

Recent Papers by IBM Authors

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• Papers are listed alphabetically by name of journal.

A

The Sum of Powers of Integers, P. Bryant and P. E. O'Neil (DPD Scientific Center, Cambridge, MA), *The American Statistician* **28** No. 1, 37-38 (1974).

Selectively Etched Diffraction Gratings in GaAs, L. Comerford and P. Zory (RES Yorktown Hts., NY), *Applied Physics Letters*, **25**, No. 4, 208-210 (August 15, 1974).

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Metodo dei Momenti per la Soluzione di Equazioni e Sistemi di Equazioni (Method of Moments for Solving Equations and Systems of Equations), D. Trigiante (IBM Italy, Bari Scientific Center), *Calcolo* **10**, No. 2, 117-132 (1973).

Valutazione di Alcuni Algoritmi Derivanti dal Metodo della Origine Variabile per la Soluzione di Equazioni non Lineari (Evolution of Some Algorithms Arising from the Variable Origin Method for the Solution of Nonlinear Equations), D. Trigiante (IBM Italy, Bari Scientific Center), *Calcolo* **10**, No. 3-4, 363-370 (1973).

Dimerisation and Charge Ordering in Linear Chain Organic Conductors, A. Madhukar (RES Yorktown Hts., NY), *Chemical Physics Letters* **27**, No. 4, 606-610 (August 15, 1974).

D

An Extrinsic Characterization of Addressable Data Graphs, A. L. Rosenberg (RES Yorktown Hts., NY), *Discrete Mathematics* **9**, No. 1, 61-70 (1974).

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Measures for the Quality of a Multi-processor System, H. Hoja (IBM Germany, Boeblingen Laboratory) and G. Zeisel (IBM Austria, Vienna Laboratory), *Elektronische Rechenanlagen* **16**, No. 3, 104-108 (June 1974).

Microprogramming and Microcontrol—a Hardware Definition, G. Chroust (IBM Austria, Vienna Laboratory), *Euromicro Newsletter* **1**, No. 1, 21-27 (1974).

H

Soft Phonon Modes, P. F. Meier (RES Zurich, Switzerland), *Helvetica Physica Acta* **47**, No. 1, 14-17 (June 15, 1974).

I

Adaptive-Likelihood Receiver for Carrier-Modulated Data-Transmission Systems, G. Ungerboeck (RES Zurich, Switzerland), *IEEE Transactions on Communications Technology* **COM-22**, No. 5, 624-636 (May 1974).

Performance Evaluation of Reliability Improvement Techniques for Single-Loop Communication Systems, P. Zafiropulo (RES Zurich, Switzerland), *IEEE Transactions on Communications* **COM-22**, No. 6, 742-751 (June 1974).

Hypothesis Testing and Information Theory, R. E. Blahut (FSD Owego, NY), *IEEE Transactions on Information Theory*, **IT-20**, No. 4, 405-417 (July 1974).

Klinische und Biochemische Aspekte der Hypertriglyceridämie bei Leberkrankheiten (Clinical and Biochemical Aspects of Hypertriglyceridemia in Liver Diseases), D. Seidel (Univ. of Heidelberg, Germany) and R. Erbe (IBM Germany, Heidelberg Scientific Center), *Innere Medizin* **2**, 73-79 (1974).

Analysis of Chloride Contaminants on PCB's Reveals Causes, Suggests Preventive Action, P. L. Altavilla and P. R. Taylor (FSD Owego, NY), *Insulation/Circuits* **20**, No. 10, 46-48 (September 1974).

J

Form Birefringence of a Sodium Borosilicate Glass, T. Takamori (RES Yorktown Hts., NY), *Journal of the American Ceramic Society* **57**, No. 6, 277 (June 1974).

Static Bubble Domain Properties of Amorphous Gd-Co Films, R. Hasegawa (RES Yorktown Hts., NY), *Journal of Applied Physics* **45**, No. 7, 3109-3112 (July 1974).

