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Microfluidic Evaluation of the Effects of Wettability on Two-Fluid Flow in Porous Media

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Subsurface systems are well known to have variations in wettability. Evolving models to describe such systems must be evaluated and validated, and highly resolved experimental observations can play a central role in this endeavor. Quantities such as interfacial areas and curvatures are examples of quantities that are not often measured in high resolution as a function of wettability. Displacement experiments for two-fluid-flow through microfluidic cells with a controlled wettability are reported and saturations, interfacial areas, and curvatures are examined in high resolution and time scales. The relaxation to an equilibrium state is quantified and shown to be long compared to the typical duration of such experiments.

References

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