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Recent Advances in CO_2 Sequestration Science

Geological storage of carbon dioxide has the potential for significant reductions in greenhouse gas emissions. While the fundamental scientific underpinnings of CO_2 sequestration build on a century-long exploration of the physics of multiphase flow in porous media, there are aspects that remain unexplored and warrant further investigation. In this talk, I will review recent experimental and theoretical research on multiphase flow of CO_2 and brine in heterogeneous rocks, pore- and continuum-scale studies of the stability of residually trapped CO_2, and monitoring CO_2 migration using pressure-transient data. The implications of the findings from advances in CO_2 sequestration science will be discussed for real-world projects.