Grain-Boundary Solute Electromigration in Polycrystalline Films, P. S. Ho (RES Yorktown Hts., NY) and J. K. Howard (SPD East Fishkill, NY), *Journal of Applied Physics* **45**, No. 8, 3229-3233 (August 1974).

Texturing: A New Effect in the Dynamic Scattering Regime of Liquid-Crystal Cells, P. M. Alt and M. J. Freiser (RES Yorktown Hts., NY), *Journal of Applied Physics* **45**, No. 8, 3237-3241 (August 1974).

Effect of Cubic, Tilted Uniaxial and Orthorhombic Anisotropies on Homogeneous Nucleation in a Garnet Bubble Film, A. Hubert, A. P. Malozemoff, and J. C. DeLuca (RES Yorktown Hts., NY), *Journal of Applied Physics* **45**, No. 8, 3562-3571 (August 1974).

A Direct Solution of the Radiative Transfer Equation: Application to Atmospheric Models with Arbitrary Vertical Nonhomogeneities, J. V. Dave and J. Canosa (DPD Scientific Center, Palo Alto, CA), *Journal of Atmospheric Sciences* **31**, No. 4, 1089-1101 (May 1974).

Study of the Structure of Molecular Complexes. VIII. Small Clusters of Water Molecules Surrounding Li^+ , Na^+ , K^+ , F^- and Cl^- Ions, H. Kistenmacher, H. Popkie, and E. Clementi (RES San Jose, CA), *Journal of Chemical Physics* **61**, No. 3, 799-815 (August 1, 1974).

Perturbation Theory for a Mixture of Hard Spheres and Square-well Molecules, D. Henderson (RES Yorktown Hts., NY), *Journal of Chemical Physics* **61**, No. 3, 926-931 (August 1, 1974).

Monte Carlo Simulation of Physical Clusters of Water Molecules, F. F. Abraham (RES San Jose, CA), *Journal of Chemical Physics* **61**, No. 3 1221-1225 (August 1, 1974).

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Parallel Shooting Solution of the Neutron Transport Equation in Spherical Geometry, J. Canosa and H. R. Penafiel (DPD Scientific Center, Palo Alto, CA), *Journal of Computational Physics* **13**, No. 3, 380-397 (November 1973).

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Magnetic Plating on Nonconductors, J. R. DePew (GPD Boulder, CO), *Journal of the Electrochemical Society* **120**, No. 9, 1187-1192 (September 1973).

Vickers Microhardness Characterization of Sintered Borosilicate Films, M. N. Turetzky, J. B. Jenkins (SPD East Fishkill, NY), and H. R. Fraser, Jr. (GPD Boulder, CO), *Journal of the Electrochemical Society* **121**, No. 8, 1098-1102 (August 1974).

Sodium-Induced Barrier-Height Lowering and Dielectric Breakdown in SiO_2 Films on Silicon, C. M. Osburn and D. W. Ormond (RES Yorktown Hts., NY), *Journal of the Electrochemical Society* **121**, No. 9, 1195-1198 (September 1974).

The Effect of Silicon Wafer Imperfections on Minority Carrier Generation and Dielectric Breakdown in MOS Structures, C. M. Osburn and D. W. Ormond (RES Yorktown Hts., NY), *Journal of the Electrochemical Society* **121**, No. 9, 1229-1233 (September 1974).

Electrodepositing a Hard Copper Film from a Pyrophosphate Bath, Y. T. Chen, J. R. DePew, and H. D. McCabe (GPD Boulder, CO), *Journal of Vacuum Science and Technology* **11**, No. 4, 777-780 (July/August 1974).

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A Dislocation Cascade Mechanism in Superplasticity, P. Chaudhari (RES Yorktown Hts., NY), *Metallurgical Transactions* **5**, No. 7, 1692-1693 (July 1974).

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Optimal Dynamic Pricing Policies for an M/M/s Queue, D. W. Low (DPD Scientific Center, Los Angeles, CA), *Operations Research* **22**, No. 3, 545-561 (May-June 1974).

