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Viscous Fingering Modelling via Phase Field Approach

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The viscous fingering instability occurs when a more viscous fluid is displaced by a less viscous one in a Hele-Shaw cell. Instabilities at the interface form a variety of complex patterns via tip splitting. In this work, we adopt the phase field method coupling with Navier Stokes equations via surface tension to investigate the influence of several force combinations, such as inertial, surface tension, and viscous forces, on the flow behaviors in three dimensions.

Category

Solid State (Experiment)

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