POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow/ Research Officer
Organisation Unit: School of Mechanical and Mining Engineering
Position Number: NEW
Type of Employment: Full Time, Fixed Term until 16 March 2022, extension subject to funding
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

With an excellent reputation for quality graduate training and research performance, the School of Mechanical and Mining Engineering delivers a comprehensive range of programs in aerospace, materials, mechanical, mechatronic and mining engineering.

Boasting strong student enrolments in professionally accredited programs, combined with world-class researchers and facilities, we are focused on strengthening our position in the engineering community. We will develop global solutions to contemporary issues and mentor the leaders of tomorrow by attracting the brightest minds and fostering a truly innovative and collaborative work environment.

The School recognizes and values equity and diversity, and encourages applications from any individual who meets the requirements of this position, regardless of gender, sexuality, race, ethnicity, religion, disability, age or other protected attributes. The School 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.

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

Information for Prospective Staff

Information about life at UQ including staff benefits, relocation and UQ campuses is available online.

The University of Queensland Enterprise Agreement outlines the position classification standards for Levels A to E.

DUTY STATEMENT

Primary Purpose of Position

The primary purpose of the position is to manage and undertake research in support of an industry funded project being run by Dr Zhongwei Chen and Professor Victor Rudolph. The position will involve the development and testing of the mechanical and petrophysical properties of fractured coals at various scales using various laboratory techniques, and then applying the results to investigate the response of coal seam gas (CSG) boreholes to different drilling designs and production controls as well as the corresponding CSG well performance.
Duties

Duties and responsibilities include, but are not limited to:

Research

- Undertake fundamental and applied research in the area of unconventional gas extraction, including, but not limited to:
  - Experimentally characterise the interaction of coal matrices and cleats of different ranks of coal across different scales.
  - Quantify the anisotropic behaviour of coal in response to mechanical loading and gas desorption-induced shrinkage.
  - Upscale the results to optimize drilling orientation and borehole stability.
- Document research findings and publish scholarly papers in high-quality refereed international journals, books, and conference proceedings.
- Attend technical meetings with research sponsors, and present regular research seminars within the group, the School, the Faculty, and to other external stakeholders.
- Work with colleagues and postgraduates to develop new research avenues and build collaborative projects within the School, the University, and if relevant to the area of research, other national and international centres and institutes.
- Actively participate in preparing applications for funding from internal and external sources including the Commonwealth research granting agencies, the state government and industry.

Teaching

- Contribute to teaching and/or tutoring in undergraduate or postgraduate courses as needed.
- Supervise students undertaking undergraduate and postgraduate coursework engineering projects and participate in the supervision of Higher Degree by Research (MPhil and PhD students) if required.

Service and Engagement

- Perform a range of administrative functions in the laboratory and/or research group as needed, including an ability and willingness to serve as a Laboratory Manager if required.
- Contribute to the processes that enable the academic team to manage the work of the School, as directed by the supervisor.
- Foster relations with industry, government departments, professional bodies and the wider community.
- 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 Dr Zhongwei Chen.
SELECTION CRITERIA

- PhD (or PhD submitted) in the area of civil/geotechnical engineering, mining/petroleum engineering, chemical engineering, materials engineering, or related field such as applied physics or mathematics.

- Experience and demonstrated competence in the following:
  - Geomaterial properties testing and the design of advancing laboratory testing techniques.
  - Behaviours of the fractured geomaterials in response to mechanical loading and fluids flow in fractures (or small pores), preferably related to sedimentary rocks.
  - Development of coupled numerical simulation, preferably using the discrete element method.

- Ability and willingness to:
  - Work independently with minimal supervision and as part of a team and organise multi-faceted projects.
  - Effectively present research findings to a broad range of audiences.
  - Promote and adhere to a positive safety culture including the ability and willingness to assume the role of laboratory manager if required.
  - Participate in applications for external research funding support.
  - Supervise honours and Higher Degree by Research (HDR) students.

- Demonstrated:
  - Ability to publish in high quality outlets and prepare effective reports that document research findings for both internal and external audiences.
  - High level of drive and enthusiasm.
  - High-level interpersonal, written and verbal communication skills.
  - Ability to prioritise own workload, work independently and meet deadlines.

Seminar

Applicants invited for interview may be expected to present a seminar in conjunction with the selection interview process.

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 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 recruitment@uq.edu.au.