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Civil Engineering Research Group

Invitation to Seminar

- **On the excavation induced fractures around in the Meuse/Haute-Marne Underground Research Laboratory**

The excavation of underground openings induces fracture networks in the surrounding rock. Understanding damage mechanisms and the possible pattern and extent of induced fracture zones around the repository structures constitute an important issue in the context of radioactive waste disposals. Extensive experimental observations have been performed around drifts and shafts at the Meuse Haute-Marne (North-Eastern France) Underground Research Laboratory to assess the extent and pattern of the induced fracture networks in Callovo-Oxfordian claystone. Moreover, the hydromechanical response of the rock mass to excavation operation is investigated by setting up mine-by tests. Such in situ experiments allow following the displacement and pore pressure change around drifts during the excavation. The in situ observations show an anisotropic extent of fracture networks even for drifts excavated under quasi-isotropic initial state in their sections.
First, an overview of the in situ experimentations and observations will be presented. The role of the mechanical anisotropy and pore pressure evolution around the drifts on the fracture patterns will be then discussed through in situ observations and using numerical simulation results.

Dr Darius Seyedi

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After a Civil engineering degree from University of Tehran in 1996, Dr Darius Seyedi obtained a Master degree in soil and rock mechanics from Ecole Nationale des Ponts et Chaussées in 2000 and a PhD in Solid Mechanics from Ecole Normale Supérieure de Cachan in 2004.
From 2004 to 2012, he served as a senior researcher and R&D project manager at BRGM, where he coordinated a research program on the vulnerability of structures against natural hazards, and was leading BRGM's research activities on hydromechanical modeling of the safety of CO2 geological storage. At present, Darius works as a senior geomechanics/civil engineer at R&D Division of ANDRA. He coordinates the research program of ANDRA in the field of geomechanics and underground structures. His research interests cover different fields of civil engineering such as probabilistic modeling of damage and fracture propagation in heterogeneous materials and numerical modeling of coupled phenomena in porous media.

Wednesday 23 May 2018, 12.00pm-12.45pm

Room A401 Engineering Building

The seminar is open to all.
For more information, contact Dr Rezania (m.rezania@warwick.ac.uk).