

NUMERICAL MODEL OF THE FRACTURE FLOW

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Abstract

A numerical model of the groundwater flow in disrupted rock massifs is introduced. A discrete fracture network approach is used for the creation of the computer representation of the fractured environment. The flow in fractures is described by linear Darcy's law. Mixed finite element method and hybridization of appropriate lowest order Raviart–Thomas finite elements is used for the numerical approximation of problem. This approach leads to the symmetric indefinite matrices with the block structure. This structure is in our particular problem more general, than in standard cases of usage of the MH-FEM. Special solvers based on Schur complement are used for solving such matrices. Results of modeling testing and real problems are presented.