

Recent Papers by IBM Authors

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Methodes Iteratives, de Convergence Lineaire, pour Resoudre des Problemes de Programmation et d'Approximation Lineaires (Iterative Methods, Having Linear Speed of Convergence, for Solving Problems of Linear Programming and Linear Approximation), W. Oettli (RES Zürich), *Academie des Sciences Comptes Rendus*, No. 272, 680-682 (March 8, 1971).

Proposed Technological Updating Course for Programmers, J. E. Sammett (FSD Gaithersburg), *ACM SIGSCE Bulletin* 3, No. 1, 25-33 (March, 1971).

Markovian Queues with Three Heterogeneous Servers, V. P. Singh (CD E. Fishkill), *AIIE Transactions* 3, No. 1, 45-49 (March, 1971).

Inplane Displacement of a Stressed Membrane with a Hole Measured by Holographic Interferometry, A. D. Wilson (SDD Endicott), *Applied Optics* 10, No. 4, 908-912 (April, 1971).

Hillocks as Structural Markers for Electro-migration Rate Measurements in Thin Films, J. K. Howard (CD E. Fishkill) and R. F. Ross (SDD Boulder), *Applied Physics Letters* 18, No. 8, 344-346 (April 15, 1971).

Picosecond Dye Laser Pulses Using Nitrogen Laser Pumping, R. J. vonGutfield (RES Yorktown Hts.), *Applied Physics Letters* 18, No. 11, 481-482 (June 1, 1971).

On the Problem of Ambiguities in Maximum Likelihood Identification, T. Bohlin (SDD Lidingo), *Automatica* 7, No. 2, 199-210 (March, 1971).

Anorthite Ceramic Dielectrics, R. A. Gdula (CD E. Fishkill), *Ceramic Bulletin* 50, No. 6, 555-557 (June, 1971).

Punched Paper Cards, J. A. Carlson (GSD Rochester), *The Electronic Engineer* 30, No. 6, 49-50 (June, 1971).

Computer Connections and the Fivefold Increase, J. T. Kolias (SDD Endicott), *Electronic Packaging and Production* 11, No. 3, 85-91 (March, 1971).

Holographic and Analytic Study of a Semiclamped Rectangular Plate Supported by Struts, A. D. Wilson, C. H. Lee, H. R. Lominac and D. H. Strobe (SDD Endicott), *Experimental Mechanics* 11, No. 5, 229-234 (May, 1971).

Vacuum Processes for Business Machines, R. L. vanderHeyden (GSD Rochester), *Metals Engineering Quarterly* 11, No. 2, 27-31 (May, 1971).

Glass Formation in the System $\text{CaO-Fe}_2\text{O}_3 - \text{B}_2\text{O}_3$, R. A. Gdula and R. F. Tompkins (CD E. Fishkill), *Glass Technology* 2, No. 6, 164-165 (December, 1970).

The Formal Description of Programming Languages, E. J. Neuhold (SDD Vienna), *IBM Systems Journal* 10, No. 2, 86-112 (1971).

Simulation of a Model of Paging System Performance, G. S. Shedler and S. C. Yang (RES San Jose), *IBM Systems Journal* 10, No. 2, 113-128 (1971).

An Analysis of the Machine Interference Model, A. E. Ferdinand (SDD Kingston), *IBM Systems Journal* 10, No. 2, 129-142 (1971).

A Computer Graphics System for Block Diagram Problems, L. A. Belady, M. W. Blasgen, C. J. Evangelisti and R. D. Tennison (RES Yorktown Hts.), *IBM Systems Journal* 10, No. 2, 143-161 (1971).

Asynchronous Unit Delays, S. Singh (CD E. Fishkill) and S. G. S. Shiva (Univ. of Ottawa), *IEEE Transactions on Computers* C-20, No. 5, 493-499 (May, 1971).

A Simultaneous Adaptive Estimation and Decision Algorithm for Carrier Modulated Data Transmission Systems, H. Kobayashi (RES Yorktown Hts.), *IEEE Transactions on Communication Technology* COM-19, No. 3, 268-280 (June, 1971).

On Delayed-input Asynchronous Sequential Circuits, S. Singh (CD E. Fishkill), *IEEE Transactions on Computers* C-20, No. 5, 500-503 (May, 1971).

A New Method of Monitoring Junction Temperature, P. L. Garbarino (CD E. Fishkill), *IEEE Transactions on Instruments and Measurement* IM-20, No. 2, 99-104 (May, 1971).

A Time Shared System for Multiple Independent Laboratories, J. Birnbaum (RES Yorktown Hts.), *IEEE Transactions on Nuclear Science* NS-18, No. 1, 187-191 (February, 1971).

Velocity Calculation Errors from Displacement Transducers, G. D. Sokal (GSD Rochester), *Instruments and Control Systems* 44, No. 5, 113-115 (May, 1971).

A Special Case of Radial and Axial Motion of a Circular Elastic Rod, C. W. Nelson (SDD Endicott), *International Journal of Engineering Science* 9, No. 1, 79-100 (January, 1971).

