



THE UNIVERSITY OF
WESTERN AUSTRALIA
Achieving International Excellence

PhD Scholarship in Geotechnical Engineering

The University of Western Australia

“Evaluation of Tailings Storage Facilities monitoring technologies”

The Department of Civil, Environmental & Mining Engineering at the University of Western Australia is seeking applications from graduates in civil engineering, mining engineering, or equivalent with an Honours Degree (2A or Higher), or Masters Degree or equivalent to undertake full-time research towards a PhD degree.

The PhD candidate position can commence immediately upon appointment.

Value and duration: Living allowance stipend of \$30,000, for a period of 3 years.

Eligibility: Applicants can be from Australia or overseas.

Please note that this scholarship is for a living allowance only. Australian/NZ students do not pay any tuition fees, but any prospective international student should also apply for a SIRF Scholarship to cover the cost of international student tuition fees and health care cover. Alternative funding opportunities are available to cover fees for international students.

<https://www.scholarships.uwa.edu.au/futurestudents/postgrad>

Project details

The project is funded through AMIRA, with funding contributions from Agincourt Resources, Goldfields, Rio Tinto, Independence Group, CMOC, BHP and Anglo American.

The project will evaluate a range of monitoring technologies and their suitability for application to providing advance warning of potential instabilities of a Tailings Storage Facility (TSF). It will do this through an integrated programme of laboratory and field testing, and physical and numerical modeling. The laboratory testing will include quantification of various tailings behaviour, focusing on the stress-strain response of the tailings and degree of brittleness demonstrated in such tests. Field tests will require the installation, commissioning and monitoring of a variety of monitoring systems at sites designated by the project sponsors. Physical tests will require the use of the UWA geotechnical centrifuge, in which realistic stress conditions within a TSF can be re-created in a centrifuge model. Numerical modeling techniques such as the Finite Element method will provide likely indicative pre-failure displacement rates for different types of tailings as well as information on typical pre-failure global displacement patterns – such as which might be discernible by satellite-based radar systems.

The project will provide the successful candidate with a niche qualification in an important field of mineral resource development. The candidate is expected to acquire and develop a timely toolkit of expertise that will prove invaluable to the mining community in preventing catastrophic failure and enhance the safety of TSFs across the globe.

The candidate will work closely with a small group of highly skilled and motivated researchers and PhD students at UWA. The project is 100% industry sponsored and the candidate will also benefit from working closely and networking with the industry sponsors. A full hands-on experience with visits to Major Sponsors' sites is also provided.

We have an extremely well equipped geotechnical laboratory, including cyclic simple shear and cyclic triaxial testing equipment, three geotechnical centrifuges, a range of consolidation and shear testing equipment, all supported by a high-class electronics workshop.

Applications

Written applications should address the following:

- (a) applicant details, including name, address, telephone, email, and citizenship
- (b) academic qualifications
- (c) previous research experience, outlining skills acquired
- (d) previous research publications
- (e) relevant work or practical experience
- (f) a statement of interest in this field of research and in completing a PhD, which must be written in lay terms to be understood by non-scientific readers
- (g) contact details of three referees including name, position, institution/organization, telephone and email address

Written applications should use the following format:

- (a) Minimum size typeface to be used is 12pt
- (b) Times New Roman or Arial font
- (c) Academic transcript should be an original or certified copy
- (d) Only include publications accepted for publication in refereed journals and conferences
- (e) Applications should include your academic transcript and curriculum vitae

Applications should be directed to:

Prof Andy Fourie

email: andy.fourie@uwa.edu.au

Closing Date: Open until filled

Further information

Prof Andy Fourie

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