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Numerical Simulation of Shale gas reservoirs with embedded DFN model

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In this paper, we studied the numerical simulation of shale gas reservoir with both hydraulic fractures and natural fractures using the embedded discrete fracture system. First, the 3D DFN (discrete fracture network) model was built according to the real geological state. Then, transmissibilities between the embedded fracture grid and the matrix grid are calculated using two different methods. These two methods are adaptive to both Cartesian grids and corner point grids. Last, several real oilfield cases were studied in shale gas reservoirs with hydraulic fractures and natural fractures considering the Klinkenberg effect and gas adsorption effect. The result shows that using the method provided by this paper to solve the numerical simulation problems of shale gas reservoirs with fractures can simplify the calculation as well as ensure the accuracy.

References

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