

Recent Papers by IBM Authors

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"Thinking Small" in Production, T. W. Townsend and J. L. Norton (SMD Poughkeepsie), *American Machinist* 115, No. 18, 59-61 (September 6, 1971).

New, Nonplanar Trans-Stilbenes Exhibiting Nematic Phases at Room Temperature, W. R. Young, A. Aviram (RES Yorktown Hts.) and R. J. Cox (RES San Jose), *Angewandte Chemie* 10, No. 6, 410-411 (June, 1971).

Bivariate Failure Rate, A. P. Basu (RES Yorktown Hts.), *Annals of Mathematical Statistics* 66, No. 333, 103-104 (March, 1971).

Social Implications of the Computer, H. H. Goldstine (RES Yorktown), *Annals of the New York Academy of Sciences* 184, 201-205 (June 7, 1971).

Preparation and Properties of SiO Anti-reflection Coatings for GaAs Injection Lasers with External Resonators, H. D. Edmonds (CD E. Fishkill), C. DePalma (CD Yorktown Hts.) and E. P. Harris (RES Yorktown Hts.), *Applied Optics* 10, No. 7, 1591-1596 (July, 1971).

Filtering of Defects in Integrated Circuits with Orientation Independence, P. M. Will and K. S. Pennington (RES Yorktown Hts.), *Applied Optics* 10, No. 9, 2097-2100 (September, 1971).

The Light Diffraction Efficiency of Acoustic Surface Waves, P. Zory and C. Powell (RES Yorktown Hts.), *Applied Optics* 10, No. 9, 2104-2106 (September, 1971).

Effect of Alloy Additions on Electromigration Failures in Thin Aluminum Films, A. Gangulee and F. d'Heurle (RES Yorktown Hts.), *Applied Physics Letters* 19, No. 3, 76-77 (August 1, 1971).

Vacancy Association of Defects in Annealed GaAs, L. L. Chang, L. Esaki and R. Tsu (RES Yorktown Hts.), *Applied Physics Letters* 19, No. 5, 143-145 (September 1, 1971).

A Tuned MESFET-Amplifier at 16 GHz, W. Jutzi (RES Zürich), *Archiv für Elektronik und Übertragungstechnik (AEU)* 25, No. 3, 159-160 (March, 1971).

Cooling the Large Computer, V. W. Antonetti and A. L. Pascuzzo (SDD Poughkeepsie), *ASHRAE Journal* 13, No. 8, 25-30 (August, 1971).

Upgrade Automatic Assembly with Design Features for Trouble-Free Operation, W. W. Gardner and R. A. Vossman (SMD Endicott), *Assembly Engineering* 14, No. 4, 54-57, (April, 1971).

Fluid Mixtures of 6:12 Molecules in the Percus-Yevick Theory Using the Energy Equation, E. W. Grundke (University of Waterloo), D. Henderson (RES San Jose) and R. D. Murphy (Memorial University), *Canadian Journal of Physics* 49, No. 12, 1593-1596 (June 15, 1971).

Thermal Isomerization of Alkylcyclopropenes, R. Srinivasan (RES Yorktown Hts.), *Chemical Communications* No. 17, 1041-1042 (September 8, 1971).

Intermolecular Energy Transfer Studied with Picosecond Light Pulses, D. Rehm and K. B. Eisenthal (RES Yorktown Hts.), *Chemical Physics Letters* 9, No. 5, 387-389 (June, 1971).

Méthodes itératives, de convergence linéaire, pour résoudre des problèmes de programmation et d'approximation linéaires (Iterative methods, having linear speed of convergence, for solving problems of linear programming and linear approximation), W. Oettli (RES Zürich), *Comptes Rendus, Académie des Sciences* 272, No. 10, 680-682 (March 8, 1971).

Roster of Programming Languages, 1971, J. E. Sammet (FSD Cambridge) *Computers and Automation* 20, No. 6B, 6-13, (June 30, 1971).

Computers in Management: An Outlook into the Future, R. J. Braun (SDD Endicott), *Data Management* 19, No. 8, 28-31 (August 1971).

