Hashim A Saber* (hashim.saber@ung.edu), Mathematics Department, University of North Georgia, Oakwood, GA 30566. *Implementation of Nested Dissection Method Using Block Elimination*.

In this paper, we consider the problem of solving an n^2 x n^2 sparse positive definite system Ax=b, arising from the use of finite difference methods to solve an elliptic boundary value problem on an nxn mesh where $n=(2^k)$ -1. The large sparse linear system can be solved directly in an efficient way using nested dissection method, originally proposed by Alan George. This paper demonstrates two algorithms for finding orderings using a version of the nested dissection method which leads to block Gaussian elimination of the matrix A. Implementation of these algorithms is pursued and the issue of storage and execution time trade-offs is discussed. (Received September 20, 2016)