

# Thermodynamics of Two-Phase Flow in Porous Media

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Steady-state flow of immiscible fluids in porous media has many similarities with thermodynamic systems [1]. We discuss in this presentation the concept of *temperature* in this context. We also derive a relation between fractional flow and total flow rate based on thermodynamics. A relation of this type has been suspected from numerical simulations for a long time [2,3].

## References

- [1] A. Hansen and T. Ramstad, *Comp. Geosci.* **13**, 227 (2009).
- [2] H. A. Knudsen and A. Hansen, *Phys. Rev. E* **65**, 056310 (2002).
- [3] H. A. Knudsen and A. Hansen, *Europhys. Lett.* **65**, 200 (2004).