Antenna-Voltage Nomograph Gives the Field Strength, J. A. Malack (SDD Endicott), *Electronic Design* 19, No. 16, 62 (August 5, 1971).

Recent Developments in Thermal Methods for the Characterization of Polymers, E. M. Barrall, II (RES San Jose) and J. F. Johnson (University of Connecticut, Storrs, Conn.), *CRC Critical Reviews in Analytical Chemistry* 2, No. 1, 105-147 (June, 1971).

Latent Image Can Provide Chips with Built-in Control Memories, I. T. Ho and G. A. Maley (CD E. Fishkill), *Electronics* 44, No. 17, 82-85 (August 16, 1971).

Q-Band GaAs FET Amplifier and Oscillator, W. Bächtold (RES Zürich), *Electronics Letters* 7, No. 10, 275-276 (May 20, 1971).

Difference Methods for the Solution of the Time-dependent Semiconductor Flow Equations, M. Reiser (RES Zürich), *Electronics Letters* 7, No. 12, 353-355 (June 17, 1971).

Herringbone Display Driving System, J. C. Greeson and B. W. Kippenhan (SDD Kingston), *Electro-optical Systems Design* 3, No. 8, 24–25 (July, 1971).

Was ist Informatik (What is Computer Science), H. Zemanek (SDD Vienna), *Elektronische Rechenanlagen* 13, No. 4, 157–161 (August, 1971).

Computer Graphics Speeds Multi-color Mapmaking, D. R. Thompson and P. J. Min (SDD Kingston), *Engineering Graphics* 11, No. 8, 14–15 (August, 1971).

On the Geometry Dependence of Nonlinear Electrical Conduction in Intrinsic Semiconductors, W. A. Schlup (RES Zürich), *Helvetica Physica Acta* 44, No. 4, 505–513 (July, 1971).

Program Restructuring for Virtual Memory, D. J. Hatfield and J. Gerald (DPD Scientific Center, Cambridge), *IBM Systems Journal* 10, No. 3, 168–192 (1971).

Performance Criteria and Measurement for a Time-sharing System, Y. Bard (DPD Scientific Center, Cambridge), *IBM Systems Journal* 10, No. 3, 193–216 (1971).

Real-time Traffic Flow Optimization, B. C. Black and D. C. Gazis (RES Yorktown Hts.), *IBM Systems Journal* 10, No. 3, 217–231 (1971).

Programming for Economic Lot-sizes with Precedences Between Items, S. Gorenstein (RES Yorktown Hts.), *IBM Systems Journal* 10, No. 3, 232–243 (1971).

A Guided Bibliography to Sorting, H. Lorin (RES Yorktown Hts.), *IBM Systems Journal* 10, No. 3, 244–254 (1971).

Fluctuations in a Parametrically Excited Subharmonic Oscillator, J. W. F. Woo and R. Landauer (RES Yorktown Hts.), *IEEE Journal of Quantum Electronics* QE-7, No. 9, 435–40 (September, 1971).

Preference Evaluation of a Large Set of Vocoded Speech Signals, W. P. Pacht (IBM Laboratory, Vienna, Austria), G. E. Urbanek (RCA Ltd. Vienna Branch Office) and E. H. Rothauser (RES Zürich), *IEEE Transactions on Audio and Electroacoustics* AU-19, No. 3, 216–224 (September, 1971). The work was performed when W. P. Pacht and G. E. Urbanek were at the Institute for Telecommunications, University of Technology, Vienna, Austria.

Limits of Instantaneous Priority Multiplexing Applied to Black-and-White Pictures, P. Stucki (RES Zürich), *IEEE Transactions on Communication Technology* COM-19, No. 2, 169–77 (April, 1971).

Performance of Simple Multiplexer-Concentrators for Data Communication, H. Rudin, Jr. (RES Zürich), *IEEE Transactions on Communication Technology* COM-19, No. 2, 178–187 (April, 1971).

New Optimization Criteria for Message-switching Networks, B. Meister, H. R. Müller and H. R. Rudin, Jr. (RES Zürich), *IEEE Transactions on Communication Technology* COM-19, No. 3, 256–260 (June, 1971).

