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Thermodynamically consistent modeling and simulation of two-phase flow and multicomponent flow in porous media with rock compressibility

Wednesday, 15 May 2024 10:55 (15 minutes)

In this talk we will introduce a thermodynamically consistent mathematical model for incompressible and immiscible two-phase flow in porous media with rock compressibility. An energy stable numerical method will be introduced, which can preserve multiple physical properties, including the energy dissipation law, full conservation law for both fluids and pore volumes, and bounds of porosity and saturations. Furthermore, an energy-stable and conservative numerical method for multicomponent Maxwell-Stefan model with rock compressibility will also be discussed.

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References

Conference Proceedings

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