POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow/Research Fellow
Organisation Unit: Advanced Water Management Centre
Position Number: New
Type of Employment: Full Time, Fixed Term for 3 years
Classification: Academic Research Level A/B

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 (43), the US News Best Global Universities Rankings (52), QS World University Rankings (47), 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 our Life Sciences subject field ranking in the Academic Ranking of World Universities was the highest in Australia at 20.

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 240,000-plus alumni. The University has about 7,000 academic and professional staff and a $1.8 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 this will be a strategic focus going forward.

Organisational Environment

The Advanced Water Management Centre (AWMC) is an internationally recognised centre of excellence in innovative water technology and management. The Centre has an outstanding worldwide reputation in urban water management and related fields, and an award winning multidisciplinary team delivers practical technological solutions underpinned by fundamental scientific discoveries.

The Centre has six interlinked programs namely, next generation urban water technologies, integrated urban water management, sewer corrosion and odour management, nexus of urban water, health and environment, resource efficient agri-industry and environmental biotechnology.

Collaborative linkages with industry are strong and solutions developed by the Centre have yielded quantifiable benefits in the order of hundreds of millions of dollars to the Australian water industry and other sectors. At the same time, the AWMC has an outstanding academic publication record, publishing on average more than 100 papers a year in high quality journals including the most prestigious multidisciplinary journals including Nature and Science, and top discipline journals such as Water Research and Environmental Science and Technologies.

The Centre has well-established process, microbiology and analytical labs. The direct collaboration with industry partners has also led to the creation of several field facilities including the Innovation Centre at Queensland Urban Utilities’ Luggage Point Sewage Treatment Plant, supporting technology demonstration at larger scales and under practical conditions.

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 Centre, please visit: www.awmc.uq.edu.au

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](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 “Electrochemical destruction of PFAS” Post-doctoral Research Fellow will be required to carry out bench and pilot-scale research for a large ($1.7m) ARC SRI project, focusing primarily on the bench and pilot scale demonstration of electrochemical technology for the mineralisation of perfluoroalkyl substances (PFAS) found in landfill leachate and airport fire training wastewaters. The key task for the selected candidate will be to design, run and maintain a pilot system that will be located at the Luggage Point sewage treatment plant site. The pilot will consist of a PFAS up-concentration stage and an electrochemical destruction stage. The up-concentration part of the project will use membranes and will be driven by a membrane research group with whom this post-doctoral research fellow will interact constantly.

Other team researchers will include two project leaders (Prof Jurg Keller and A/Prof Stefano Freguia), three research fellows and 3 PhD students, and industrial and academic research partners. Industry partners include Queensland Urban Utilities (QUU), Airservices Australia (ASA), GHD, Memtech and Queensland Health. PFAS analysis will be done at the Queensland Alliance for Environmental Health Sciences, led by Prof Kevin Thomas. The Post-doctoral Research Fellow will need to have strong multidisciplinary skills, industrial practical capability, and be experienced at working in a team environment.

**Duties**

Duties and responsibilities include, but are not limited to:

**For appointment at Level A**

**Research**

- Support in the design of a pilot electrochemical reactor for PFAS destruction.
- Ensuring smooth operation of an electrochemical pilot reactor.
- Conducting continuous and batch bench-scale tests with electrochemical cells.
- Perform statistical analysis of process data.
- Publish scholarly papers in high quality international journals in the field.
- Work with colleagues and postgraduates in the development of joint research projects.
- Prepare research publications and progress reports and participate in regular meetings to discuss project objectives, methodology and outcomes.
Teaching and Learning

- As a ‘Research focussed’ position, there is no formal requirement for undergraduate teaching. However it is encouraged that you actively seek teaching opportunities through the School of Chemical Engineering.

Service and Engagement

- Communicate benefits and risks of PFAS treatment to end-users and industry partners.
- Foster the Centre’s relations with industry, government departments, professional bodies and the wider community.
- Perform a range of administrative functions in the Centre.
- Be involved in the management of the Centre’s laboratory facilities.
- Any other duties as reasonably directed by your supervisor.

For Appointment at Level B

As per above, as well as:

- Develop in an independent and/or team research program including external funding, and achieve national recognition in an area of waste management, waste valorisation or water treatment technologies.
- Supervision of students at honours, master and postgraduate levels.
- Contribute to the processes that enable the academic team to manage the work of the Institute, including participation in Institute and Centre decision-making and serving on Institute committees.

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 A/Prof Stefano Freguia.
SELECTION CRITERIA

For appointment at Level A

Essential

- A PhD degree (or progress towards PhD) in Chemical Engineering, Environmental Engineering, or Chemistry (candidates who have submitted their thesis and are awaiting conferral will be considered on a case by case basis).
- Demonstrated knowledge in the discipline area including knowledge of wastewater treatment, electrochemistry, advanced oxidation processes and PFAS chemistry.
- Ability to design, commission and run electrochemical reactors.
- Track record of publication of research findings in peer reviewed journals and conferences and developing national recognition in the area of research.
- Demonstrated high-level communication and interpersonal skills including the ability to consult and negotiate with other stakeholders to ensure project objectives are met.
- Experience with the operation and study of laboratory reactor experiments, electrochemical pilot plants and boron doped diamond electrodes.

For appointment at Level B

The above Selection Criteria, as well as the following:

- Demonstrated capability in project management.
- Developed industry liaisons and professional contacts.
- Experience in liaising and collaborating with external agencies to develop cooperative research initiatives. Evidence of a contribution to research, including successful external grant applications.
- Contribution to effective supervision of Honours and Research Higher Degree students.

Desirable

- Experience with pilot scale reactors for wastewater treatment.
- Extensive experience with the operation and study of laboratory reactor experiments.
- Experience with electrochemical pilot plants.
- Experience with boron doped diamond electrodes.
- Experience in functional electrode modifications.
Qualification Verification
An appointment to this position is subject to the verification of the highest academic qualification from the conferring institution.

Equity and Diversity
The Centre recognizes 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.

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.