Video Bandwidth Compression by Multiplexing: Experimental Results, F. Closs (RES Zürich), *IEEE Transactions on Communication Technology* COM-19, No. 3, 371–372 (June, 1971).

High-speed Decimal Addition, M. S. Schmookler and A. Weinberger (SDD Poughkeepsie), *IEEE Transactions on Computers* C-20, No. 8, 862–866 (August, 1971).

Noise Behavior of Schottky-Barrier Gate Field-Effect Transistors at Microwave Frequencies, W. Baechtold (RES Zürich), *IEEE Transactions on Electron Devices* ED-18, No. 2, 97–104 (February, 1971).

Optimal Multiplexing of Sampled Signals on Noisy Channels, B. Dejon and Eberhard Hänsler (RES Zürich), *IEEE Transactions on Information Theory* IT-17, No. 3, 257–262 (May, 1971). B. Dejon is now at the University of Erlangen-Nürnberg, Erlangen, Germany.

Correlative Level Coding and the Maximum-Likelihood Decoding, H. Kobayashi (RES Yorktown Hts.), *IEEE Transactions on Information Theory* IT-17, No. 5, 586–594 (September, 1971).

Microwave Bandwidth Active Transversal Filter Concept with MESFET's, W. Jutzi (RES Zürich), *IEEE Transactions on Microwave Theory and Techniques* MTT-19, No. 9, 760–767 (September, 1971).

Effect of Repeated Impacts on Magnetic Properties of Soft Magnetic Alloys, C. L. Huffine (GSD Rochester) *IEEE Transactions on Parts, Hybrids, and Packaging* PHP-7, No. 2, 94–98 (June 1971).

On the Calculation of System Downtime Distribution, T. J. Li (SDD Kingston), *IEEE Transactions on Reliability* R-20, No. 1, 38–39 (February, 1971).

The Role of Dielectric Films in Device Fabrication, L. V. Gregor and J. W. Raniseski (CD E. Fishkill), *Insulation/Circuits* 17, No. 9, 27–30 (August, 1971).

Contact Stress Analysis for an Elastic Cylinder Indenting a Slab in a Presence of Friction, P. A. Engel (SDD Endicott) and H. D. Conway (Cornell University), *International Journal of Mechanical Science* 13, No. 5, 391–402 (May, 1971).

Numerical Analysis of a Nonlinear Diffusion Problem, M. S. Mock (CD E. Fishkill), C. DePalma (CD E. Fishkill), *Journal of the ACM* 18, No. 3, 373–380 (July, 1971).

A Comparison of Preference Measurement Methods, E. H. Rothauser (RES Zürich), G. E. Urbanek (RCA Ltd. Vienna Branch Office, Vienna, Austria) and W. P. Pacht (SDD Vienna), *Journal of the Acoustical Society of America* 49, No. 4 (Part 2), 1297–1308 (April, 1971). The work was performed when G. E. Urbanek and W. P. Pacht were at the Institute for Telecommunications, University of Technology, Vienna, Austria.

Surface Wave Dispersion in a Mass-loaded Half-space, L. E. Alsop, A. S. Goodman and E. Ash (RES Yorktown Hts.), *Journal of the Acoustical Society of America* 50, No. 1, Part 2, 176–180 (July, 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).

Production and Annealing of Color Centers in rf Sputtered SiO₂ Films, T. W. Hickmott (CD E. Fishkill), *Journal of Applied Physics* 42, No. 6, 2543-2556 (May, 1971).

Morphology of Void-Hillock Formation at Transverse Scratches in Aluminum Thin Film, J. K. Howard and R. F. Ross (CD E. Fishkill), *Journal of Applied Physics* 42, No. 7, 2996-2998 (June, 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).

Coincidence Twist Boundaries between Crystalline Smoke Particles, P. Chaudhari and J. W. Matthews, (RES Yorktown Hts.), *Journal of Applied Physics* 42, No. 8, 3063-3066 (July, 1971).

Effects of Wall Inertia on Cylindrical Magnetic Domains, G. R. Henry (RES Yorktown Hts.), *Journal of Applied Physics* 42, No. 8, 3150-3154 (July, 1971).

