Wohlmuth, Barbara I.

A multigrid method for saddle point problems arising from mortar finite element discretizations. (English) Zbl 0958.65135

ETNA, Electron. Trans. Numer. Anal. 11, 43-54 (2000).

The author analyzes a multigrid algorithm for saddle point problems arising from mortar finite element discretizatoins. It is not required that the constraints at the interface are satisfied in each smooth step but the squared system is used. Using mesh dependent norms for the Lagrange multipliers, suitable approximation and smoothing properties are established. A convergence rate independent of the meshsize is obtained for the W-cycle.

Reviewer: Plamen Yordanov Yalamov (Russe)

MSC:

65N55	Multigrid methods; domain decomposition for boundary value problems involving PDEs	Cited in **3** Documents
65N30	Finite element, Rayleigh-Ritz and Galerkin methods for boundary value problems involving PDEs	
65N12	Stability and convergence of numerical methods for boundary value problems involving PDEs	
35J25	Boundary value problems for second-order elliptic equations	

Keywords:

mortar finite elements; saddle point problems; multigrid methods; convergence; W-cycle

Full Text: EuDML EMIS