Electronic Transactions on Numerical Analysis.
Volume 26, pp. 34-54, 2007.

ISSN 1068-9613.

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AN ADDITIVE SCHWARZ METHOD FOR MORTAR MORLEY FINITE ELEMENT DISCRETIZATIONS OF 4TH ORDER ELLIPTIC PROBLEM IN 2D*

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Abstract. In this paper we introduce and analyze a parallel ASM preconditioner for the system of equations arising from the finite element discretizations of a fourth order elliptic problem with large jumps in coefficients on nonconforming meshes. Locally Morley nonconforming element is used. The condition number estimate proved here is almost optimal, i.e., it grows polylogarithmically as the sizes of the meshes decrease.

Key words. Plate problem, mortar finite element method, Morley nonconforming plate element, domain decomposition, preconditioner, additive Schwarz method.

AMS subject classifications. 65N55, 65N30, 65N22, 74S05.

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*Received July 13, 2005. Accepted for publication August 7, 2006. Recommended by O. Widlund. This work was partially supported by Polish Scientific Grant 2/P03A/005/24.

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