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Space-Charge-Limited Current Flow in Gallium Nitride Thin Films, J. C. Vesely, M. Shatzkes, and P. J. Burkhardt (SPD East Fishkill, NY), *Physical Review B* **10**, No. 2, 582-590 (July 15, 1974).

Critical Slowing Down in the Two-Dimensional One-Spin-Flip Ising Model, T. Schneider and E. Stoll (RES Zurich, Switzerland), *Physical Review B* **10**, No. 3, 959-970 (August 1, 1974).

Driving Force in Electromigration, R. Landauer and J. W. F. Woo (RES Yorktown Hts., NY), *Physical Review B* **10**, No. 4, 1266-1271 (August 15, 1974).

New Transport Phenomenon in a Semiconductor "Superlattice", L. Esaki and L. L. Chang (RES Yorktown Hts., NY), *Physical Review Letters* **33**, No. 8, 495-498 (August 19, 1974).

Strong Phonon Conversion at the Helium-Solid Interface, H. Kinder (RES Yorktown Hts., NY) and W. Dietsche (Institut Julich, Germany), *Physical Review Letters* **33**, No. 10, 578-581 (September 2, 1974).

Electron Energy-Loss Spectroscopy of GaAs and Ge Surfaces, R. Ludeke and L. Esaki (RES Yorktown Hts., NY), *Physical Review Letters* **33**, No. 11, 653-656 (September 9, 1974).

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A Hardware Definition of Microprogramming, G. Chroust (IBM Austria, Vienna Laboratory), *SIGMICRO Newsletter* **5**, No. 1, 11-14 (1974).

Computational Aspect of Hensel-type Univariate Polynomial Greatest Common Divisor Algorithms, A. Miola (Istituto per la Applicazioni del Calcolo, Rome, Italy) and D. Y. Y. Yun (RES Yorktown Hts., NY), *SIGSAM Bulletin* **8**, No. 3, 46-53 (August 1974).

Raman Scattering in the Depletion Region of GaAs, R. Tsu (RES Yorktown Hts., NY), H. Kawamura (Osaka Univ., Japan), and L. Esaki (RES Yorktown Hts., NY), *Solid State Communications* **15**, No. 2, 321-324 (July 1974).

Measurement of Debye-Waller Factors by Raman Scattering from Inter-term Excitons and Exciton-multiphonon States in FeF_2 , R. M. Macfarlane (RES San Jose, CA), *Solid State Communications* **15**, No. 3, 535-538 (August 1, 1974).

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Vibration Characteristics of the Printed-Circuit Motor, P. Y. Hu (GPD Boulder, CO), *Transactions of the ASME B* **96**, No. 2, 541-546 (May 1974).

• *Book abstracts*

Scanning Electron Microscopy, O. C. Wells (RES Yorktown Hts., NY) with portions contributed by A. Boyde (University College, London, England), E. Lifshin (General Electric Co., Schenectady, NY), and A. Rezanowich (Pulp and Paper Research Institute of Canada, Quebec), McGraw-Hill Book Co., Inc., New York, 1974.

The initial chapters of this book discuss the basic attributes of the scanning electron microscope, e.g., signal-to-noise ratio, electron-specimen interactions, electron-optical design, and instrument design. The remaining seven chapters describe results. Chapters 6, 7 and 8 describe contrast and resolution with solid specimens (topography, electron channeling, and voltage and magnetic contrast). Chapter 9 describes non-biological applications, with a section by Rezanowich on pulp and paper. Chapter 10, by Lifshin, describes x-ray microanalysis. Chapters 11

(stereo measurements) and 12 (histological and cytological methods) were contributed by Boyde. The book includes an extensive bibliography that was prepared using a special-purpose bibliographic computer program.

Nonlinear Parameter Estimation, Y. Bard (DPD Scientific Center, Cambridge, MA), Academic Press, Inc., New York, 1974.

This book deals with the problem of fitting nonlinear mathematical models to experimental data. The author describes how to formulate a problem, taking into account precise knowledge about the parameter values and the statistical nature of the measurement errors; the outlook for computing the interpreting the parameter estimates; and methods for designing the most informative experiments.