

## NUMERICAL EXPERIMENTS WITH PARALLEL ORDERINGS FOR ILU PRECONDITIONERS\*

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**Abstract.** Incomplete factorization preconditioners such as ILU, ILUT and MILU are well-known robust general-purpose techniques for solving linear systems on serial computers. However, they are difficult to parallelize efficiently. Various techniques have been used to parallelize these preconditioners, such as multicolor orderings and subdomain preconditioning. These techniques may degrade the performance and robustness of ILU preconditionings. The purpose of this paper is to perform numerical experiments to compare these techniques in order to assess what are the most effective ways to use ILU preconditioning for practical problems on serial and parallel computers.

**Key words.** Krylov subspace methods, preconditioning, incomplete factorizations, sparse matrix orderings, additive Schwarz methods, parallel computing.

**AMS subject classifications.** 65F10, 65F15.

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