

## *PhD Position in Geomechanics*

### Experimental and numerical study on the hydromechanical-gas behaviour of clay materials

#### **Research project**

Clay materials have been considered as potential candidate for closure structures in high-level radioactive waste repositories. In spite of several studies investigating its hydro-mechanical behaviour, the kinetics of the re-saturation process and the development of swelling pressure of clay materials, observed in the large-scale experiments during long periods (e.g. several years), can still not be accurately predicted by the existing numerical models. Besides, its behaviour under the development of gas pressure, induced by corrosion of ferrous materials under anoxic conditions, is still not well understood.

This project aims at investigating the hydromechanical behaviour of clay materials under re-saturation following injection of gas at high pressure. Advanced laboratory experiments (using X-ray microtomography and magnetic resonance imaging) will be first used to observe these processes at various scales. The experimental results will be then used to develop and validate numerical models to predict the behaviour of clay materials at the field structure scale.

#### **Candidates profile**

Candidates should have strong background on geomechanics and be interested in both experimental and numerical approaches.

Candidates must be under 26 years of age on October 1, 2021. For administrative reasons, candidates must be citizens of the European Union.

#### **Contact and application**

The application (including CV and motivation letter) should be sent to Dr. Anh Minh TANG ([anh-minh.tang@enpc.fr](mailto:anh-minh.tang@enpc.fr)) before March 15, 2021.