



HYDR

Impact of hydrogen storage (pure or mixed) on deep aquifers

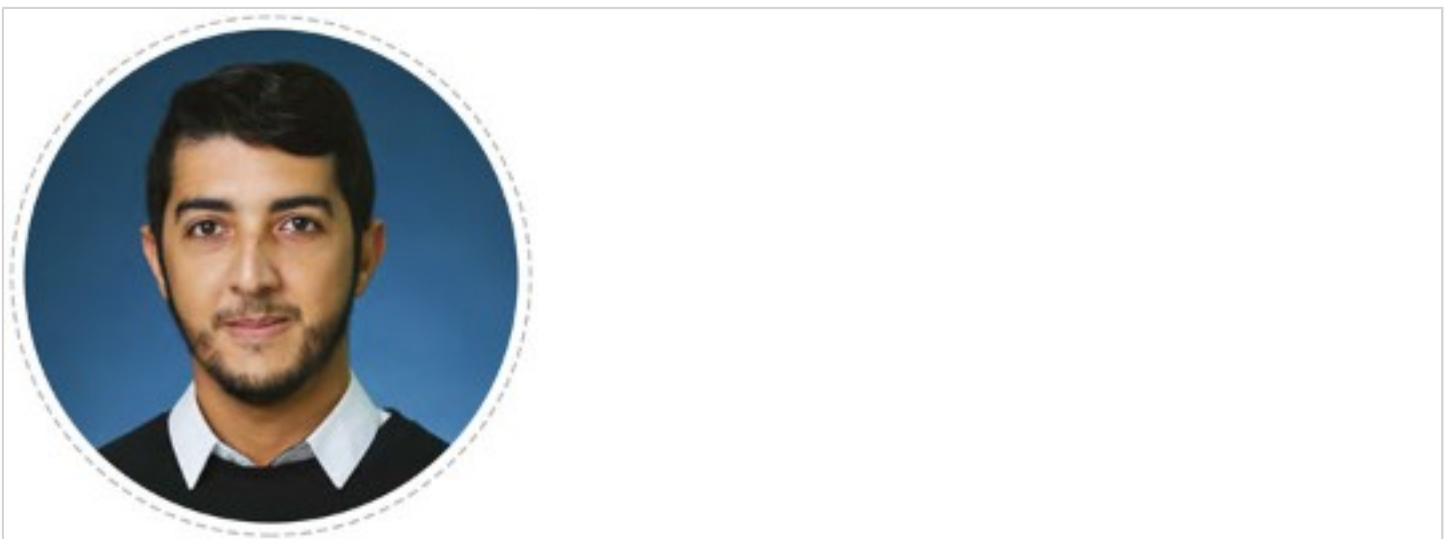


Hydrogen (H₂) is considered a valuable renewable energy carrier that offers promising prospects for energy transition and decarbonization.

Combining power-to-gas and underground hydrogen storage offers an excellent solution to the intermittency of wind and solar systems. To meet large-scale, longterm energy demand fluctuations, storage in geological porous media remains the most geographically available and appropriate solution, with the largest storage volumes.

However, the most crucial issue to be investigated is the mobility of H₂ in this type of geological environment. Thus, one of the objectives of this Chair is to address the lack of information on the mobility of H₂ during its storage (pure or mixed) in deep saline aquifers, and more specifically to study its dissolution and diffusion in the formation water.

The study will be based on experimental measurements, molecular simulations and thermodynamic modeling and will provide predictive models to be implemented in the Prosim software.





With an academic background oriented towards chemical and process engineering, **Salaheddine Chabab** obtained his PhD at Mines ParisTech on the thermodynamic aspect of underground gas storage. During his PhD, he developed a thermophysical calculation software, published 5 scientific papers and 2 book chapters and presented his work in several international communications. After obtaining a mobility grant, he was a visiting scholar at the HW University, and was also able to benefit from the expertise of several renowned labs in DTU and Ensta Paris.