An Accessing Model, W. H. Burge and A. G. Konheim (RES Yorktown Hts.), *Journal of the ACM* 18, No. 3, 400-404 (July, 1971).

Orientation of Substituents in the Photochemical 1,3-Addition of Benzene to Cyclobutene, R. Srinivasan (RES Yorktown Hts.), *Journal of the American Chemical Society* 93, No. 14, 3555-3556 (July 14, 1971).

Electrical Resistivity and Hall Coefficient of CuAl_2 , J. J. Gniewek and C. A. Wasik (CD E. Fishkill), *Journal of Applied Physics* 42, No. 5, 2151 (April, 1971).

Reply to "Discussion on Approximate Theory of Emitter-push Effect," S. M. Hu and T. H. Yeh (CD E. Fishkill), *Journal of Applied Physics* 42, No. 5, 2153-2155 (April, 1971).

Minimal Energy Dissipation and Maximal Error for the Computational Process, R. Landauer and J. W. F. Woo (RES Yorktown Hts.), *Journal of Applied Physics* 42, No. 6, 2301-2308 (May, 1971).

Inferences from the Transfer Function of Maser Media, E. O. Schulz-DuBois (RES Zürich), *Journal of Applied Physics* 42, No. 6, 2316-2321 (May, 1971).

Photocurrents Due to Pulse Illumination in the Presence of Trapping II, H. Seki and I. P. Batra (RES San Jose), *Journal of Applied Physics* 42, No. 6, 2407-2420 (May, 1971).

Reactions of Silicon with Surfaces of Close-packed Metals. 1: Silicon on Aluminum, F. Jona (RES Yorktown Hts.), *Journal of Applied Physics* 42, No. 6, 2557-2561 (May, 1971).

A Simple Theory of Acoustic Surface Wave Amplification Using Very Thin Semiconductor Layers, P. Gueret (RES Zürich), *Journal of Applied Physics* 42, No. 8, 3040-3042 (July, 1971).

Giant Magneto-optical Kerr Effect in EuO , J. C. Suits and K. Lee (RES Yorktown Hts.), *Journal of Applied Physics* 42, No. 8, 3258-3260 (July, 1971).

The Structure of Metal Carbonyls, J. G. Ameen and H. F. Durfee (CD Endicott), *Journal of Chemical Education* 48, No. 6, 372-375 (June, 1971).

Precision Stark Spectroscopy of CH_4 by Nonlinear Laser Absorption, A. C. Luntz (RES Yorktown Hts.) and R. G. Brewer (RES San Jose), *Journal of Chemical Physics* 54, No. 8, 3641-3642 (April 15, 1971).

The Low-temperature Specific-Heats of Several Palladium-rich Palladium-Antimony Alloys, P. J. Tsang (CD E. Fishkill) and J. B. Darby, Jr. (Argonne National Lab.), *Journal of Chemistry and Physics of Solids* 31, No. 12, 2735-2739 (December, 1970).

A Context-free Language and Enumeration Problems on Infinite Trees and Diagrams, W. Kuich (SDD Vienna), *Journal of Combinatorial Theory* 10, No. 2, 135-142 (April, 1971).

The Influence of the Amorphous Phase on Ion Distributions and Annealing Behavior of Group II and Group V Ions Implanted into Silicon, B. L. Crowder (RES Yorktown Hts.), *Journal of the Electrochemical Society* 118, No. 6, 943-951 (June, 1971).

Sodium Ion Drift through Phosphosilicate Glass- SiO_2 Films, J. M. Eldridge (RES Yorktown Hts.) and D. R. Kerr (CD E. Fishkill), *Journal of the Electrochemical Society* 118, No. 6, 986-990 (June, 1971).

Mobile Ion Transfer to SiO_2 Films from Ethanol, S. I. Raider and R. Flitsch (CD E. Fishkill), *Journal of the Electrochemical Society* 118, No. 6, 1011-1012 (June, 1971).

Ion-etch Characteristics of Epitaxial Copper on Sapphire, G. Katz (RES Yorktown Hts.), *Journal of Materials Science* 5, 736-740 (1970).

Correlation between Resistance Ratios and Electromigration Failure in Aluminum Films, P. M. Austin (CD Burlington) and A. F. Mayadas (RES Yorktown Hts.), *Journal of Vacuum Science and Technology* 8, No. 4, 606-608 (July/August, 1971).

New Way to Test Coatings in Hostile Gas Environments, J. L. Lem and C. H. Schenk (CD Endicott), *Materials Engineering* 73, No. 5, 52-53 (May, 1971).

Some Results on Sparse Matrices, R. K. Brayton, F. G. Gustavson and R. A. Willoughby (RES Yorktown Hts.), *Mathematics of Computation* 24, No. 112, 937-954 (October, 1970).

High-velocity Spray Cleaner for Metallographic Specimens, J. F. Turner (CD Endicott), *Metallography* 4, No. 2, 187-188 (April, 1971).

