

E2S UPPA, in connection with TotalEnergies, offers a:

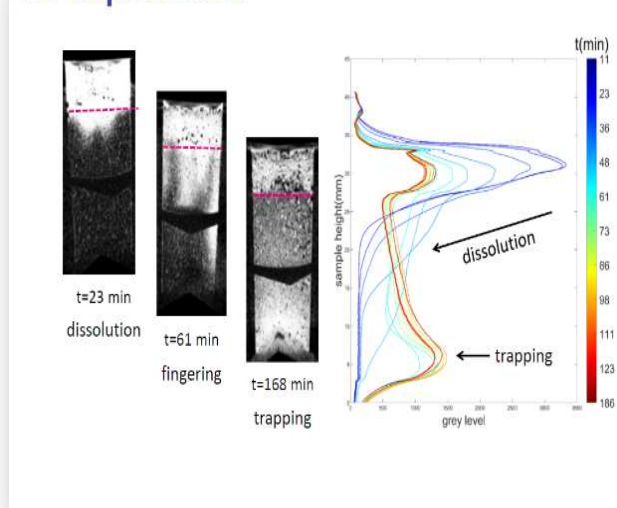
Post-Doctoral position (M/F) “Convective dissolution in porous rock”

Ref. Postdoc – ConvDiss

Project summary

Emami-Meybodi et al. (2015) state “Among the published literature, relatively few studies have investigated convective mixing in heterogeneous porous media or in a 3D system. Theoretical estimates of useful dissolution events such as the critical time for the onset of convection, and even the critical Rayleigh number are lacking for heterogeneous systems. Furthermore, the additional degrees of freedom in more realistic 3D space may add significant complexity to the fingering phenomenon and the mixing dynamics, which needs further investigation.” Only two research groups reported on convective dissolution experiments in 3D systems since the appearance of the review article of Emami-Maybodi et al., namely Wang et al. (2016) and Liyanage et al. (2019, 2020). Both employ X-ray tomography to analyze convective flow of analogue fluids in glass bead packs under ambient conditions. To our knowledge, convective dissolution in real porous media under representative reservoir conditions has not yet been attempted. The proposed postdoc project will focus on the experimental study of convective dissolution under realistic conditions in 3D porous media by means of dynamic (time-resolved) X-ray tomographic imaging.

4D experiment



Desired profile

We are looking for a highly motivated, communicative person with interest and background in the proposed research project.

- The candidate should hold a PhD degree in physics, engineering or a similar discipline, or be close to its obtention at the deadline of this announcement. Further competences in image analysis are a plus, as well as excellent experimental and technical skills, possibly with experience of high-pressure fluid management. Prior experience with X-ray tomography and/or knowledge on multi-phase flow in porous media under reservoir conditions is also a plus.
- The candidate should have the ability to effectively perform independent research. On the other hand, he/she should possess the necessary verbal and written communication skills to collaborate effectively in an international team environment and communicate his/her research to the broader public.
- Fluency in English is required. Knowledge of French is an asset.

Location and practical aspects

The successful applicant will be hosted by E2S UPPA in DMEX Centre for X-ray Imaging (<http://imagingcentre.univ-pau.fr/>). He/she will work under the supervision of F. Croccolo and P. Moonen (E2S UPPA), H. Derluyn (CNRS) and in close collaboration with C. Blondeau (TotalEnergies). The position is fixed-term of 12 months. The gross salary will be approximately 2500 euros/month, with the possibility of getting payed teaching duties.

Applications

Interested candidates should submit by e-mail their CV, cover letter, diploma copies as well as the names and contact information of two references. Any other way of applying will not be considered. **The application e-mail must contain the subject “Ref. Postdoc – ConvDiss”.** Applications must be submitted **before 31/01/2025**.

For further information, please contact: Hannelore Derluyn (hannelore.derluyn@univ-pau.fr), Peter Moonen (peter.moonen@univ-pau.fr) or Fabrizio Croccolo (fabrizio.croccolo@univ-pau.fr).