FUNDAMENTALS OF THE THEORY OF COUPLED PHENOMENA IN POROUS MEDIA

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Program:
In this course we present the fundamentals underlying a multiscale coupled flow and transport
and mechanical model using the pore-scale description based on the Navier-Stokes equation and upscaling to the Laboratory-scale where Darcy's law holds. The modeling process will be undertaken in several scenarios involving single and multiphase flow along with the convective-dispersive movement of solutes (reactive transport) and coupling with thermal effects In the second part of the course we analyze the geomechanical coupling and study the performance of several manners of establishing the coupling including fully-coupled and sequential coupling schemes.

Further information:

The course will be offered in Spring 2024.