



PHD SCHOLARSHIP

The School of Civil Engineering at The University of Queensland (Brisbane, Australia) is offering a PhD scholarships for a motivated student to contribute to research being undertaken within the Water Research Group. Potential students with an interest in unsaturated fracture flow modelling are strongly encouraged to apply. The scholarships will be for three (3) years and valued at \$25,849AUD per year. Top-up scholarships and international student fee-waivers are also available to exceptional candidates.

PROJECT INFORMATION

Conceptual and mathematical modeling of unsaturated flow in single synthetic fractures - Laboratory testing –conceptual and mathematical modelling (3 years)

The objective of this work is to develop a computational tool for the study of unsaturated flow in single synthetic fractures. Specifically, the project regards the setting up of an apparatus to determine a mathematical model to describe unsaturated flow in a single synthetic fracture as a function of aperture, inclination, roughness etc.

A number of field transport experiments have been performed in unsaturated fractured rocks, but the interpretation of field measurements is often problematic because detailed characterization of the subsurface is difficult. Data from laboratory experiments are generally easier to interpret than data from the field since conditions are controlled and the system is easier to characterize. In addition, laboratory experiments integrate field studies by furthering the understanding of smaller scale mechanisms which may affect processes at a larger scale. Laboratory studies of fluid flow and solute transport in unsaturated fractures have been very limited. In particular, very few studies exist on the analysis of the influence of fracture parameters on the infiltration in unsaturated flow conditions.

This PhD project will consist of 2 Parts: Part 1 focuses on setting up of the apparatus. Part 2 will consist in implementing the findings of Part1 in a fluid flow model that predicts the experimental data

QUALIFICATIONS

The successful candidate should be ambitious and have an MSc (or equivalent degree) in civil engineering, environmental engineering. Familiarity with unsaturated flow processes in fractured media theories and their applications is required. You must have experience in programming Matlab. Willingness and the capacity to interact in a multidisciplinary team and fluency in oral and written English are essential.

Experience in scientific writing is desirable.

The candidate will be expected to assist in the teaching programs of the School of Civil Engineering for a limited amount of time (~0,1 fte).

QUESTIONS

For specific information about the PhD scholarship, please contact the supervisor **Dr Claudia Cherubini**, email: c.cherubini@uq.edu.au

HOW TO APPLY

Interested candidates should submit their scholarship application on the Application for school-based PhD or MPhil scholarship [form](#), together with your supporting documents on the [RHD online application system](#). Application due 1st December 2015

Details on the application for admission and scholarship process can be found at <http://www.civil.uq.edu.au/RHD-application-process>.