



Studies in Domain Decomposition, Vol. 255: Multilevel Methods and the Biharmonic Dirichlet Problem (Classic Reprint) (Paperback)

By Xuejun Zhang

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from Studies in Domain Decomposition, Vol. 255: Multilevel Methods and the Biharmonic Dirichlet Problem A class of multilevel methods for second order problems is considered in the additive Schwarz framework. It is established that, in the general case, the condition number of the iterative operator grows at most linearly with the number of levels. The bound is independent of the mesh sizes and the number of levels under a regularity assumption. This is an improvement of a result by Dryja and Widlund on a multilevel additive Schwarz algorithm, and the theory given by Bramble, Pasciak and Xu for the BPX algorithm. Additive Schwarz and iterative substructuring algorithms for the biharmonic equation are also considered. These are domain decomposition methods which have previously been developed extensively for second order elliptic problems by Bramble, Pasciak and Schatz, Dryja and Widlund and others. Optimal convergence properties are established for additive Schwarz algorithms for the biharmonic equation discretized by certain conforming finite elements. The number of iterations for the iterative substructuring methods grows only as the logarithm of the number...



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