



POSITION DESCRIPTION

School of Electrical, Mechanical and Industrial Engineering
Faculty of Engineering and Information Technology

Research Fellow – Magnetic Refrigeration

POSITION NO	New
CLASSIFICATION	Research Fellow Level A or Research Fellow Level B Level of appointment is subject to qualifications and experience
SALARY	Level A \$97,770* - \$113,262 p.a. Level B \$119,231* - \$141,581 p.a
SUPERANNUATION	Employer contribution of 17%
WORKING HOURS	Full time (1.0 FTE)
BASIS OF EMPLOYMENT	Fixed term position up to 3 years. Fixed term contract basis: Externally funded research Applications for part-time or other flexible working arrangements will be welcomed and will be fully considered subject to meeting the inherent requirements of the position
OTHER BENEFITS	https://about.unimelb.edu.au/careers/staff-benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers , select the relevant option ('Current Opportunities' or 'Jobs available to current staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Dr. Shanaka Kristombu Baduge Tel +61 450 515 484 Email kasun.kristombu@unimelb.edu.au Please do not send your application to this contact

For information about working for the University of Melbourne, visit our website:
about.unimelb.edu.au/careers

Acknowledgement of Country

The University of Melbourne acknowledges the Traditional Owners of country throughout Australia. The University recognises the unique place held by Aboriginal and Torres Strait Islander peoples as the original custodians of country and their continued connection to the land, waterways, songlines and culture. The University respects all Aboriginal and Torres Strait Islander People and warmly embrace those students, staff, Elders and collaborators who identify as First Nations.

Commitment to Diversity and Inclusion

The Faculty of Engineering and Information Technology (FEIT) is committed to creating a diverse and inclusive environment that welcomes and values all people. We recognise that diversity is essential in contributing to the success of the Faculty. Women, Aboriginal and Torres Strait Islanders, the LGBTIQ+ community, people living with disability and those from a culturally and linguistically diverse background, are strongly encouraged to apply.

Position Summary

The Faculty of Engineering and IT at the University of Melbourne is at the forefront of providing world class engineering and IT education in Australia. This Research Fellow position is located in the Department of Infrastructure Engineering, University of Melbourne. This role entails working on magnetic refrigeration techniques, systems and magnetocaloric material development and demonstration for liquefaction technologies for liquid hydrogen boil-off gas management. This fellowship provides an excellent opportunity to work with cutting-edge technologies in the liquid hydrogen infrastructure development domain, exploring the possibility of effectively managing hydrogen boil-off of mega-scale liquid hydrogen tanks using magnetic liquefaction.

This project is supported by an Australian Renewable Energy Agency (ARENA) grant to accelerate the commercialization of hydrogen-related research in Australia. Globally leading cryogenic and process-related companies such as GenH2, Energy Evolution, Omni Tanker, ETA Space, and Rotok are involved as industrial partners of this project. More details of the project are available in the following link.

<https://arena.gov.au/projects/mega-scale-liquid-h2-storage-with-super-insulated-full-containment-and-zero-boil-off/>

This position involves working collaboratively with the industry partners and the ARENA research team at University of Melbourne. This position is specifically aimed at a candidate who has a Mechanical/Chemical/Materials engineering background with prior experience in magnetic refrigeration and/or magnetocaloric material development fields. The Research Fellow is required to work a multi-disciplinary university's research team led by the chief investigator Dr. Shanaka Kristombu Baduge. Furthermore, the Research Fellow is expected to contribute to research and outreach agendas of the department both nationally and internationally in a manner that is appropriate to the level of appointment.

1. Selection Criteria

1.1 ESSENTIAL

- ▶ A doctorate (PhD) in Mechanical, Chemical, and Materials Engineering or Physics or closely related Discipline.
- ▶ PhD directly related to magnetic refrigeration and magnetocaloric materials or prior experience in magnetic refrigeration/liquefaction processes and/or magnetocaloric material development.
- ▶ Or Bachelor's Degree in Mechanical, Chemical and Materials Engineering or Physics or a closely related discipline with more than 2 years of experience directly related to magnetic refrigeration, cryostats and magnetocaloric materials.
- ▶ Prior experience in cryogenic engineering and design and operation of cryostats and experiments

- ▶ A strong track record or track record towards publications and demonstrated ability to prepare manuscripts for publication.
- ▶ Excellent interpersonal and both written and oral communication skills in English.
- ▶ Demonstrated ability to work collaboratively with industry partners to ensure the completion of projects on time.

- ▶ Demonstrated ability to work co-operatively and positively in a multi-disciplinary research team and liaise with people from diverse backgrounds.

1.2 DESIRABLE

- ▶ Prior experience in working with and managing different stakeholders of research projects.
- ▶ Experience in assisting with supervision of students undertaking master's or PhD research projects.
- ▶ Prior experience in writing grant applications to attract internal or external funding.

1.3 ADDITIONAL ESSENTIAL CRITERIA FOR APPOINTMENT AT LEVEL B

At Research Fellow Level B, the successful applicant must demonstrate all of the above, and additionally must demonstrate:

- ▶ An outstanding background in either of the project areas;
- ▶ Demonstrated ability to perform independent research and a commitment to interdisciplinary research;
- ▶ Demonstrated ability to work with limited supervision in a self-directed manner and as a member of a research team, and to interact in a courteous and effective manner with academic, administrative and support staff.

