POSITION DESCRIPTION

Position Title: Senior Research Fellow
Organisation Unit: Julius Kruttschnitt Mineral Research Centre (JKMRC) – Sustainable Minerals Institute (SMI)
Position Number: 3044016
Type of Employment: Full-time, fixed term
Classification: Research Academic Level C

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 Performance Ranking of Scientific Papers for World Universities (45), the US News Best Global Universities Rankings (52), QS World University Rankings (51), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (60). UQ again topped the nation in the prestigious Nature Index; and secured a greater share of Australian Research Council grants in 2016 ($24.5 million) than any other university nationally.

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 50,000-plus strong student community includes more than 13,000 postgraduate scholars and more than 12,000 international students from 144 countries, adding to its proud 230,000-plus alumni. The University has about 7,000 academic and professional staff and a $1.7 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+ (see http://uniquest.com.au/our-track-record).

UQ has a rapidly growing record of attracting philanthropic support for its activities and will have further success in this area as an important strategic aim going forward.

Organisational Environment

One of the UQ's eight research institutes, the **Sustainable Minerals Institute (SMI)** consists of some 240 staff and postgraduate students covering the areas of mining and geology, mineral processing, environment and rehabilitation, social responsibility, safety and risk, water and unconventional gas. SMI is industry-focused and consequently works with many leading global resources companies and many small-medium enterprises and suppliers. SMI interacts strongly with governments and community. A priority for SMI is the development of talent and providing an environment for successful and rewarding careers. SMI was founded in 2001 and since its inception has established a reputation as a unique institution for integrated sustainable development research in the resource sector. SMI is a truly global institute with staff and students from around the world. SMI's people are also diverse in their discipline backgrounds, which range across disciplines including anthropology, geology, soil science, sociology, hydrology, environmental science, engineering and mine management.

The Institute 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. SMI 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.


SMI comprises six major research Centres which are organised into pairs:

- **SMI's Production Centres** are the:
  - WH Bryan Mining and Geology Research Centre
  - Julius Kruttschnitt Mineral Research Centre
- **SMI's People Centres** are the:
  - Centre for Social Responsibility in Mining
  - Minerals Industry Safety and Health Centre
- **SMI's Environment Centres** are the:
  - Centre for Mined Land Rehabilitation
  - Centre for Water in the Minerals Industry

SMI is also the home of the Centre for Coal Seam Gas.

The **Julius Kruttschnitt Minerals Research Centre (JKMRC)** is a world-renowned research and postgraduate education organisation, located at Indooroopilly in Brisbane, approximately 7 km from the main University of Queensland campus. It was established in 1970, and now forms part of the University's Sustainable Minerals Institute.

The mission of the JKMRC is to deliver world-class, customer-focused education, research and technical services to the world minerals industry and allied sectors. The JKMRC has an
international reputation for applied research in the areas of mineral processing and geometallurgy. It specialises in ore characterisation, mineral processing unit operations such as comminution and flotation, applied mineralogy, and the interface between mining and processing. Its emphasis on systems analysis by mathematical modelling and process simulations has led to major new methodologies in the design and optimisation of mineral processing operations. It works closely with the international minerals industry and with other research providers in Australia and overseas. It has graduated in excess of 270 Masters and PhD students, and won many awards for its research. It has a proven record of technology transfer through JKTech, which has significant experience in the commercial delivery of JKMRC research outcomes, particularly in simulation software and ore characterisation methodologies.

Further information on the JKMRC may be accessed via http://www.jkmrc.uq.edu.au.

Information for Prospective Staff
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
To undertake high quality research and project management in the SMI-JKMRC. In particular, lead high quality research in comminution and minerals processing as well as develop project management and leadership skills through service and engagement at the SMI-JKMRC.

Duties

Duties and responsibilities include, but are not limited to:

Technical
- To lead and contribute to the development of mathematical models across a broad range of mineral process related to comminution, recovery and process control and optimisation;
- Develop, manage and undertake a lead role in experimental work programs at plant, pilot and laboratory scale and in the subsequent data analysis, modelling, simulation and reporting;
- Mentor students and junior researchers;
- Ensure a high standard of reporting by staff and students in the form of research reports, presentations and papers;
- Develop new research initiatives and proposals for research funding;
- Collaborate with other researchers to support additional projects within the SMI-JKMRC when required.

Management
- Take a leading role in the development of process modelling at JKMRC;
- Manage research projects at SMI-JKMRC;
- Coordinate research activities in collaborative projects with other research institutions;
- Develop relationships with industry sponsors and research collaborators.

**Teaching and Learning**

- Supervise postgraduate students

**Community Service**

- Foster interaction with industry, government departments, professional bodies and the wider community.

**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 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 the Advanced Process Prediction and Control (APPCo) Program Lead.
SELECTION CRITERIA

**Essential**
- PhD in a research field relevant to minerals comminution and a strong modelling background.
- More than 2 years site-based project experience on an industrial mine site as staff and/or researcher;
- Good knowledge of mineral processing laboratory procedures and conducting experimental studies on site, pilot plant and in the laboratory;
- Expert skills in mineral processing simulation.
- Demonstrated capability to perform well in an academic or industry research position;
- Demonstrated high level of knowledge and/or capability in one or more relevant areas (e.g. modelling, circuit simulation, equipment modelling, comminution process understanding);
- A track record of research publishing in high-ranking international journals, other appropriate refereed publications, and conferences;
- Ability to conceptualise, develop and critically review new research initiatives – a clear grasp of the scientific method;
- Previous publication and conference presentation record
- Excellent verbal and written communication skills;
- Well developed engineering mathematical skills;
- Advanced computer literacy, including proficiency in Microsoft Office products and one or more computer programming languages;
- Mathematical modelling capability, dealing with phenomenological models and physics-based models.
- High level of interpersonal skills, including the ability to work collaboratively with colleagues, particularly from different disciplines, as well as with administrative and technical staff;
- Good organisational abilities and ability to manage competing priorities;
- Motivated, with a sense of ownership and vision and an innate desire for research;
- Ability to work harmoniously within a team, while maintaining a high individual profile;
- Innovative, with a strong desire to conduct applied research underpinned by sound fundamental understanding.

**Desirable**
- Expert skills in the application of modelling and outputs to theoretical problems;
- Data analysis skills and proficiency in data analysis software such as R, Python or Matlab;
- An establishing profile in the professional research community and/or minerals industry societies;
- Experience in comminution process modelling and optimisation with a comprehensive knowledge about the whole process chain from exploration to metal production.
• Demonstrated experience in preparing high quality research reports for funded research;
• Experience in supervision of postgraduate students;
• Project management experience in an industrial setting;
• Established a strong network of industry connections;
• Experience in collaborating with research groups across multiple institutions and countries;
• Development and application of mathematical models in comminution processes.

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 (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 smihr@uq.edu.au.