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Constitutive Relations for a New Theoretical Framework Describing 2-Phase-Flow in Porous Media

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Recently, a new theoretical framework to describe 2-phase flow in porous media has been put forward by our research group. Within this theory, a transport equation for the wetting phase saturation can be derived. In order to utilize this new theory a constitutive relation is needed that characterizes the “mixing”of the two fluids. Here mixing is understood not as mixing on a molecular level, but rather as the mixing of the two fluids seen on a meso- or macroscopic scale.
In this contribution, we use constitutive relations obtained from mesoscale network models and apply the new theory to transient states on the macroscale.

References

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