2. Key Responsibilities

2.1 CONTRIBUTION TO TEACHING AND LEARNING

- ▶ Contribute to curriculum design, teaching, training, scientific mentoring and supervision of students as required.

2.2 RESEARCH AND ADVANCEMENT OF DISCIPLINE

- ▶ Working with the Chief Investigators, develop the research plan based on the goals of the research programme;
- ▶ Independently carry out research and work towards the research vision;
- ▶ Assist in the day-to-day supervision and management of projects lead by graduate students and research assistants;
- ▶ Maintain accurate and detailed records of all research conducted;
- ▶ Participate in the preparation of manuscripts for publication in peer-reviewed journals;
- ▶ Liaise effectively with collaborators and a variety of internal and external stakeholders;

2.3 ENGAGEMENT

- ▶ Active participation in some outreach activities relating to research and scholarship;
- ▶ Effective liaison with external networks to foster collaborative partnerships;
- ▶ Present results at national and international forums;

- ▶ Attend and actively participate in departmental seminars, meetings and/or committee memberships.

2.4 LEADERSHIP AND SERVICE

- ▶ Active participation in the communication and dissemination of research;
- ▶ Identify sources of funding to support individual or collaborative projects, relating to teaching, research and engagement practice in the discipline;
- ▶ Involvement in professional activities;
- ▶ Effective collaboration with research partners;

2.5 OTHER JOB RELATED INFORMATION

- ▶ Undertake Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in Section 4;
- ▶ Employment in this position is conditional upon receipt and maintenance of a Working with Children Check.

3. *Equal Opportunity, Diversity and Inclusion*

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in the University's People Strategy and policies that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

Employees are required to behave in a manner that creates; supports and encourages an inclusive and safe work environment for all.

<https://eng.unimelb.edu.au/diversity>

4. *Occupational Health and Safety (OHS)*

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

<https://safety.unimelb.edu.au/people/community/responsibilities-of-personnel>

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

5. *Other Information*

5.1 SCHOOL OF ELECTRICAL, MECHANICAL AND INFRASTRUCTURE ENGINEERING

<https://eng.unimelb.edu.au/about/departments/school-of-electrical-mechanical-and-infrastructure-engineering>

The School of Electrical, Mechanical and Infrastructure Engineering (EMI) undertakes teaching and research across a range of disciplines that are internationally recognised for their contribution to fundamental research. EMI has several well-established industry linkages and international partnership and is building a vibrant profile of interdisciplinary research, working with industry with an aim to contribute to society. EMI offers a comprehensive range of accredited Master of Engineering and Master of Information Technology programs taught through the Electrical, Mechanical and Infrastructure departments as well as professional Masters programs. The School has a substantial cohort of research higher degree students.

A major focus of the School is to attract and retain outstanding and internationally recognised academic staff. EMI is committed to increasing the number of female engineers and scientists on its staff.

5.2 DEPARTMENT OF INFRASTRUCTURE ENGINEERING

<http://www.ie.unimelb.edu.au>

Combining civil engineering, environmental engineering and geomatics in one department creates a broad scope for our research and engineering education. Our focus is to solve infrastructure problems in a sustainable way.

We address the most urgent contemporary problems of our rapidly developing industrial society, with investigations into the engineered and natural environment.

5.3 FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

The Faculty of Engineering and Information Technology (FEIT) has been the leading Australian provider of engineering and IT education and research for over 150 years. We are a multidisciplinary School organised into three key areas; Computing and Information Systems (CIS), Chemical and Biomedical Engineering (CBE) and Electrical, Mechanical and Infrastructure Engineering (EMI). FEIT continues to attract top staff and students with a global reputation and has a commitment to knowledge for the betterment of society.

FEIT has never been better positioned as a global leader, anchored in the dynamic Asia Pacific region, creating and curating knowledge to address some of the world's biggest challenges. Through our students and our relationships with communities, we can not only respond to society's needs but anticipate and create engineering and IT solutions for the future.

<https://eng.unimelb.edu.au/>

<https://eng.unimelb.edu.au/about/join-feit>

Our ten-year strategy, FEIT 2025, is our commitment to bring to life the University-wide strategy Advancing Melbourne and reinforce the University of Melbourne's position as one of the best in the world.

To achieve our ambitions, we will continue to build new infrastructure to enable our teaching, research and engagement; we continue to recruit outstanding people from around the world; and we continue to attract high-quality students from across the globe who are at the heart of our enterprise.

<https://eng.unimelb.edu.au/about/feit-2025>

5.4 THE UNIVERSITY OF MELBOURNE

Established in 1853, the University of Melbourne is a public-spirited institution that makes distinctive contributions to society in research, learning and teaching and engagement. It's consistently ranked among the leading universities in the world, with international rankings of world universities placing it as number 1 in Australia and number 32 in the world (Times Higher Education World University Rankings 2017-2018).

The University's 10-year strategy, Advancing Melbourne will enable the University to contribute to advancing the state and national interest and make vital contributions to Australia's standing on the world stage. We seek to be a leading force in advancing Australia as an ambitious, forward-thinking country while increasing its reputation and influence globally. <https://about.unimelb.edu.au/strategy/advancing-melbourne>

Further information about working at The University of Melbourne is available at <http://about.unimelb.edu.au/careers>