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New primal-dual interior point methods for linear programming have been developed convergence properties have been determined.

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"Integrated Approaches to Parallelism in Optimization and the Solution of Inverse Problems"

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Section 1

All Publications in Reviewed Journals

- "An SQP Augmented Lagrangian BFGS Algorithm for Constrained Optimization"
R.H. Byrd, R.A. Tapia and Y. Zhang
SIAM Journal on Optimization
May 1992, Vol. 2, No. 2, pp. 210-241.
- "On the Superlinear and Quadratic Convergence of Primal-Dual Interior-Point Linear Programming Algorithms"
R.A. Tapia, Yin Zhang, and J.E. Dennis
SIAM Journal on Optimization
May 1992, Vol. 2, No. 2, pp. 304-324.
- "Superlinear and Quadratic Convergence of Primal-Dual Interior-Point Methods for Linear Programming Revisited"
R.A. Tapia and Y. Zhang
Journal of Optimization Theory and Applications
May 1992, Vol. 73, No. 2, pp. 229-242.

Copies of each paper are enclosed.

Section 2

Books or Book Chapters Published

- None.

Section 3

Graduate Students Supported

- Natalia Alexandrov
- Marcela Roseblun

Section 4
Postdoctoral Associates Supported

- Virginia Torczon

Section 5
External Honors Including
Society Awards, Fellows of Major Societies, and Invited Plenary Addresses

John E. Dennis, Jr.

- invited to become an Advisory Editor, Mathematics of Operations Research.
- an Adjunct Professor of Combinatorics and Optimization, Waterloo University.
- Chair, SIAM Optimization Activity Group
- "Optimization with Differential Equations as Constraints," "Trust Region Methods for Nonlinear Programming," and "A Parallel Algorithm for Parameter Identification in Ordinary Differential Equations," Distinguished Lecturer Series; Clemson University; Clemson, South Carolina; April 1992.
- "Current Research in Numerical Optimization," Tercer Congreso Franco - Latinoamericano de Matemáticas Aplicadas y Primera Escuela, Chile - CEE de Optimización; Santiago, Chile; August 28, 1992 - September 6, 1992.
- "On Alternative Problem Formulations for Multidisciplinary Design Optimization," Fourth AIAA/USAF/NASA/OAI Symposium on Multidisciplinary Analysis and Optimization; Cleveland, Ohio; September 21-23, 1992.
- "Optimization with Simulation Constraints," invited address, National Institute of Standards and Technology; Gaithersburg, Maryland; September 28, 1992.

Richard A. Tapia

- Elected to the National Academy of Engineering, 1992.
- Listed in Who's Who in America, 1992.
- Member, SIAM Board of Trustees.
- Member, Joint Policy Board on Mathematics Rewards and Evaluation Committee, 1992.
- Member, Mathematical Sciences Educational Board, National Academy of Sciences, 1992.
- "Diversity and the Changing Role of Mathematics," keynote address in honor of Hispanic week, Sandia National Laboratories; Albuquerque, New Mexico; May 5, 1992.
- "Convergence of the Iteration Sequence in Primal-Dual Interior-Point Methods for Linear Programming," Fourth SIAM Conference on Optimization; Chicago, Illinois; May 11-13, 1992.
- "Our Hispanic Heritage and Science," address to the fourth and fifth grade class, West University Elementary; Houston, Texas; May 1992.
- "The Dynamics of Exclusion," invited speaker, Changing the Culture Workshop, Center of Research in Astrophysics; University of California; Berkeley, California; June 1992.
- High School for the Health Professions, Commencement speaker; Mercedes, Texas; June 1992.
- "Why Should I go to College?," address to graduating seniors, Milby High School; Houston, Texas; June 1992.
- Computational Sciences Awareness Workshop for K-12 Teachers, California Institute of Technology; June 1992.
- Computational Sciences Awareness Workshop for K-12 Teachers, SIAM National Meeting; Los Angeles, California; July 1992.
- Computational Sciences Awareness Workshop for K-12 Teachers, Sandia National Laboratories; Albuquerque, New Mexico; July 1992.

- **"The Necessity of High Expectations for Minority Youth," In-service presentation, LaGrange Middle School faculty; LaGrange, Texas; August 1992.**
- **"Contemporary Educational and Diversity Issues," keynote speaker, Sandia National Laboratories Outreach Program for high school students and teachers; Livermore, California; September 1992.**
- **"What Universities Expect from Today's Student," In-service presentation, Milby High School faculty; Houston, Texas; September 1992.**