

## 关于英国曼彻斯特大学 Majid Sedighi 博士学术讲座的通知

报告题目: **Geochemical processes in transport of water and chemicals in compacted swelling clays**

时间: 星期三 (7 月 20 日) 9:30-11:30

地点: 安中大楼 A322

报告简介:



Swelling clays play a key role in engineered barriers and containment systems in various geoenvironmental applications. The engineering behaviour of compacted swelling clays is strongly coupled with the hydro-geochemical processes that can occur within the clay-water-chemical system. Such coupled phenomena that are observed in the behaviour of swelling clays originate mainly from the microstructure, geochemical composition and electrified surfaces of clay minerals. Interactions between the multiple ionic species, clay mineral and accessory minerals present in the clay-water system can induce profound microscopic and macroscopic effects on transport phenomena. In this lecture advances in hydro-geochemical processes involved in modelling the coupled behaviour of compacted bentonite are presented. These include a theoretical formulation of the microstructure evolution of smectite due to the environmental effects that is based on a geochemical description of clay water interaction. In addition, the effects of interactions between of multiple ions present in the pore fluid of clay on transport process will be presented. A modelling case study will be presented that deals with the evolution of hydro-geochemistry of compacted bentonite under a heating and hydration test

报告人简介:

Majid Sedighi is a Lecturer in Geotechnical and Geoenvironmental Engineering at the University of Manchester. He is a Civil Engineer with an MSc and PhD in Geotechnical Engineering. Prior to his current post, he has been a UNESCO Research Fellow at the Geoenvironmental Research Centre at Cardiff University between 2011 and 2015. He has worked on research projects in the areas of i) geological disposal of high level radioactive waste, ii) geological carbon sequestration, iii) ground source heat systems and iv) advanced computational modelling in geoenvironmental problems. His PhD has been on coupled modelling of thermal, hydraulic, chemical and mechanical behaviour of unsaturated soils with a focus on hydro-geochemical processes. He has worked in industry for five years as a senior structural and geotechnical design engineer in three consulting engineering companies. His research focus is on geoenvironmental modelling and coupled processes in geomaterials.

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