

A WEAKLY OVER-PENALIZED SYMMETRIC INTERIOR PENALTY METHOD*

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Abstract. We introduce a new symmetric interior penalty method for symmetric positive definite second order elliptic boundary value problems, where the jumps across element boundaries are weakly over-penalized. Error estimates are derived in the energy norm and the L_2 norm for both conforming and nonconforming meshes. Numerical results illustrating the performance of the method are also presented.

Key words. symmetric interior penalty method, weak over-penalization

AMS subject classifications. 65N30

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