

**Verdière, S.; Vignal, M. H.**

**Numerical and theoretical study of a dual mesh method using finite volume schemes for two-phase flow problems in porous media.** (English) Zbl 0912.76063

Numer. Math. 80, No. 4, 601-639 (1998).

Summary: We examine two-phase flow problems in porous media. We use a dual mesh method to discretize this problem with finite volume schemes, and in a simplified case (elliptic-hyperbolic system) we prove the convergence of approximate solutions to the exact solutions. We study physically complex problems (heterogeneous cases with non-constant total mobility) and validate the method numerically on practical examples by computing error estimates for different test cases.

**MSC:**

[76M25](#) Other numerical methods (fluid mechanics) (MSC2010)

[76T99](#) Multiphase and multicomponent flows

[76S05](#) Flows in porous media; filtration; seepage

[76M12](#) Finite volume methods applied to problems in fluid mechanics

Cited in **6** Documents

**Keywords:**

elliptic-hyperbolic system; heterogeneous cases with non-constant total mobility; convergence; error estimates

**Full Text:** [DOI](#)