Arsenic Clustering in Silicon, R. O. Schwenker, E. S. Pan and R. F. Lever (CD E. Fishkill), *Journal of Applied Physics* 42, No. 8, 3195-3200 (July 1971).

Analysis of Gaussian Light by Clipped Photocount Autocorrelation: The Effect of Finite Sampling Times and Incomplete Spatial Coherence, D. E. Koppel (RES Yorktown Hts.), *Journal of Applied Physics* 42, No. 8, 3216-3225 (July, 1971).

The Electronic Structure and Luminescence Processes in In_{1-x}Ga_xP Alloy, A. Onton, M. R. Lorenz and W. Reuter (RES Yorktown Hts.), *Journal of Applied Physics* 42, No. 9, 3420-3432 (August, 1971).

A Study of Thermo-Magnetic Remanence Writing on EuO, H. Wieder, S. S. Lavenberg, G. J. Fan and R. A. Burn (RES San Jose), *Journal of Applied Physics* 42, No. 9, 3458-3462 (August, 1971).

Refractive Index of AlAs, R. E. Fern and A. Onton (RES Yorktown Hts.), *Journal of Applied Physics* 42, No. 9, 3499-3500 (August, 1971).

Relaxation Processes and Molecular Motion in Liquids and Gases, H. Morawitz and K. B. Eisenthal (RES San Jose), *Journal of Chemical Physics* 55, No. 2, 887-893 (July 15, 1971).

Direct Near-Hartree-Fock Calculations on the Is Hole States of NO⁺, P. S. Bagus (RES San Jose) and Henry F. Schaefer, III (University of California), *Journal of Chemical Physics* 55, No. 3, 1474-1476 (August 1, 1971).

A Theory of Molecules in Molecules, I. W. vonNiessen (RES San Jose), *Journal of Chemical Physics* 55, No. 4, 1948-1957 (August 15, 1971).

Krypton Monofluoride and Its Positive Ion, B. Liu (RES San Jose) and H. F. Schaefer III (University of California, Berkeley), *Journal of Chemical Physics* 55, No. 5, 2369-2374 (September 1, 1971).

Data Graphs and Addressing Schemes, A. L. Rosenberg (RES Yorktown Hts.), *Journal of Computer and System Sciences* 5, No. 3, 193-238 (June, 1971).

Translating Recursion Equations into Flow Charts, H. R. Strong, Jr. (RES Yorktown Hts.), *Journal of Computer and System Sciences* 5, No. 3, 254-285 (June, 1971).

Flux Growth of Large Crystals by Accelerated Crucible-rotation Technique, H. J. Scheel and E. O. Schulz-DuBois (RES Zürich), *Journal of Crystal Growth* 8, No. 3, 304-306 (March, 1971).

Thermodynamic Analysis of the III-V Alloy Semiconductor Phase Diagrams—I. InSb-GaAs, and InP-GaP, L. M. Foster and J. F. Woods (RES Yorktown Hts.), *Journal of the Electrochemical Society* 118, No. 7, 1175-1183 (July, 1971).

Formation of 20-25 Å Thermal Oxide Films on Silicon at 950°-1140° C, J. A. Aboaf (CD E. Fishkill), *Journal of the Electrochemical Society* 118, No. 8, 1370-1371 (August, 1971).

Vapor Growth of a Semiconductor Superlattice, A. E. Blakeslee (RES Yorktown Hts.), *Journal of the Electrochemical Society* 118, No. 9, 1459-1463 (September, 1971).

High Temperature Annealing of Oxidized Silicon Surfaces, F. Montillo (CD E. Fishkill) and P. Balk (RES Yorktown Hts.), *Journal of the Electrochemical Society* 118, No. 9, 1463-1468 (September, 1971).

Thermodynamic Analysis of the Open Tube Chemical Vapor Transport of ZnO Using the Zn-H₂O Reaction, A. Reisman and J. E. Landstein (RES Yorktown Hts.), *Journal of the Electrochemical Society* 118, No. 9, 1479-1485 (September, 1971).

