

## Multiscale imaging of carbonate rocks and 3D stochastic reconstruction for digital rock physics

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Nano-porous geomaterials are important for subsurface emerging problems. We apply integrated multiscale imaging of carbonate rock from nanometer to centimeter scales to characterize 3D structures and mineral distributions for petrophysical and mechanical properties from the nanometer to centimeter scales. With primary pore textures honored, 3D digital pore networks can be reconstructed using several stochastic approaches. Lattice Boltzmann method is used to obtain tortuosity and permeability at several different scales.

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