
Contribution ID: **10** Type: **Poster (+) Presentation**

# Pore-throat structure and fractal characteristics of shale oil reservoirs in the Lucaogou Formation of Jimusaer Depression, China

*Tuesday, 1 June 2021 20:00 (1 hour)*

The shale oil reservoir of the Lucaogou Formation in Jimusaer Depression, Xinjiang Province, China, features a structure exhibiting several issues, such as complex lithology, and an ambiguous pore-throat structure and configuration. To resolve these issues, numerous contemporary experimental methods, including focused ion beam scanning electron microscopy (FIB-SEM), nano-scale CT scanning (Nano-CT), atomic force microscopy (AFM), and low-temperature N2 adsorption (LTNA) have been utilized, to study the pore-throat structure and the full-scale pore size distribution. Among these techniques, FIB-SEM and Nano-CT have been widely employed to examine the distribution, configuration, and connectivity of the pores and throats that belong to the diameter range of 7 nm–1 μm and greater than 1 μm, respectively. Using these two scanning techniques, the full-scale pore-throat size distribution curves determining the relationship between the pores throat volume of unit sample weight have been plotted. The results implied by these curves in combination with the results of the AFM and LTNA curve hysteresis loop facilitate the comprehensive analysis of the pore-throat characteristics of various lithological samples, including properties such as fractal dimension, pore morphology, and pore structure. It can be deduced from the results obtained that the shale oil reservoir located in the Jimusaer Depression embodies source rocks that are rich in organic matter, however, the porosity level of these rocks remains low, which makes it befitting only as a storage space, while the siltstone and doloarenite exhibit larger pores and throats, maintaining good connectivity. The pores found in the siltstone rocks of this reservoir are predominantly plate or wedge-shaped, and doloarenite pores mostly take cylindrical-like or elliptic cylinder shapes with one or two open ends. The fractal dimension of the pores in siltstone and doloarenite is usually less than 2.75, while the specific surface area remains less than 8 m2/g. Siltstone and doloarenite rocks not only form the reservoir space, but also function as the chief percolation channels.

## Time Block Preference

Time Block C (18:00-21:00 CET)

## References

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