Evaluation Techniques for Quantum Mechanical Integrals Involving Orthogonal Polynomials, T. C. Chen (RES San Jose), *Journal of Mathematical Physics* 12, No. 6, 1035-1038 (June, 1971).

Computed Time-average Holographic Interferometric Fringes of a Circular Plate Vibrating Simultaneously in Two Rationally or Irrationally Related Modes, A. D. Wilson (SDD Endicott), *Journal of the Optical Society of America* 61, No. 7, 924-929 (July, 1971).

Phase-only Complex-valued Spatial Filter, J. P. Kirk and A. L. Jones (SDD Endicott), *Journal of the Optical Society of America* 61, No. 8, 1023-1028 (August, 1971).

An Extension of Gilbert's Algorithm for Computing Optimal Controls, E. R. Barnes (RES Yorktown Hts.), *Journal of Optimization Theory and Applications* 7, No. 6, 420-443 (June, 1971).

Transverse Collective Excitations in Charged Systems, Cross Section for Magnetic Neutron Scattering and Diamagnetic Susceptibility, T. Schneider (RES Zürich), *Journal of Physics C, Solid State Physics* 4, No. 10, 1168-1177 (July 30, 1971).

A Similarity Transformation of the Schrödinger Equation and its Application in Pseudopotential Theory, W. B. Waeber (Atomic Energy Research Establishment, Harwell, England) and E. P. Stoll (RES Zürich), *Journal of Physics C, Solid State Physics* **4**, No. 7, L97-L100 (May 28, 1971).

Theory of Local Oscillation of Substitutional Defects Near a Free Surface, U. T. Höchli (RES Zürich), *Journal of the Physics and Chemistry of Solids* **32**, No. 9, 2231-2243 (September, 1971); part of this work was performed while the author was at Battelle Institute, Carouge, Switzerland.

Computer Experiment on the Effect of Point Defects in Lead at 300K, E. Stoll (RES Zürich), *Journal de Physique* **32**, No. 7, C-2, 253-256 (July, 1971); part of the work was performed at the Swiss Federal Institute for Research, Würenlingen.

Photoemission from Ni, Co and Fe from 10 to 41 eV, D. E. Eastman (RES Yorktown Hts.), *Journal de Physique* **32**, No. 2-3, C-1, 293-295 (February-March, 1971).

Etude des Transitions de Phase Magnétiques de $GdAlO_3$ au Moyen d'Ondes Ultrasonores de 9 GHz (Study of magnetic phase transitions of $GdAlO_3$ by means of ultrasonic waves at 9 GHz), M. Boiteux, P. Doussineau, B. Ferry (Laboratoire d'Ultrasons, Equipe de Recherche Associée au C.N.R.S., Faculté des Sciences de Paris Tour 13, Paris 5e, France) and U. T. Höchli (RES Zürich), *Journal de Physique* **32**, No. 2-3, C1, 496-498 (February-March, 1971).

Phase Diagram and Soft Modes of the Uniaxial Antiferromagnet, K. W. Blazey, M. Ondris, H. Rohrer and H. Thomas (RES Zürich), *Journal de Physique* **32**, No. 2-3, C-1, 1020-1021 (February-March, 1971).

Magnetic Anisotropy in $RbNiF_3$ with Co and Ca Substitutions, T. R. McGuire and M. W. Shafer (RES Yorktown Hts.), *Journal de Physique* **32**, No. 2-3, C-1, 627-628 (February-March, 1971).

Factors Intrinsic to the Communication Process, R. S. Shrimpton (OPD Lexington), *Journal of Technical Writing & Communication* **1**, No. 3, 247-254 (July, 1971).

Electron Beam Fabrication, A. N. Broers (RES Yorktown Hts.), *Journal of Vacuum Science and Technology* **8**, No. 5, S50-S51 (September/October, 1971).

Applications of Ion Implantation for New Device Concepts, B. L. Crowder (RES Yorktown Hts.), *Journal of Vacuum Science and Technology* **8**, No. 5, S71-75 (September/October 1971).

Mathematical Modeling for Transportation Planning, H. M. Horowitz (FSD Gaithersburg), *Logistics Review* **7**, No. 31, 29-35, (Spring, 1971).

