

Table of Contents

Introduction	vii
Solution of Sparse Stiffness Matrices for Structural Systems Edward L. Wilson	1
Linear Programming Problems Arising from Partial Differential Equations Dianne P. O'Leary	25
Shifted Incomplete Cholesky Factorization Thomas A. Manteuffel	41
Algorithmic Aspects of the Multi-Level Solution of Finite Element Equations Randolph E. Bank and A. H. Sherman	62
LASCALA—A Language for Large Scale Linear Algebra A. W. Westerberg and T. J. Berna	90
Practical Comparisons of Codes for the Solution of Sparse Linear Systems Iain S. Duff	107
Software for Sparse Gaussian Elimination with Limited Core Storage S. C. Eisenstat, M. H. Schultz, and A. H. Sherman	135
A Quotient Graph Model for Symmetric Factorization Alan George and Joseph W. H. Liu	154
The Use of Sparse Matrices for Image Reconstruction from Projections Gabor T. Herman	176
Row-Generation Methods for Feasibility and Optimization Problems Involving Sparse Matrices and Their Applications Yair Censor and Gabor T. Herman	197
Lanczos and the Computation in Specified Intervals of the Spectrum of Large, Sparse Real Symmetric Matrices Jane Cullum and Ralph A. Willoughby	220
Systolic Arrays (for VLSI) H. T. Kung and Charles E. Leiserson	256
A Basis Factorization Method for Block Triangular Linear Programs André F. Perold and George B. Dantzig	283
On Combining the Schemes of Reid and Saunders for Sparse LP Bases David M. Gay	313