# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants |
| Advertised Job Title | Research Scientist – Spectral Scientist |
| Job Reference | 90568 |
| Tenure | 3 year fixed termFull-time |
| Salary Range | AU$105,806 – AU$114,500 pa plus up to 15.4% superannuation |
| Location(s) | **Perth (Kensington), WA**Whadjuk Noongar Country |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Team Leader, Targeted Data Fusion |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Shane Mulè via email at shane.mule@csiro.au or +61 8 6436 8952 |
| 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 or call 1300 984 220. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea, and waters, of the areas 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

This role requires a geoscientist with a strong understanding of spectral sensing geoscience data and experience in interpreting a range of data sets including remote sensing data and field/laboratory observations and measurements to facilitate geological and mineral mapping.

The officer will be employed on projects where the integration of interpreted data in geological and mineral systems analysis will be necessary, and their capabilities will, therefore, encompass both data processing as well as strong geological understanding coupled with a general awareness of mineralisation processes. The officer will interpret across multiple scales on the surface and subsurface, incorporating regional scale airborne surveys and satellite data with mineralogy, geochemistry and petrophysics from drill core and field samples. As most activities in the Discovery Program focus on exploration through cover, the new spectral scientist may need to understand both the geological processes and mineral footprints in primary bedrock and regolith.

The candidate must be comfortable with GIS and spatial data. They may have experience in the use of one or more image or geophysical processing software packages such as ENVI or Oasis Montaj. A general knowledge of 3D geological modelling and experience with Julia, Python, R or Matlab scripting to enable advanced data processing and analysis would be very well regarded. The candidate should be generally open and willing to learn new data acquisition and processing methods that may include (drone-based data, LiDAR data, geophysical inversion, or machine learning). We will provide on the job training as necessary, which should both maintain and expand the officer’s broad range of skills.

The role of Research Scientist staff is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. The Research Scientist may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. The Research Scientist 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.

### Duties and Key Result Areas

* Capacity to collate, acquire, process, and interpret multisource geospatial data (e.g., mineralogy, geophysics, remote sensing, geochemistry).
* Integrate datasets to create higher level geoscience products (e.g., depth to basement maps, alteration mineral maps, litho-structural maps, and 3D models).
* Analyse geological and mineral systems at a range of scales with the focus on advancing our ability to detect mineralisation in regions of significant regolith or younger sedimentary cover.
* Operate geoscientific instruments in the field (e.g., handheld spectroradiometers VNIR-SWIR-MIR-TIR, pXRF) and the laboratory (e.g., FTIR, SEM, XRD).
* Draw on professional expertise, knowledge of multiple disciplines (e.g., geology, mineralogy, geophysics, geochemistry, data science) and research experience, recognise opportunities for innovation and generate new theoretical perspectives by pursuing new ideas/approaches and networking with scientific colleagues across a range of fields.
* Produce high-quality technical reports and client presentations as well as scientific papers suitable for publication in globally recognised journals, communicate research at national and international conferences.
* 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 strategies.
* Liaise with clients to determine their needs and take personal responsibility for client satisfaction.
* Under limited direction, assist in the planning and preparation of research proposals and carry out research investigations, requiring originality, creativity, and innovation.
* Undertake experimental and/or observational research activities and supervise/train others to ensure experiments are established in accordance with research design.
* 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.
* 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

## **Selection Criteria**

#### Essential

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

1. A PhD (or an equivalent combination of qualifications and research experience) in a relevant field such as geology, mineralogy, or geophysics.
2. Demonstrated ability to undertake original, creative, and innovative research by generating and pursuing novel ideas and solutions to scientific research problems.
3. A demonstrated publication history of authorship on scientific papers in peer reviewed journals and/or reports, grant applications or inventorship on patent applications.
4. Experience using image processing techniques to analyse and visualise geoscience data.
5. Demonstrated ability to interrogate and apply field and laboratory spectral measurement techniques.
6. Understanding of geological systems from regional- to deposit-scale.
7. Ability to identify, learn and apply newly available or existing geoscience sensing techniques to geoscientific problems.

## **Desirable**

1. Experience working in/with the minerals industry or research projects with industry support, focusing on multisource data integration.
2. Experience with commonly used remote sensing and geophysical data (multi/hyperspectral, satellite/airborne, gamma-ray spectrometry, potential field, imaging radar, LiDAR).
3. Experience using one or more of the following software packages: ENVI, Oasis Montaj, GoCAD, Leapfrog, ArcGIS, QGIS, ioGAS.
4. Experience in Julia, Python, R and/or Matlab for more advanced data analytics and/or machine learning.
5. Demonstrated ability to measure, analyse, and integrate drill core and/or field sampling data with regional-scale data in 3D.
6. Experience in interpreting and linking the relevant data across scales.
7. Experience in data analytics, including standard statistical methods applied to multivariate data.
8. Knowledge of physicochemical information recorded in visible to far infrared reflectance and transmission spectra.
9. Experience with geoscience inversion problems.

## **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 responses by adapting/creating and testing alternative solutions.
* **Independence:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **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 change.

Special Requirements

* The successful candidate will be asked to obtain and provide evidence of a National Police Clearance or equivalent. Please note that individuals 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/)

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [Mineral Resources](https://www.csiro.au/en/Research/MRF) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted

CSIRO Mineral Resources (CMR) is one of the largest minerals research and development groups globally, with a proud track record in delivering innovation and solutions across the mineral resources value chain. We thrive on innovation harnessed by the diversity of the minds and lived experiences of our team and apply our expert knowledge and specialised research to provide innovation that solves the complex problems faced by minerals companies, mining equipment, technology, and services (METS) companies, government, and other industry stakeholders. The CMR Discovery Program aims to be a truly diverse team that reflects the diversity that we see in society, and comprises an enthusiastic multidisciplinary team of STEM researchers, all focused on developing new technologies and concepts for exploration through cover and advancing orebody knowledge.

The team recognises that Aboriginal and Torres Strait Islander peoples have made and will continue to make extraordinary contributions to Australian culture, economy and science and we aim to promote and support the vision of ‘A science landscape in respectful partnership with Indigenous Australia delivering innovative, sustainable, holistic solutions to meet our greatest national challenges’. The position will be based at the Australian Resources Research Centre, Perth, Western Australia, on Whadjuk Noongar Country which offers world-class laboratory facilities in a dynamic research environment.

While working at CSIRO, you will be able to create a dynamic career path leveraging from your own experiences and identity. You will have access to a range of world-class facilities based at local universities where CSIRO has collaborative arrangements in place, and at other CSIRO sites across Australia. CSIRO provides an attractive remuneration package that includes a generous superannuation scheme, flexible work options, travel, and multiple leave options including paid maternity and parental leave.

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’.