



Contribution ID: 460

Type: Oral Presentation

## Pore-scale imaging of hydrogen in porous media

*Tuesday, 31 May 2022 14:50 (15 minutes)*

Green hydrogen geological storage and production is a strategy for mitigating greenhouse gas emissions and climate change. However, there is still a lack of serious mechanisms research of how hydrogen trapping and migrations in the porous media of the rock when considered the buoyancy effect can not be ignored. Through a series of microCT in situ two-phase drainage and imbibition experiments on a sandstone sample, we demonstrate that the pore-scale phase configurations, curvatures, and contact angles are different for hydrogen compared to other traditional gas (e.g. nitrogen). In addition, we found that hydrogen is less wetting gas, and its buoyancy forces can be higher than the capillary forces, where the capillary trapping mechanisms will be invalid.

### Acceptance of the Terms & Conditions

[Click here to agree](#)

### MDPI Energies Student Poster Award

No, do not submit my presentation for the student posters award.

### Country

United Kingdom

### References

### Time Block Preference

Time Block B (14:00-17:00 CET)

### Participation

In person

**Primary authors:** ZHANG, Yihuai; BIJELJIC, Branko (Imperial College); BLUNT, Martin (Imperial College London)

**Presenter:** ZHANG, Yihuai

**Session Classification:** MS06-A

**Track Classification:** (MS06-A) Physics of multiphase flow in diverse porous media