Machining Graphite Dies, G. Dzuba (SMD Endicott), *Machine and Tool Blue Book* **66**, No. 205, 97, (May, 1971).

New System Measures Parts Quickly, Accurately, R. R. College and W. C. Welker (SMD Endicott), *Materials Engineering* **74**, No. 3, 58-59 (September, 1971).

The Range of a Vector Measure with Values in a Montel Space, J. S. Lew (RES Yorktown Hts.), *Mathematical Systems Theory* **5**, No. 2, 145-147 (July, 1971).

ECG Wheels—Dressable vs Metal Bond, F. G. Stoehr (GSD Rochester) *Modern Machine Shop* **44**, No. 8, 50-55 (August 1971).

Mesomorphic Substances Containing Some Group IV Elements, W. R. Young, I. Haller and D. C. Green (RES Yorktown Hts.), *Molecular Crystals and Liquid Crystals* **13**, No. 4, 305-321 (July, 1971).

Preparation and Thermodynamics of Some Homologous Nitrones, A New Group of Liquid Crystals, W. R. Young, I. Haller and A. Aviram (RES Yorktown Hts.), *Molecular Crystals and Liquid Crystals* **13**, No. 4, 357-375 (July, 1971).

Monte Carlo Values for the Radial Distribution Function of a System of Fluid Hard Spheres, J. A. Barker and D. Henderson (RES San Jose), *Molecular Physics* **21**, No. 1, 187-191 (1971).

Bragg Diffraction Beam Splitter for Thin Film Optical Guided Waves, K. S. Pennington and L. Kuhn (RES Yorktown Hts.), *Optics Communications* **3**, No. 5, 357-359 (July, 1971).

Missing Link in Communication, W. G. Hollister and T. G. Hurysz (SMD Raleigh), *Personnel Journal* **50**, No. 6, 466 (June, 1971).

Use of an Organic Photoconductor in Xerography, C. A. Queener (OPD Lexington), *Photographic Science and Engineering* **15**, No. 5, 423-430 (September-October, 1971).

Electron Correlations at Metallic Densities, T. Schneider (RES Zürich), *Physica* **52**, No. 3, 481-488 (April 15, 1971).

Thermal Spiking of High Energy Bombarded Silicon, K. Brack and G. H. Schwuttke (CD E. Fishkill), *Physica Status Solidi (a)* **5**, No. 3, 711-717 (June 16, 1971).

Theory of the Liquid-Solid Phase Transition, T. Schneider (RES Zürich), *Physical Review A3*, No. 6, 2145-2148 (June, 1971).

The Lamb Shift in Singly Ionized Helium, M. A. Narasimham (CD E. Fishkill) and R. L. Stombotne (Office of Secretary of Commerce, Washington, D.C.), *Physical Review A4*, No. 1, 14-32 (July, 1971).

Perturbation Theory and the Equilibrium Structure of Simple Liquids, J. A. Barker and D. Henderson (RES San Jose), *Physical Review A4*, No. 2, 806-807 (August, 1971).

Variational Approach to the Calculation of the Dielectric Function of an Electron Gas: Exchange and Collisions, S. S. Jha, K. K. Gupta (Tata Institute of Fundamental Research, India), and J. W. F. Woo (RES Yorktown Hts.), *Physical Review B4*, No. 3, 1005-1008 (August 1, 1971).

Self-diffusion and Correlation Effects in Ordered AuZn Alloys, D. Gupta and D. S. Lieberman (RES Yorktown Hts.), *Physical Review B4*, No. 4, 1070-1078 (August 15, 1971).

Theory of Phase Transitions in the β -Tungsten Structure Induced by the Band Jahn-Teller Effect, E. Pytte (RES Yorktown Hts.), *Physical Review B4*, No. 4, 1094–1110 (August 15, 1971).

Piezoelectricity under Hydrostatic Pressure, J. W. F. Woo (RES Yorktown Hts.), *Physical Review B4*, No. 4, 1218–1220 (August 15, 1971).

