

# PhD Hydromechanical gas migration in clay rocks with X-ray microtomography and Digital Volume Correlation

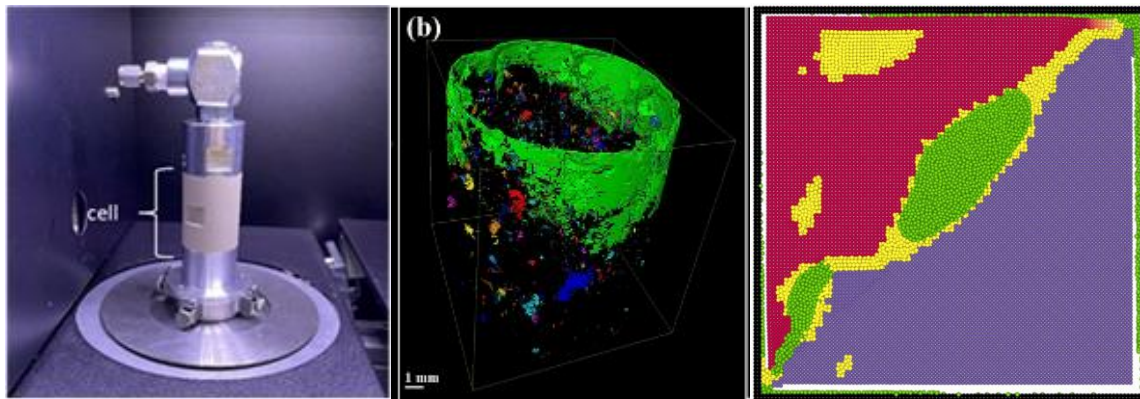


Figure 1 Constant volume cell, detected gas paths and displacement field around a water filled pore

♥ Are you passionate about hydro-mechanical processes, X-ray imaging, and geological facilities safety? Join us to investigate a unique mode of gas migration in clay-rich rocks—critical for the long-term safety of radioactive waste disposal.

🔗 Your mission: design and use a custom-built, X-ray transparent triaxial cell to observe gas injection in argillite samples at the microstructural level. Apply cutting-edge imaging and digital volume correlation techniques to track deformation, gas paths and fracture development, and cast them into both pore-scale and continuous simulation models. More details at the [link](#).

👤 fully funded 3 years PhD in ASNR in collaboration with LMPS ENS Paris-Saclay and european project EURAD2

## 🔍 Key themes:

- Hydro-mechanical coupling
- Gas transport in saturated media
- X-ray microtomography
- Digital Volume Correlation (DVC)
- Multiscale modelling

📖 Background required : Master's or engineering degree in solid mechanics, material science, or civil engineering.

📍 Location: Paris region (Fontenay-aux-Roses / Saclay, France)

📅 Start Date: December 2025, apply before 1 November 2025

📧 contact: [magdalena.dymitrowska@asn.fr](mailto:magdalena.dymitrowska@asn.fr)