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Master's in Petroleum Engineering

Thesis Title: Chemistry and Morphology of Rocks: Implication for CO2 Storage Capacity

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Research Interest: Qualitative and quantitative understanding of chemistry and morphology at shale-fluid interface. I am interested in studying this effect on fluid transport and storage at microscale and upscale to reservoir scale in the application of Carbon Storage and Utilization. Other interest includes high pressure CO2 sorption with acoustic measurements on shales, sandstone and clay minerals. The aim of this study is to determine excess sorption with pressure and the effect of different states of CO2 (E.g. gas, liquid, supercritical) on sorption and acoustic measurements while measuring strain on the experimental set up. Experimental expertise includes X-ray Photoelectron Spectroscopy (XPS), dielectric constant, zeta potential, contact angle measurements and surface energy.