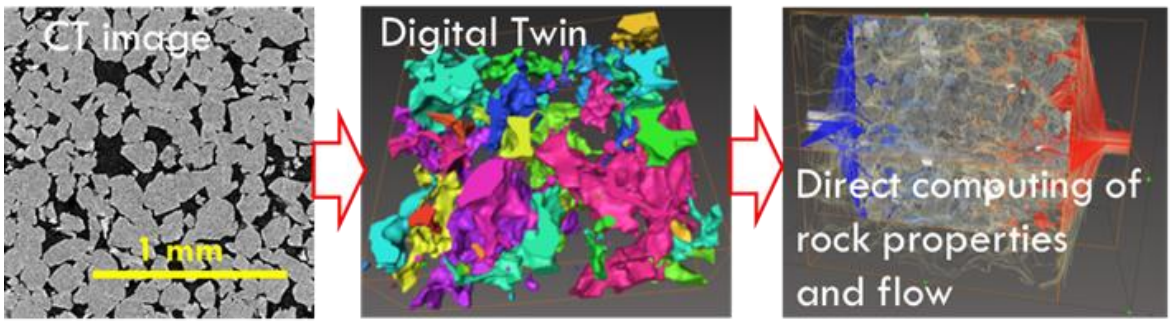
MSc Thesis on "Mineral dissolution by CO_2 injection: a pore-scale experimental/numerical study"

The project deals with the consequences of CO_2 injection for carbon sequestration with regard to the dissolution of minerals: as soon as CO_2 comes into contact with the formation water in the reservoir, it forms a weak acid that dissolves rock-forming minerals. This has consequences for fluid flow, e.g., it changes porosity, permeability and multiphase flow parameters, but also mechanical rock properties such as Young's modulus and sonic velocities.

As part of the project, HCl, CO_2 and CO_2-saturated brine will be injected into mini rock samples and the dissolution processes will be monitored using micro-computed tomography (µCT). You will analyze the tomographic images for changes in the pore structure and simulate changes in the flow and mechanical parameters mentioned above. The data will be used to develop predictive models for fluid flow and to quantify monitoring responses.



If you are interested in this research and a MSc thesis, please contact:

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