



Contribution ID: 407

Type: Oral Presentation

## Jaynes Statistical Mechanics Applied to Multiphase Flow in Porous Media

*Wednesday, 1 June 2022 11:00 (15 minutes)*

Jaynes statistical mechanics [1] is a generalization of statistical mechanics for thermal systems based on the ideas of Boltzmann. Jaynes bases his approach on the Shannon interpretation of entropy as a measure of what is known about the system at hand. By optimizing the entropy while taking into account the knowledge one has as constraints, such as conserved quantities, it is possible to determine the probability distribution of states for the system.

We implement the Jaynes approach to statistical mechanics for immiscible two-phase flow in porous media under steady state conditions. We determine the probability distribution for the fluid configurations from which macroscopic averages and fluctuations may be found.

### Acceptance of the Terms & Conditions

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### MDPI Energies Student Poster Award

No, do not submit my presentation for the student posters award.

### Country

Norway

### References

[1] E. T. Jaynes, Information theory and statistical mechanics, Phys. Rev. 106, 620 (1957).

### Time Block Preference

Time Block B (14:00-17:00 CET)

### Participation

Unsure

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**Session Classification:** MS06-A

**Track Classification:** (MS06-A) Physics of multiphase flow in diverse porous media