# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants |
| Advertised Job Title | Prototype Development Magnetic Resonance Scientist |
| Job Reference | 80474 |
| Tenure | Specified Term of 3 years Full-time  |
| Salary Range | AU$102,724 to AU$111,165 pa + up to 15.4% superannuation |
| Location(s) | Lucas Heights, NSW (relocation assistance provided) |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * All Candidates
 |
| Position reports to the | Team Leader, Magnetic Resonance Development |
| Client Focus – Internal | 60% |
| Client Focus – External | 40% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Peter Coghill via email at peter.coghill@csiro.au or phone +61 2 9710 6735 |
| 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

We are looking to appoint an early to mid-career scientist within CSIRO Mineral Resources’ Magnetic Resonance Development Team, at the Lucas Heights laboratory located in southern Sydney. The successful applicant will, with guidance, use their knowledge of physics to lead the development of novel magnetic resonance (MR)-based on-line instruments to solve a range of challenging, real-world problems in the mining, security and other industries. The group’s objective is to deploy advanced sensing technology through commercialisation and the successful applicant will develop the technology in a team environment with a view to commercialisation in the medium term. Applicants will require a PhD (or equivalent experience) and preferably some further experience, either in physics, or other physical sciences, or an engineering discipline with a substantial physics component. A background in experimental sciences, and radio physics is strongly desired as the role will involve developing spectrometers for industrial application. The successful applicant will take independent responsibility for some key aspects of the research and will possess a drive to see implementation through to product in a CSIRO commercialisation initiative.

The successful applicant will report to the Team Leader and will complete research tasks as part of the development of magnetic resonance sensors for industry applications. These tasks will include:

* Appropriating existing experimental methods, and creating new ones, to measure minerals or other targets using magnetic resonance or other spectroscopies.
* Using skills in radiofrequency measurement and analysis, such as assembly and design of radiofrequency sensors and detectors to create new measurement methods.
* Using their deep knowledge of solid-state and experimental physics to prototype and develop novel analysers.
* Managing scientific projects.
* In collaboration with the team develop spectrometers into products for commercialisation
* Test these products in industrial situations and adapt the technology as required

The position offers considerable variety, tackling scientific and engineering challenges. The successful applicant is encouraged 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. Such areas currently include low-field NMR and high-power radiofrequency techniques, among others. The position would ideally suit a person with an excellent theoretical understanding of physics concepts, interested in working in developing ideas to move from the laboratory to industry applications. Significant work is envisaged planning experiments and operating magnetic resonance systems in the laboratory.

### Duties and Key Result Areas:

* Designing and prototyping industrial spectrometers with team support
* Using computer modelling to validate experimental results,
* Operating CSIRO custom-built magnetic resonance spectrometers,
* Collecting data, analysis of data and report writing,
* Using and understanding electromagnetic and solid-state physics models to explain experimental data,
* Taking part in technology field trials in Australia and overseas.
* 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.
* Present results in a meaningful format, prepare reports for clients and/or write scientific papers for publication.
* Address problems promptly and in a constructive manner, selecting the most profitable lines of attack upon a problem, preparing detailed design proposals and experimental protocols.
* Undertake in experimental and/or observational research activities, often requiring the supervision and/or training of others to ensure experiments are established in accordance with research design, or as required.
* Draw on professional expertise, knowledge of other disciplines 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 disciplines.
* 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 procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

## **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:** 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 changes.

## **Selection Criteria**

#### Essential

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

1. A PhD (or equivalent industry experience) in physics, or physical sciences or engineering.
2. Excellent experimental and measurement skills.
3. Demonstrated ability to independently deliver assigned research project objectives and report outcomes within a specified timeframe.
4. Good communication and interpersonal skills, including working constructively with research scientists, engineers, support staff and/or client personnel.
5. Interest in applying scientific problem solving and research to solve practical problems in industry.
6. Familiarity with MATLAB software or other programming languages.
7. 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 with magnetic resonance spectroscopy.
2. Experience in radiofrequency physics/engineering.
3. General electronics knowledge.
4. Experience with industrial research or applied research with defined goals

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.
* The successful candidate will be required to obtain and maintain a security clearance at the ANSTO site
* 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/
* From 17 January 2022 CSIRO staff members and Other Personnel are required to be fully vaccinated with a COVID-19 Vaccine as a condition of entry to an CSIRO occupied site.  The successful candidate will be required to provide relevant Vaccination Information to the line manager.

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

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