Computation of Raman-scattering Cross Sections in Rare-GaAs Crystals II. Helium, N. R. Werthamer (Bell Laboratories), R. L. Gray and T. R. Koehler (RES San Jose), *Physical Review B4*, No. 4, 1324–1327 (August 15, 1971).

Photoluminescence Processes in $\text{In}_{1-x}\text{Ga}_x\text{P}$ at 2K, A. Onton and R. J. Chicotka (RES Yorktown Hts.), *Physical Review B4*, No. 6, 1847–1853 (September 15, 1971).

Lattice Dynamics of fcc Argon with Three Body Forces, J. A. Barker (RES San Jose), M. L. Klein (National Research Council of Canada) and T. R. Koehler (RES San Jose), *Physical Review B4*, No. 6, 1983–1990 (September 15, 1971).

Displacement Parameter, Soft-mode Frequency, and Fluctuations in Quartz Below Its α - β Phase Transition, U. T. Höchli (RES Zürich) and J. F. Scott (Department of Natural Philosophy, University of Edinburgh, Scotland*), *Physical Review Letters* 26, No. 26, 1627–1629 (June 28, 1971); *permanent address: Bell Laboratories, Holmdel, N.J.

Dispersion of the Lowest-Order Optical Nonlinearity in InSb, J. J. Wynne (RES Zürich), *Physical Review Letters* 27, No. 1, 17–20 (July 5, 1971).

Optical Absorption Edge of SrTiO_3 Around the 105-K Phase Transition, K. W. Blazey (RES Zürich), *Physical Review Letters* 27, No. 3, 146–148 (July 19, 1971).

Optical Phonon Relaxation by Electronic Excitations in CoF_2 , R. M. Macfarlane and H. Morawitz (RES San Jose), *Physical Review Letters* 27, No. 3, 151–154 (July 19, 1971).

Convective and Absolute Instabilities in Semiconductors Exhibiting Negative Differential Mobility, P. Gueret (RES Zürich), *Physical Review Letters* 27, No. 5, 256–259 (August 2, 1971).

Where Semiclassical Radiation Theory Fails, R. K. Nesbet (RES San Jose), *Physical Review Letters* 27, No. 9, 553–556 (August 30, 1971).

Photon Echo and Optical Nutation in Molecules, R. G. Brewer and R. L. Shoemaker (RES San Jose), *Physical Review Letters* 27, No. 10, 631–634, (September 6, 1971).

Scientific Applications of Lasers, J. A. Armstrong (RES Yorktown Hts.), *Physics Today* 24, No. 3, 34–39 (March, 1971).

Hydrodynamic Description of Magnetic Crystals, Charles P. Enz (RES Zürich), *Physik der Kondensierten Materie* 12, No. 3, 262–278 (March 12, 1971). Work performed at the Institut de Physique Théorique, Université de Genève, Geneva, Switzerland.

On the Electron Band Structure of Liquid Metals, E. Stoll (RES Zürich), N. Szabo (University of Frankfurt, Frankfurt am Main, Germany) and T. Schneider (RES Zürich), *Physik der Kondensierten Materie* 12, No. 3, 279–286 (March, 1971). The work of E. Stoll and N. Szabo was performed when at the Delegation für Ausbildung und Hochschulforschung, Swiss Federal Institute for Reactor Research, Würenlingen, Switzerland.

Tin Bismuth Plating, C. F. Foster (Kawecki Berylco Industries, Inc.) and T. O'Brien (SMD Kingston), *Plating* 58, No. 5, 403–412 (May 1971).

On the Solutions of a Sequence of Lamé Differential Equations, C. K. Wong (RES Yorktown Hts.), *Proceedings of the American Mathematical Society* 28, No. 2, 481–488 (May, 1971).

A Uniformization Theorem for Arbitrary Riemann Surfaces with Signature, C. K. Wong (RES Yorktown Hts.), *Proceedings of the American Mathematical Society* 28, No. 2, 489–495 (May, 1971).

Necessary and Sufficient Conditions for Bounded Global Stability of Certain Nonlinear Systems, R. K. Brayton (RES Yorktown Hts.), *Quarterly of Applied Mathematics* 22, No. 86, 237–244 (July, 1971).

