

# MATHEMATICAL MODELING OF THE FLUID FLOW AND GEO-MECHANICS IN THE FRACTURED POROUS MEDIA USING GENERALIZED MULTISCALE FINITE ELEMENT METHOD

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In the reservoir simulation, mathematical modeling of the fluid flow and geo - mechanics in the fractured porous media plays an important role. Fracture networks have complex geometries, exist in the multiple scales and typically have very small thickness compared to typical reservoir sizes. Due to high permeability, fractures have a significant impact on the flow processes. In this work, we consider a discrete fracture model for coupled flow and mechanics problems. We construct coarse grid approximation using Generalized Multiscale Finite Element method (GMsFEM). In this method, we solve local spectral problems for construction to the multiscale basis functions for pressure and displacements. We present numerical results for two - dimensional model problem.