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An NMR Examination of Synthetic Consolidated Porous Media and Natural Unconsolidated Porous Media CALEB BAHR, Texas Lutheran University, RYAN PATTERSON, Texas A&M University, LORNE DAVIS, Texas Lutheran University — The object of our experiment included using Nuclear Magnetic Resonance (NMR) to find the signal amplitude and relaxation times of our consolidated (solid) samples and to determine topsoil moisture behavior in our unconsolidated (clay and sand) samples. For all of our samples, we found that the experimentally discovered NMR relaxation times represent the pore size of the sample. We also found that the amount of water within the pores is directly proportional to the amplitude of the NMR signal. We also found that NMR relaxation times are proportional to the grain size as well as the pore size of the unconsolidated particles and that the NMR amplitude is not only effected by the amount of water in the pores, but also detects the water within the interstitial spaces of clay granules.

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