Rapport d'évaluation d'ALGOL 68 (An Evaluation of ALGOL 68), J. C. Boussard (Université de Grenoble) and J. J. Duby (IBM European Systems Research Institute, Geneva) editors, J. Andre (Control Data France), H. Bekic (SDD Vienna), M. Berthaud (IBM France, Grenoble Scientific Center), S. Brehinier (CERCI, Paris), M. Griffiths (Université de Grenoble), P. Jorrand (IBM France, Grenoble Scientific Center), C. H. A. Koster (Mathematisch Centrum, Amsterdam), M. Nicolas (Université de Paris), J. C. Paillard (Université de Nancy), D. Pecoud (Université de Paris), M. Sintzoff et P. Wodon (MBLE, Brussels), *Revue Française d'Informatique et de Recherche Operationnelle* 5, No. B-1, 15–106 (February, 1971).

Modular Thin Film Deposition System, I. Ames, J. Hoekstra and G. Folchi (RES Yorktown Hts.), *Review of Scientific Instruments* 42, No. 7, 1049–1051 (July, 1971).

The Numerical Stability of the Schur-Cohn Criterion, Irene Gargantini (RES Zürich), *SIAM Journal on Numerical Analysis* 8, No. 1, 24–29 (March, 1971); present address: Computer Science Department, University of Western Ontario, London, Ontario, Canada.

Numerical Differentiation and Regularization, J. Cullum (RES Yorktown Hts.), *SIAM Journal on Numerical Analysis* 8, No. 2, 254–265 (June, 1971).

A Simple Low-Offset Holography Arrangement, L. D. Dickson (GSD Rochester) *Scientific American* 224, No. 1, 110–111 (July 1971).

Hybrid Method for Hot Electron Calculations, P. A. Lebowitz and P. J. Price (RES Yorktown Hts.), *Solid State Communications* 9, No. 4, 1221–1224 (July 15, 1971).

Interpretation of Electric Field Effects in EPR of Gd^{3+} in SrTiO_3 , K. A. Müller (RES Zürich), *Solid State Communications* 9, No. 6, 373–377 (March 15, 1971).

High Resolution Method for Calculating Spectra of Solids—IV, G. Gilat and N. W. Dalton (RES San Jose), *Solid State Communications* 9, No. 13, 961–964 (July 1, 1971).

Photochromic $\text{Fe}^{5+}(3d^3)$ in SrTiO_3 , Evidence from Paramagnetic Resonance, K. A. Müller, T. von Waldkirch, W. Berlinger (RES Zürich) and B. W. Faughnan (RCA Laboratories, Princeton N.J.), *Solid State Communications* 9, No. 13, 1097–1101 (July 1, 1971).

A Study of the Contacts of a Diffused Resistor, C. Y. Ting and C. Y. Chen (CD E. Fishkill), *Solid State Electronics* 14, No. 6-A, 433–438 (June, 1971).

An Improved Microwave Silicon MESFET, W. Baechtold and P. Wolf (RES Zürich), *Solid-State Electronics* 14, No. 9, 783–790 (September, 1971).

Evaluation of Epoxy Encapsulants and Their Levels of Contamination, R. W. Nufer and L. C. Anderson (CD E. Fishkill), *Solid State Technology* 14, No. 8, 33–36 (August, 1971).

On Estimating the Distribution of a Random Vector When Only the Smallest Coordinate Is Observable, A. Nadas (CD E. Fishkill), *Technometrics* 12, No. 4, 923–924 (November, 1970).

Spiral Power Springs—Part I, Theory; Part II, Design, C. A. Queener and G. E. Wood (OPD Lexington), *Transactions of the ASME, Journal of Engineering for Industry* 93, Ser. B, No. 2, 667–682 (May, 1971).

The Influence of the Unsaturated Flow Domain on Seepage through Earth Dams, R. A. Freeze (RES Yorktown Hts.), *Water Resources Research* 7, No. 4, 929–941 (August, 1971).

Lead Feldspar, H. J. Scheel (RES Zürich), *Zeitschrift für Kristallographie* 133, Special issue, 264–272 (July, 1971).