

- 1 **Part I Applications**
- 3 A Parallelized Algorithm for Image Reconstruction from
Noisy Projections
*Gabor T. Herman, Dewey Odhner, Klaus D. Toennies,
and Stavros A. Zenios*
- 22 Pattern Recognition Via Linear Programming: Theory and
Application to Medical Diagnosis
O.L. Mangasarian, R. Setiono, and W.H. Wolberg
- 31 On the Performance of Algorithms for Large-Scale Bound
Constrained Problems
Jorge J. Moré
- 47 **Part II Linear and Quadratic Problems**
- 49 A Quadratically-Convergent Algorithm for the Linear Programming
Problem with Lower and Upper Bounds
Thomas F. Coleman and Yuying Li
- 58 Solving Multicommodity Network Flow Problems by an Interior
Point Method
In Chan Choi and Donald Goldfarb
- 70 The Primal-Dual Interior Point Method On the Cray Supercomputer
Irvin J. Lustig, Roy E. Marsten, and David F. Shanno
- 81 The Effects of Degeneracy and Null and Unbounded Variables on
Variants of Karmarkar's Linear Programming Algorithm
M.J. Todd
- 92 Computational Aspects of an Interior Point Algorithm for Quadratic
Programming Problems with Box Constraints
Chi-Geun Han, Panos M. Pardalos, Yinyu Ye
- 113 **Part III Sparse and Nonlinear Problems**
- 115 Direct Calculation of Newton Steps Without Accumulating Jacobians
Andreas Griewank
- 138 The Performance of Several Algorithms for Large Scale
Unconstrained Optimization
Jorge Nocedal
- 152 Sparse Jacobian Estimation and Factorization on a Multiprocessor
Paul E. Plassmann
- 180 Compact Clique Tree Data Structures in Sparse Matrix Factorizations
Alex Pothén and Chunguang Sun

- 205 **Part IV Parallel Approaches**
- 207 Adaptive, Asynchronous Stochastic Global Optimization Algorithms
for Sequential and Parallel Computation
Sharon L. Smith, Elizabeth Eskow, Robert B. Schnabel
- 228 The k-Step Arnoldi Process
D. C. Sorensen
- 238 A Comparative Study of Parallel Dual Coordinate Ascent
Implementations for Nonlinear Network Optimization
Stavros A. Zenios, Ruijin Qi, Emmanuel D. Chajakis