

DEEP LEARNING APPROACH FOR THE DISCRETE FRACTURE NETWORKS METHOD

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ABSTRACT

Fluid flow in low-permeability fractured porous media can be effectively modeled using discrete fracture networks (DFNs), which play a crucial role in applications such as water resource management, pollutant transport, and oil recovery. Traditional approaches for simulating flow in DFNs often face challenges related to mesh generation and computational cost, as well as the incorporation of experimental data. In this work, we propose deep-learning-based methodologies to model hydraulic potential in DFNs, leveraging variational principles. The proposed methods are validated, aiming to provide an alternative framework for simulating flows in fractured media.