

POSITION DESCRIPTION

Position Title:	Postdoctoral Research Fellow
Organisation Unit:	School of Chemical Engineering
Position Number:	NEW
Type of Employment:	Full-time Fixed Term
Classification:	Research Academic Level A

THE UNIVERSITY OF QUEENSLAND

The University of Queensland (UQ) contributes positively to society by engaging in the creation, preservation, transfer and application of knowledge. UQ helps shape the future by bringing together and developing leaders in their fields to inspire the next generation and to advance ideas that benefit the world. UQ strives for the personal and professional success of its students, staff and alumni. For more than a century, we have educated and worked with outstanding people to deliver **knowledge leadership for a better world**.

UQ ranks in the world's top universities, as measured by several key independent ranking, including the CWTS Leiden Ranking (32), the Performance Ranking of Scientific Papers for World Universities (40), the US News Best Global Universities Rankings (42), QS World University Rankings (47), Academic Ranking of World Universities (54), and the Times Higher Education World University Rankings (66). Excluding the award component, UQ is now ranked 45th in the world in the ARWU, and is one of the only two Australian universities to be included in the global top 50.

UQ has an outstanding reputation for the quality of its teachers, its educational programs and employment outcomes for its students. Our students remain at the heart of what we do. The UQ experience – the UQ Advantage – is distinguished by a research enriched curriculum, international collaborations, industry engagement and opportunities that nurture and develop future leaders. UQ has a strong focus on teaching excellence, winning more national teaching excellence awards than any other in the country and attracting the majority of Queensland's highest academic achievers, as well as top interstate and overseas students.

UQ is one of Australia's Group of Eight, a charter member of edX and a founding member of Universitas 21, an international consortium of leading research-intensive universities.

Our 53,000-plus strong student community includes more than 16,400 postgraduate scholars and more than 17,000 international students from 135 countries, adding to its proud 260,000-plus alumni. The University has more than 6,600 academic and professional staff (full-time equivalent) and a \$2.15 billion annual operating budget. Its major campuses are at St Lucia, Gatton and Herston, in addition to teaching and research sites around Queensland and Brisbane city. The University has six Faculties and four University-level Institutes. The Institutes, funded by government and industry grants, philanthropy and commercialisation activities, have built scale and focus in research areas in neuroscience, biomolecular and

biomedical sciences, sustainable minerals, bioengineering and nanotechnology, as well as social science research.

UQ has an [outstanding track-record](#) in commercialisation of our innovation with major technologies employed across the globe and integral to gross product sales of \$11billion+.

UQ has a rapidly growing record of attracting philanthropic support for its activities and this will be a strategic focus going forward.

Organisational Environment

The School of Chemical Engineering is an international leader in the chemical engineering field and has an excellent reputation, built over many decades at The University of Queensland.

We deliver quality programs and leadership in chemical engineering education, research and development, and expert consulting to support the process industries. Undergraduate teaching within the School focuses on the disciplines of chemical, biological, environmental and metallurgical engineering and postgraduate programs are available in growing fields including water, sustainable energy and petroleum engineering.

The School's project-centered curriculum was recently recognised as an international exemplar of engineering education. Worldwide, UQ Chemical Engineering was ranked 33rd in the QS World University Rankings 2017 for chemical engineering. We also received the highest score for chemical engineering in Australia in the Excellence in Research for Australia study (2015). Central to the School's success are our staff, specifically the academic, research and professional staff. They are engaged in pioneering teaching and research crossing traditional disciplinary boundaries, mindful of their role in addressing the big challenges that lie ahead.

As the School enters an exciting phase of building on recent successes in individual industry-linkages and international-research partnerships we are interested in new staff to join us on this journey to further increase our local and international impact in learning and discovery in chemical engineering.

Our people are our greatest asset. We offer collaborative, inclusive work and study places, which are enriched by the significant diversity of our staff, students and community. We genuinely believe that creativity and innovation flourishes in an environment where people feel supported, valued and empowered. Mutual respect, inclusivity and accountability are at the cornerstone of UQ's culture.

The Centre is committed to supporting the career growth of women researchers and have a number of initiatives to support women in developing and achieving a fulfilling research career at the Centre.

