Contribution ID: **349** Type: **Oral Presentation**

Multiphase imbibition dynamics in xylem-like nanoporous media

Friday, 4 June 2021 14:45 (15 minutes)

We studied experimentally spontaneous water imbibition that is triggered by capillary condensation in multi-scale porous media resembling the architecture of water-conducting tissues in plants (xylem). These structures couple a nanoporous layer to arrays of microchannels of varying aspect ratio. We show that the presence of the micochannels can dramatically affect the dynamics of imbibition in the nanostructure, resulting in faster dynamics globally, and in intermittent dynamics locally. We further show that these effects can be tuned not only by the choice of the geometry of the microstructure, but also by changing the filling state of the cavities (air vs. vacuum), which suggests strategies for dynamic control of the speed of imbibition.

Time Block Preference

Time Block A (09:00-12:00 CET)

References

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