

## POSITION DESCRIPTION

<b>Position Title:</b>	Postdoctoral Research Fellow / Research Fellow in Pyrometallurgy Innovation Centre
<b>Organisation Unit:</b>	School of Chemical Engineering
<b>Position Number:</b>	NEW
<b>Type of Employment:</b>	1 - 3 year, Fixed-Term with possible extension
<b>Classification:</b>	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 45<sup>th</sup> 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 biomedical engineering.

The School has recently been awarded funding under an Australian Research Council Industrial Transformation and Training Centre focussed on Joint Biomechanics (ARC ITTC – JB), a collaboration between UQ, QUT and UNSW, along with multiple industry partners and practicing clinicians. This Centre is focussed on developing the advances required to transform personalised surgical treatment of joints through integrated technologies of computer tools for pre-surgical planning and decision making, computer simulation systems for surgical training and medical device design, development and assessment, and post-surgical assessment tools. This role will be join this newly established UQ-node of the Centre, more specifically, under Program 3 - Scaffold simulator: Optimization of engineered scaffolds for improved scaffold integration, tissue growth, repair and functional regeneration.

For more Information about the School, please visit: [www.uq.edu.au/chemeng](http://www.uq.edu.au/chemeng)

The Pyrometallurgy Innovation Centre is in the School of Chemical Engineering, within the Faculty of Engineering, Architecture and Information Technology (EAIT) and has an international reputation for the quality and innovation of its research. The principal focus of the activities of the Laboratory is in the area of high temperature processing of minerals, metals and materials. The Centre provides research to industry worldwide in the areas of non-ferrous and ferrous metal smelting and refining, and coal utilisation.

Pyrometallurgy Innovation Centre has external funding commitments for recurrent research projects from competitive ARC Linkage grants, and directly from industry.

The aims of the Centre are

- To provide a focus for research into the high temperature processing of minerals.
- To raise the national and international profile of these research activities.
- To provide an attractive, productive, research environment producing high quality outputs, and
- To further strengthen the financial stability, and long-term viability, of the research and education in this area at the University of Queensland.

Details of the current research and other activities undertaken by The Centre can be found on the website <https://pyrosearch.chemeng.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 purpose of the current appointment is to undertake high temperature experimental studies of metallurgical systems. There is an opportunity to undertake fundamental and applied research with a dynamic team at the cutting edge of modern primary and secondary/recycling pyrometallurgy. The Centre works collaboratively with leading international resources companies.

### **Duties**

Duties and responsibilities include, but are not limited to:

#### **Research**

In close collaboration with the team:

- Design and conduct experimental research on high temperature metallurgical systems including complex phase equilibria and heterogeneous kinetics;
- Apply and further develop microanalysis methods for slags, matte, metals and other phases occurring in high temperature pyrometallurgy systems
- Organise logistical aspects of the projects;
- Prepare reports as required by the funding entities, meeting deadlines agreed with the team;
- Report research at major conferences and publish high impact papers in top journals.
- Facilitate development of new research projects
- Other duties assigned by the Chief Investigators
- Some involvement in supervision of research students at undergraduate and postgraduate levels
- Training of research staff

#### **Teaching and Learning**

- Contribution to the development of the undergraduate and postgraduate programs
- Contribution to professional development courses

#### **Service and Engagement**

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

- Supervise research staff
- Assist in the development of new research projects with industry

#### 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 Evgueni Jak ([e.jak@uq.edu.au](mailto:e.jak@uq.edu.au)), School of Chemical Engineering.

## SELECTION CRITERIA

### Essential

- PhD in Metallurgical Engineering or related field of Science or Engineering (including but not limited to Materials, Geology, Ceramics, Physics, Inorganic Chemistry).
- Demonstrated knowledge in chemical thermodynamics, high temperature phase equilibrium and high temperature heterogeneous kinetics.
- Demonstrated skills in the development, independent design, planning, technical management and successful execution of research programs.
- Excellent written and spoken English
- Experience in writing reports and papers.
- Ability to work collaboratively with colleagues
- High level communication, inter-personal and communication skills.

### Desirable

- Knowledge of extractive metallurgy and pyrometallurgical processes, in particular copper smelting and iron making.
- Demonstrated skills in high temperature experiments
- Detailed knowledge or at least practical skills in electron probe X-Ray microanalysis (EPMA), Scanning Electron Microscopy (SEM), Energy Dispersive Analysis (EDX), Laser Ablation ICPMS (LAICPMS).
- Experience of working in or with the minerals/metallurgical industry
- Experience in development/teaching of undergraduate programs
- Experience in reporting research at major conferences and publishing papers on international journals.

### **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](mailto:recruitment@uq.edu.au).*