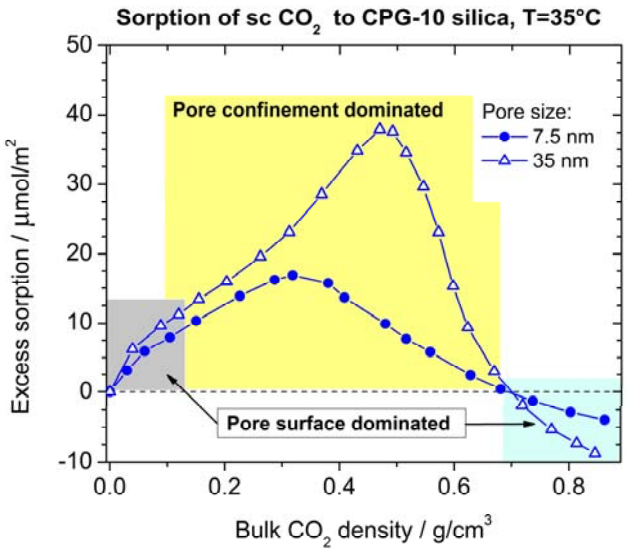
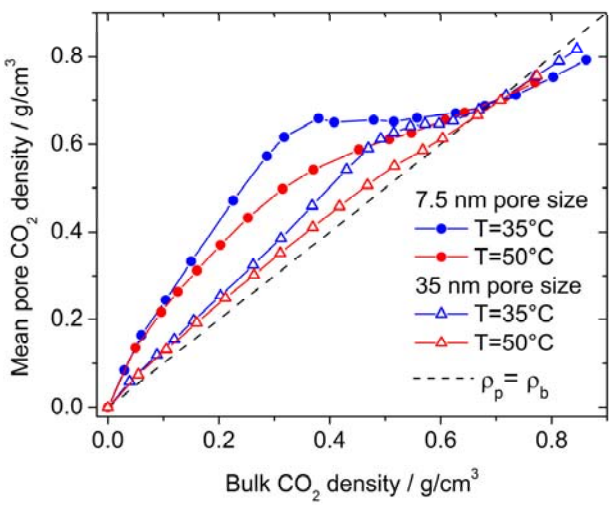
Pore size dependence of supercritical CO_2 adsorption in silica





- Sorption of supercritical CO_2 to nanoporous silica, a synthetic sandstone proxy with tunable pore size, was studied using a high-pressure balance
- Pore densification of CO_2 was found at low pressures, while interfacial fluid depletion occurs at high pressures
- Excess sorption maximum shifts to higher bulk density with increasing pore size
- For carbon storage, these data imply that the storage capacity is higher in small rock pores and at low temperatures
- High storage efficiency is achieved at moderate pressures of ca. 100 bar in sandstone rock formations with appreciable micro- to nanoporosity

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