Efficiently implementable iterative methods for linear elliptic variational inequalities with constraints on the gradient of solution

Kashtanov N., Lapin A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2015, Allerton Press, Inc. We construct and investigate a new iterative solution method for a finite-dimensional constrained saddle point problem. The results are applied to prove the convergence of different iterativemethods formesh approximations of variational inequalities with constraints on the gradient of solution. In particular, we prove the convergence of two-stage iterative methods. The main advantage of the proposed methods is the simplicity of their implementation. The numerical testing demonstrates high convergence rate of the methods.

Keywords