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An iterative method for mixed finite element schemes

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Abstract

An iterative method with a saddle preconditioner is proposed for solving a system of nonlinear equations that arises in the approximation of a quasilinear second-order elliptic equation with a mixed scheme of finite elements of Raviart-Thomas type. The ways of choosing the iteration parameter are pointed out that ensure the convergence of the method. The results of numerical experiments are presented. © 2012 Pleiades Publishing, Ltd.

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Keywords

convergence analysis, iterative method, mixed finite element method, saddle matrix, second-order quasilinear elliptic equation