Calculation of the Radial Distribution Function of Hard-sphere Mixtures in the Percus-Yevick Approximation, P. J. Leonard (Univ. of Manchester), D. Henderson and J. A. Barker (RES San Jose), *Molecular Physics* 21, No. 1, 107-111 (1971).

A Fluid Orthodoxy, J. A. Barker and D. Henderson (RES San Jose), *Nature* 230, No. 5293, 379-380 (April 9, 1971).

Theory of Nonlinear Light Scattering from Phonons in Crystals, S. S. Jha and J. W. F. Woo (RES Yorktown Hts.), *Nuovo Cimento* 2B, No. 2, 167-183 (April 11, 1971).

Hypothesis Analysis of Conjunctive Concept-learning Situations, L. A. Miller (RES Yorktown Hts.), *Psychological Review* 78, No. 3, 262-271 (1971).

Phonon Spectral Function and Ground State Energy of Quantum Crystals in Perturbation Theory with a Variationally Optimum Correlated Basis Set, T. R. Koehler (RES San Jose) and N. R. Werthamer (Bell Laboratories, Murray Hill, N. J.), *Physical Review A* 3, No. 6, 2074-2083 (June, 1971).

On the Theory of the Liquid-Solid Phase Transition, T. Schneider (RES Zürich), *Physical Review A* 3, No. 6, 2145-2148 (June, 1971).

Spontaneous Emission in Semiclassical Radiation Theory, R. K. Nesbet (RES San Jose), *Physical Review A* 4, No. 1, 259-264 (July, 1971).

M-center Fluorescence in NaCl and KI Crystals, R. W. Dreyfus (RES Yorktown Hts.), *Physical Review B* 4, No. 2, 562-566 (July 15, 1971).

Photoemission Studies of Energy Levels in the Palladium-Hydrogen System, D. E. Eastman, J. K. Cashion (RES Yorktown Hts.) and A. C. Switendick (Sandia Laboratories, Albuquerque, N. M.), *Physical Review Letters* 27, No. 1, 35-38 (July, 1971).

Observation of Quantum Effects in the Spectrum of Piezoelectrically Amplified Acoustic Flux in GaAs, D. G. Carlson and A. Segmüller (RES Yorktown Hts.), *Physical Review Letters* 27, No. 4, 195-197 (July 26, 1971).

Kinetics of Epoxy Cure: (1) The System Bisphenol-A Diglycidyl Ether/m-Phenylene Diamine, M. A. Acitelli, R. B. Prime and E. Sacher (SDD Endicott), *Polymer* 12, No. 5, 335-343 (May, 1971).

MOSFET Memory Circuits, L. M. Terman (RES Yorktown Hts.), *Proceedings of the IEEE* 59, No. 7, 1044-1058 (July, 1971).

Traffic Control: From Hand Signals to Computers, D. C. Gazis (RES Yorktown Hts.), *Proceedings of the IEEE* 59, No. 7, 1090-1099 (July, 1971).

Display Devices Based on Low-voltage Excitation of ZnO in a Gas Plasma, B. Kazan and W. B. Pennebaker (RES Yorktown Hts.), *Proceedings of the IEEE* 59, No. 7, 1130-1131 (July, 1971).

Analysis of Ion Implanted Diamond, L. A. Davidson, W. S. Johnson (CD E. Fishkill), S. Chou and J. Gibbons (Stanford Univ.), *Radiation Effects* 7, Nos. 1 & 2, 35-44 (January, 1971).

Comments on "The Change of Nearest Neighbor Short-range Order Parameter with Cold Work," A. Gangulee (RES Yorktown Hts.), *Scripta Metallurgica* 5, 559-564 (1971).

Metallurgical Properties and Electrical Characteristics of Palladium Silicide-Silicon Contacts, C. J. Kircher (RES Yorktown Hts.), *Solid State Communications* 14, 507-513 (1971).

Passivation of Semiconductor Surfaces, L. V. Gregor (CD E. Fishkill), *Solid State Technology* 14, No. 4, 37-43 (April, 1971).

Combining Technology/Art, C. W. Kelley, Jr. (SDD Endicott), *The Professional Photographer* 98, No. 1909, 46-47 and 105 (June, 1971).

Play it Again, Sam, C. W. Klemmer (CD E. Fishkill), *Training in Business & Industry* 8, No. 5, 53 (May, 1971).

Stress Concentration Around a Hyperboloidal Notch Under Tension in a Transversely Isotropic Material, W. T. Chen (SDD Endicott), *Transactions of the ASME, Journal of Applied Mechanics* 38, No. 1, 185-189 (March, 1971).

The Friction Characteristics of Paper, R. G. Bayer and J. L. Sirico (SDD Endicott), *Wear* 17, No. 4, 269-277 (April, 1971).

A Fast Fractional Gaussian Noise Generator, B. B. Mandelbrot (RES Yorktown Hts.), *Water Resources Research* 7, No. 3, 543-553 (June, 1971).