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Magnetic Resonance Measurements of Fluids in Shale

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Shale formations are of increasing importance world-wide as petroleum reservoirs. Conventional core analysis measurements are ill suited to the analysis of shale samples since the pore fluids present are very difficult to extract due to the very small pore sizes. Magnetic Resonance (MR) permits non-invasive analysis of intact samples and is therefore an intuitively appealing method for shale analysis. The MR relaxation correlation measurement T1-T2 is now commonly employed for analysis of shale fluids. The T1-T2 measurement struggles to observe and quantify the fast decaying signal from pore fluids in shales. A new method, which we term T1-T2*captures the very short-lived fluid shale MR signal exceptionally well and provides well resolved discrimination and quantification of pore fluids, as well as the solid-like kerogen. In this lecture we will review MR relaxation time measurements of fluids in porous media, consider the broad category of MR relaxation correlation measurements ultimately leading to T1-T2* analysis of shales.

Participation

In-Person

References

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