

Position Title	Research Fellow (Fluid Science and Resources)
Classification	Level B
School/Division	School of Engineering
Centre/Section	Chemical Engineering
Supervisor Title	Associate Professor
Supervisor Position Number	314302
Position Number	321769

Your work area

The UWA School of Engineering is renowned for its award-winning researchers, teachers and facilities. It is a multidisciplinary school offering education and research in a number of engineering disciplines. This includes civil, environmental, mining, chemical mechanical, electrical and electronic engineering. Successful applicants will work primarily in the Fluid Science and Resources Research (FSRR) Group (<http://www.fsr.ecm.uwa.edu.au/>) which primarily conducts research across the resources industry as well as the Future Energy Exports CRC. The relevant theme to this project is the development of hydrogen production and export technology.

Reporting structure

Reports to: Associate Professor

Dotted line reports to: Senior Research Fellow

Your role

Hydrogen liquefaction has emerged as a promising transportation method due to its high energy density and hydrogen purity, but it is currently prohibitively expensive. In this project, we will exploit the use of mixed refrigerants (MRs) for more efficient liquefaction cycles to lower the power and number of stages required for compression and thus reduce the total OPEX and CAPEX.

As the appointee, you will conduct and lead an experimental campaign to measure the vapor-liquid and vapor-solid (freeze-out) equilibria and speed of sound of mixed refrigerant mixtures, including hydrogen, helium, and neon at temperature conditions between (100 and 15) K, pressures up to 10 MPa, and various compositions. You will also provide an assessment of the available thermophysical property data for these mixed refrigerant mixtures and the performance of existing models.

Your key responsibilities

Conduct high-quality research on the project

Publication of research papers and presentations at international conferences and workshops

Manage the relationship with various collaborators on aspects of the project

Assist in the supervision of undergraduate, Masters and PhD students

Participate in the research group's activities and contribute to group projects, meetings, and workshops

Other duties as directed

Your specific work capabilities (selection criteria)

PhD in Chemical Engineering

Strong track record of research publication relative to opportunity

Expertise in experimental thermophysical property measurements, preferably at cryogenic temperatures

Experience with the assessment of thermophysical data and models, as well as model development and tuning

Experience with high-pressure and cryogenic equipment and handling of flammable gas

Ability to manage research projects and assist in supervision of research students

Special requirements (selection criteria)

Occasional weekend work

Compliance

Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including:

The University's Code of Conduct [Code of Ethics and Code of Conduct](#)

Inclusion and Diversity web.uwa.edu.au/inclusion-diversity

Safety, health and wellbeing [Safety and Health Policy](#)