



Contribution ID: 10

Type: **Poster Presentation**

Fractal characteristics of natural fractures in continental shale reservoir and their effects on permeability

Tuesday, 14 May 2024 16:05 (1h 30m)

The development characteristics of natural fractures are restricting the efficient development of low permeability reservoirs, but the existing methods not only cannot achieve a quantitative characterization of natural fractures, also cannot achieve quantitative analysis of their effect on permeability. Therefore, based on fractal theory, SEM technology, image processing and permeability measurement were used to solve this problem in continental shale reservoir. Results show that the development degree of natural fractures varies greatly in different bedding directions, fractal dimension can be used to quantitatively characterize the development degree of natural fractures and reservoir permeability in different bedding directions. Compared with vertical bedding, the fractal dimension of natural fractures in parallel bedding direction is much larger, natural fractures are more developed and have better fractal characteristics. However, the permeability of cores with parallel bedding is much smaller, which is 1/7 of that of cores with vertical bedding. Meanwhile, the permeability of cores with vertical bedding increases with the fractal dimension of natural fractures in vertical bedding direction increasing, while the permeability of cores with parallel bedding decreases with the fractal dimension of natural fractures in parallel bedding direction increasing. The results are of great significance for guiding the efficient development of oil and gas in continental shale reservoir.

Acceptance of the Terms & Conditions

[Click here to agree](#)

Student Awards

I would like to submit this presentation into the MDPI student poster award.

Country

China

Porous Media & Biology Focused Abstracts

This abstract is related to Porous Media & Biology

References

Conference Proceedings

Primary author: WANG, Xiaoming (Xi'an Shiyou University)

Co-author: Dr CHEN, Junbin (Xi'an Shiyou University)

Presenter: WANG, Xiaoming (Xi'an Shiyou University)

Session Classification: Poster

Track Classification: (MS03) Flow, transport and mechanics in fractured porous media