

Position Details Research Scientist/Engineer- CSOF6

THE FOLLOWING INFORMATION IS FOR APPLICANTS	
Advertised Job Title	Senior Research Scientist/Engineer – Computational Fluid Dynamics (CFD) Modelling
Job Reference	87817
Tenure	Full-time
Salary Range	AU\$117k - AU\$138k per annum (pro-rata for part-time) plus up to 15.4% superannuation
Location(s)	Clayton
Relocation Assistance	Will be provided to the successful candidate if required
Applications are open to	All Candidates
Position reports to the	Research Team Leader – CFD
Client Focus – Internal	50%
Client Focus – External	50%
Number of Direct Reports	0
Enquire about this job	Contact Dr Peter Witt via email at peter.witt@csiro.au or phone +61 3 9545 8902
How to apply	Apply online at <u>https://jobs.csiro.au/</u> Internal applicants please apply via Jobs Central If you experience difficulties when applying, please email <u>careers.online@csiro.au</u> 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 <u>vision towards reconciliation</u>.

Role Overview

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

CSIRO's mandate is to deliver world-class research that provides innovative solutions for industry, government and the community. The Research Scientist/Engineer position is within the CSIRO Mineral Resources' CFD team that is part of the **Processing Program**. The **Program** delivers science that underpins the development and delivery of research outcomes for Australia's minerals and metals sectors and global consumers.

The work of the Processing Program is focused on two impact areas:

- Unlocking Australian ores: Advanced processing techniques and technologies will ensure Australian ores are globally competitive. Taking advantage of new process technologies can make otherwise uneconomic lower-grade ores viable to mine and export.
- **Process optimisation:** Global minerals processing operations can reduce costs, increase productivity and lower health and safety risks thanks to our new energy- and water-efficient technologies and processes.

The CFD team develops and applies multiphase CFD models to a range of multiphase mineral processing, energy, and metal production unit operations with the aim of improving process efficiency and developing new processes.

As part of the CFD team in CSIRO Mineral Resources, the role will contribute to the teams and the Process program's research program and help deliver upon CSIRO's organisational directives. The Research Scientist/Engineer will be responsible for conducting, coordinating, and leading cuttingedge research in the development and application of CFD models to a range of mineral processing and other unit operations. The Research Scientist/Engineer will work on both projects for external clients and in collaboration with other CSIRO research teams to develop new and improved technologies.

Duties and Key Result Areas

- Contribute to the CFD Modelling team's research program and help deliver upon CSIRO's organisational objectives.
- Under general direction, use professional expertise, knowledge of other disciplines and research experience and achievement to formulate, develop and complete an approved research program.
- Participate in research directed towards improving processes and equipment for the minerals and other processing industries.
- Under limited direction, develop multi-phase computational fluid dynamics (CFD) models of equipment used in the minerals and related process industries and carry out simulations using these models.
- Analyse, interpret and report the results of CFD simulations in a clear and concise manner. Prepare industry reports, conference presentations and journal papers detailing the work and participate in presentations to the industry as appropriate.
- Work with team members in other parts of CSIRO to develop and perform CFD simulations to assist in improving and developing new and existing processes and/or equipment.

- Lead and supervise staff and students to ensure projects are established in accordance with client requirements and are completed within the agreed timeframes and budget.
- Maintain confidentiality when dealing with CSIRO's and external clients commercially sensitive information.
- Undertake feasibility studies, demonstrate a considerable degree of originality, creativity and innovation in solving problems and introduce new directions and approaches.
- Communicate research results to internal and external clients and the scientific community through oral and written reports and prepare documentation for patent applications (where relevant).
- 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 to carry out tasks in support of CSIRO's scientific objectives.
- Adhere to the spirit and practice of CSIRO's Values, Code of Conduct, Health, Safety and Environment procedures and policy, 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 Mechanical or Chemical Engineering.
- 2. Demonstrated conceptual and practical knowledge and skills in multiphase CFD modelling and model development.
- 3. Proven experience in applying CFD software such as ANSYS-CFX, Fluent and OpenFOAM to solve multiphase problems.
- 4. Demonstrated ability to develop and apply CFD models to generate innovative solutions to industrially relevant problems.
- 5. Demonstrated ability to undertake and lead original, creative and innovative research by generating and pursuing novel ideas and solutions to scientific and industrial research problems.
- 6. Evidence of managing and working effectively with multi-disciplinary research teams, plus the motivation and discipline to carry out autonomous research.
- 7. Excellent interpersonal, written and oral communication skills suited to successful interaction with other members of the research team and industry partners.
- 8. A demonstrated publication history of authorship on scientific papers in peer reviewed journals and/or reports, grant applications or inventorship on patent applications.

Desirable

- 1. Research experience in, or knowledge of, equipment and unit operations used in the mineral processing industry.
- 2. Knowledge of experimental measurement techniques for physical modelling of multiphase flows and the ability to interpret and analyse experiment data.
- 3. A background in applying CFD models to chemically reacting processes.

- 4. Experience using programming languages such as Matlab, C++ and FORTRAN.
- 5. Experience using and managing Windows and Linux systems.

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: Identifies critical stakeholders and influences them via an influential third party, for example through an established network, to gain support for sometimes contentious proposals/ideas.
- **Resource Management/Leadership:** Sets up and maintains effective and efficient work teams and manages performance and resources, to achieve objectives. Chooses appropriate management strategies and communication styles to maintain high levels of motivation and productivity. Gives feedback for development purposes and provides support and direction for improvement.
- Judgement and Problem Solving: Anticipates and manages problems in ambiguous situations. Develops and selects an appropriate course of action and provides for contingencies. Evaluates, interprets and integrates complex bodies of information and draws logical conclusions, synthesises proposals and defends options with reasoned arguments.
- **Independence:** Assesses the risk and opportunity of identified strategies, options and actions. Overcomes problems and setbacks in achieving goals. Invariably includes consideration of value-added future impact on bottom line when determining the optimal and efficient use of resources.
- Adaptability: Demonstrates flexibility in thinking and adapts to, and manages, the increasing rate of organisational change by adjusting strategies, goal and priorities.

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.

- 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 <u>CSIRO Online</u> and <u>Mining and resources - CSIRO</u> for more information.

CSIRO is a values-based organisation. In your application and at the interview you will need to demonstrate behaviours aligned to our values (<u>https://www.csiro.au/en/about/values</u>) of:

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