Investigation and performance testing of the embedded functions within the developed component via the formulation of custom setups in a range of scenarios.
* Harness, guide, and lead (as relevant) international research on computational materials science, including process and materials modelling, materials discovery, and analytical techniques.
* Act as a trusted advisor to industry, collaborators, and partners, based on knowledge of client’s business (as relevant) and an understanding of their needs.
* Anticipate industry and/or community needs and market direction through client liaison/networking, and identify and adapt quickly to changes.
* Within broad guidelines, use professional expertise, knowledge of other disciplines and research experience/achievements to formulate, develop and complete an approved research program with general direction as to the aims of these activities.
* Communicate research results to clients and the scientific community through oral and written reports, which may include the preparation of documents for patent applications.
* Provide advice to policy makers and inform and transfer knowledge to non-scientific audiences.
* Lead and supervise staff to ensure that experiments are established in accordance with the research design and are completed within the agreed timeframes and budget.
* Undertake feasibility studies, demonstrating a considerable degree of originality, creativity and innovation in solving problems and introducing new directions and approaches.
* 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 plans and policies, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

Conditions of employment

**Leave:** Four weeks of annual recreation leave and 15 days of sick/carer’s leave apply.

**Flexibility:** CSIRO’s [Balance](https://www.csiro.au/en/Careers/The-CSIRO-Experience/Balance) initiative offers all employees the opportunity to balance their work and personal lives.

**Diversity:** We are working hard to recruit diverse people and ensure that all our people feel supported to do their best work and feel empowered to let their ideas flourish. [Diversity and Inclusion Strategy](https://www.csiro.au/en/About/Policies-guidelines/Working-at-CSIRO/Diversity-strategy)

**Salary:** An attractive salary package will be oﬀered.

**Reference Number:** 61746

**Tenure**: Indefinite with an initial five years specific science leader funding.

**Location(s):** Clayton (Melbourne), Australia

Relocation and immigration assistance will be provided to the successful candidate where required.

How to apply

Please apply online at <https://jobs.csiro.au> entering the reference number and uploading the following documents in Microsoft Word:

1. Your CV/resume and responses to the eligibility and selection criteria (in the one document) related to the Active and Functional Materials for AM priority area.
2. A covering letter including (in the one document) a one to three page (max) science vision document which outlines your vision for the active materials and embedding functionality into metal-based AM, and which highlights the critical skills that you will bring to this role.

Applications that do not provide this information above will NOT be considered. In your CV please include the contact details of three referees. Referees will only be contacted after prior consultation with you at which time please ensure that your referees are willing to provide reports when contacted.

Contacts

If you are considering applying for this position and wish to discuss the priority area, role, and/or expectations, please contact **Dr Adrian Trinchi** (Team Leader, Functional Powders), +61 3 9545 2747/[Adrian.Trinchi@csiro.au](mailto:Adrian.Trinchi@csiro.au) or alternatively **Dr Kathie McGregor** (Acting Director, Active Integrated Matter Future Science Platform), +61 3 9545 8912/[Kathie.McGregor@csiro.au](mailto:Kathie.McGregor@csiro.au) or **Dr Leon Prentice** (Program Director, Metal Industries), +61 3 9545 8644/[Leon.Prentice@csiro.au](mailto:Leon.Prentice@csiro.au).

Please do not send your application directly to any of the above individuals because your application may not be considered by the selection panel.

Should you have difficulty applying please contact [careersonline@csiro.au](mailto:careersonline@csiro.au) or call 1300 984 220 during Australian business hours.

*NB: As part of the selection process candidates may be asked to do abilities testing and/or a personality questionnaire and/or to give a presentation to staff.*

*On acceptance of an offer of a position with CSIRO the appointee will be need to provide proof of their identity, give permission for verification of their tertiary qualifications and apply for a security check or Australian Federal Police check.*

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| CONTACT US  t 1300 984 220    e careersonline@csiro.au  w www.csiro.au  WE DO THE EXTRAORDINARY EVERY DAY  We innovate for tomorrow and help improve today – for our customers, all Australians and the world.  Our innovations contribute billions of dollars to the Australian economy  every year. As the largest patent holder  in the nation, our vast wealth of intellectual property has led to more  than 150 spin-off companies.  With more than 5,000 experts and a burning desire to get things done, we are Australia’s catalyst for innovation.  WE IMAGINE. WE COLLABORATE.  WE INNOVATE. |  |  |