

Meeting: 1003, Atlanta, Georgia, SIAMMINI 2, SIAM Minisymposium on Discontinuous Galerkin Methods: Theory and Applications

1003-65-870 **Susanne C. Brenner** and **Kening Wang*** (kwang@math.sc.edu), Department of Mathematics, University of South Carolina, Columbia, SC 29208. *Two-Level Additive Schwarz Preconditioners for C^0 Interior Penalty Methods.*

We study two-level additive Schwarz preconditioners that can be used in the iterative solution of the discrete problems resulting from C^0 interior penalty methods for fourth order elliptic boundary value problems. We show that the condition number of the preconditioned system is bounded by $C(1 + (H^3/\delta^3))$, where H is the typical diameter of a subdomain, δ measures the overlap among the subdomains and the positive constant C is independent of the mesh sizes and the number of subdomains. (Received September 30, 2004)