# Mathematics of Computation

Coden MCMPAF
Volume 30, Number 135

Pages 383 —680 July 1976

Published by the American Mathematical Society
PROVIDENCE, RHODE ISLAND

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### PROCEEDINGS OF SYMPOSIA IN PURE MATHEMATICS

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The second part, just published in 1976, contains the book-length text of a paper by Felix E. Browder composed in its entirety during 1968. It is a detailed treatment of most of the major branches of nonlinear functional analysis as they had developed up to that time. The manuscript of this work has had wide circulation in mimeographed form and has been referred to in a considerable number of research papers. It is now at last available.

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MAY 1974

# Yery important mathematics is being spoken here

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EDITED BY
FELIX E. BROWDER

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List Price \$37.60, Member Price \$28.20. Publication date: August 31, 1976

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## SPARSE MATRIX COMPUTATIONS

Proceedings of the Symposium on Sparse Matrix Computations at Argonne National Laboratory on September 9-11, 1975 edited by JAMES R. BUNCH and

DONALD J. ROSE From the Preface:

The papers contain contributions in several areas of matrix computations, and include some of the most active research in numerical linear algebra.

We have organized the papers into general categories which deal, respectively, with sparse elimination, sparse eigenvalue calculations, optimization, mathematical software for sparse matrix computations, partial differential equations, and applications involving sparse matrix technology. We would like to emphasize, however, the considerable overlap between these categories; some papers could and should be considered in two or more of the general categories mentioned.

In a more general context this volume presents research in applied numerical analysis but with considerable influence from computer science. In particular most of the papers deal explicitly (or implicitly) with the design, analysis, implementation and application of computer algorithms. Such an emphasis includes not only the establishment of space and time complexity bounds, but also an attempt to understand the algorithms and the computing environment in enough detail to make design decisions for effective mathematical software to be used as tools in science and engineering.

SECTION HEADINGS: Design and Analysis of Elimination Algorithms. Eigenvalue Problems. Optimization, Least Squares and Linear Programming. Mathematical Software. Matrix Methods for Partial Difference Equations. Applications.

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Proceedings of the Royal Irish Academy Conference on Numerical Analysis, 1974 edited by JOHN J. H. MILLER

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