For more information about the School, please visit: www.uq.edu.au/chemeng

Information for Prospective Staff

The Centre recognises and values equity and diversity, and encourages applications from any individual who meets the requirements of this position irrespective of gender, sexuality, race, ethnicity, religion, disability, age or other protected attributes. The Centre strives to provide an inclusive working environment, and along with the University is committed to supporting staff with family and caring responsibilities by providing policies, programs and initiatives to help balance work and family responsibilities.

Further information about life at UQ including staff benefits, relocation and UQ campuses is available at - <http://www.uq.edu.au/current-staff/working-at-uq>

The University of Queensland [Enterprise Agreement](#) outlines the position classification standards for Levels A to E.

DUTY STATEMENT

Primary Purpose of Position

The research project funded by the Australian Research Council focuses on fundamental study on charge storage mechanism and transport kinetics of sodium ions in batteries and capacitors using computational methods. The successful candidate is expected to work closely with other research staff and PhD students who work on sodium-ion-based energy storage technology. This research fellow will also be participating in PhD student supervision.

Duties

Duties and responsibilities include, but are not limited to:

Teaching and Learning

- Involvement in supervision of research students at undergraduate and postgraduate levels.
- Participation in class-room teaching if needed or desired.

Research

- Perform research on investigating sodium-ion storage mechanism and transport phenomena using computational techniques.
- Liaise with computing centres to secure computational resources
- Be responsible to choose computer software and purchase software licenses if needed.
- Work closely with other research staff/PhD students and participate in PhD supervision.
- Write and edit scientific works and publish high-quality reports and scholarly papers.
- Build links to academic colleagues with expertise in the project areas.
- Participate in lab management.
- Work with team members to write research proposals for funding.
- Identify IP arising from research and facilitate its protection through established University procedures.

Service and Engagement

- Foster relations with industry, government departments, professional bodies and the wider community.
- Promote research outcomes at workshops, news papers, and meetings.
- Work with Project Leader in day-to-day management of the project and reporting requirements.

- Contribute, as required, to the processes that enable staff to manage research projects and meet project target that enable staff to manage research projects and meet project targets.
- Any other duties as reasonably directed by your supervisor.

Other

Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including but not exclusive to:

- the [University's Code of Conduct](#)
- requirements of the Queensland occupational health and safety (OH&S) legislation and related [OH&S responsibilities and procedures](#) developed by the University or Institute/School
- the adoption of sustainable practices in all work activities and compliance with associated legislation and related University [sustainability responsibilities and procedures](#)
- requirements of the Education Services for Overseas Students Act 2000, the National Code 2007 and associated legislation, and related [responsibilities and procedures](#) developed by the University.

Organisational Relationships

The position reports to Prof George Zhao (george.zhao@uq.edu.au), Director and Project Leader, Clean Energy and Water Research Program, School of Chemical Engineering, UQ.

SELECTION CRITERIA

- PhD in Applied Mathematics, Physics, Physical Chemistry, or related scientific field, such as Materials Science and Electrochemistry.
- Knowledge and skills in computational methods/techniques for modelling and simulating charge transport and storage mechanism in sodium-ion capacitors and batteries.
- Knowledge on transport phenomena at interface and in nanopores.
- Knowledge on colloidal science, nanoscience, and electrochemistry.
- Skills in collecting, organization and quantitative analysis of research results.
- Demonstrated skills and capability of writing scientific papers in English.
- Ability to work in a multi-disciplinary team, while taking the leading role in a specific project.
- Ability to work collaboratively with colleagues.
- Ability to actively participate in discussion and debate in English.
- Ability to work under pressure.

Desirable

- Experience with VASP, CP2K, quantum espresso or similar quantum chemistry software and ab initio or classical molecular dynamics

- Experience modelling and simulation of solid state materials properties and electrolyte solution properties
- Knowledge of porous carbon materials

Qualification Verification

An appointment to this position is subject to the verification of the highest academic qualification from the conferring institution.

The University of Queensland values diversity and inclusion and actively encourages applications from those who bring diversity to the University. Please refer to the University's Diversity and Inclusion webpage (<http://www.uq.edu.au/equity>) for further information and points of contact if you require additional support.

This role is a full-time position; however flexible working arrangements may be negotiated.

Accessibility requirements and/or adjustments can be directed to the contact person listed in the job advertisement.