# Position Details

## Research Projects- CSOF3

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| The following information is for applicants |
| Advertised Job Title | Junior Physicist |
| Job Reference | 71021 |
| Tenure | Specified Term of 3 years (Full-time) |
| Salary Range | AU$63,594 to AU$80,937 pa + up to 15.4% superannuation |
| Location(s) | Lucas Heights (Sydney), NSW |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian/New Zealand Citizens and Australian Permanent Residents Only |
| Position reports to the | Team Leader |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Richard Yong via email at: Richard.Yong@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 or call 1300 984 220. |

### Role Overview

CSIRO’s Mineral Resources’ Magnetic Resonance Development Team are looking to appoint a Junior Physicist to work in the Lucas Heights laboratory located on the southern edge of Sydney. The successful applicant will be involved in the development of novel magnetic resonance (MR)-based on-line instruments to solve a range of challenging, real-world problems in the mining industry. A significant on-going project includes the development of a magnetic resonance analyser for rapid measurement of minerals in bulk ores.

The position offers considerable variety, tackling scientific, engineering and logistical challenges. There exists flexibility within the role for a successful applicant to use or develop their own skills and expertise to contribute to existing projects and to contribute to new capability development in the MR research area. The position would ideally suit a person with a good theoretical understanding of physics concepts, interested in working in developing ideas to move from the laboratory to industry application. Significant work is envisaged planning experiments and operating magnetic resonance systems in the laboratory.

### Duties and Key Result Areas:

* Conducting laboratory work on mineral samples to assess the effectiveness of magnetic resonance measurement techniques.
* Developing skills in radiofrequency measurement and analysis, including the assembly and design of radiofrequency circuits.
* Developing an understanding in solid-state magnetic resonance physics and operating a CSIRO custom-built magnetic resonance spectrometer.
* Developing a working knowledge of the hardware components within analyser prototypes.
* Assessing of prototypes in field trials at mineral plants.
* Data collection, analysis and reporting.
* Assisting in the mechanical and electrical assembly of prototype industrial measurement analysers.
* Using computer modelling to validate experimental results.
* Using and understanding electromagnetic and solid-state physics models to explain experimental data.
* Liaising with external companies over the supply of parts or equipment.
* Taking part in technology field trials in Australia and overseas.
* Other duties as directed.

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## **Required Competencies:**

* **Teamwork and Collaboration:** Proactively seeks and considers the ideas and opinions of others from within and outside the team to help form decisions, plans or actions.
* **Influence and Communication:** Puts forward ideas by presenting factual information supported by data, definitions, examples, illustrations or other aids, which will assist in conveying meaning.
* **Resource Management/Leadership:** Provides instruction and assists other staff to complete allocated tasks and activities.
* **Judgement and Problem Solving:** Identifies and considers the implications of a range of available alternatives in order to select the most appropriate response to problems of a familiar or recurring nature.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **Adaptability:**Willingness to change ideas or perceptions based on new information, contrary evidence or other people's points of view. Prepared to try out different approaches.

## **Selection Criteria**

#### Essential

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

1. A degree in Physics, Physical Sciences or Engineering, at honours level minimum.
2. Demonstrated ability to deliver assigned research project objectives and report outcomes within a specified timeframe whilst working under the broad direction of a supervisor.
3. Good communication and interpersonal skills, including working constructively with research scientists, engineers, support staff and/or client personnel.
4. Interest in applying scientific problem solving and research to solve practical problems in industry.
5. Experience in using computers for record keeping and data analysis.
6. 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).

## **Desirable:**

1. Experience in design and/or use of experimental apparatus or instrumentation, especially relating to magnetic resonance or radiofrequency materials analysis.
2. Familiarity with MATLAB software or other programming languages.
3. General electronics knowledge.

Special Requirements

Appointment to this role will be subject to the following condition:

* The successful candidate will be asked to pass the ANSTO security clearance.

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