

Recent Papers by IBM Authors

Reprints of the papers listed here may usually be obtained by writing directly to the authors. The authors' IBM divisions or groups are identified as follows: CHQ is Corporate Headquarters; CPD, Communication Products Division; DSD, Data Systems Division; ESD, Entry Systems Division; FED, Field Engineering Division; FSD, Federal Systems Division; GPD, General Products Division; GTD, General Technology Division; IPD, Information Products Division; ISG, Information Systems Group; IS&CG, Information Systems & Communications Group; IS&TG, Information Systems & Technology Group; NAD, National Accounts Division; NMD, National Marketing Division; RES, Research Division; SPD, System Products Division; SSD, Systems Supplies Division; and SRI, Systems Research Institute.

• Papers are listed alphabetically by authors.

A

M. Ya. Azbel (RES Yorktown Hts., NY), **Eigenstates and properties of random systems in one dimension at zero temperature**, *Physical Review B* **28**, No. 8, 4106-4125 (1983).

M. Ya. Azbel and M. Rubinstein (RES Yorktown Hts., NY), **One-dimensional random Ising ferromagnets and antiferromagnets**, *Physical Review B* **28**, No. 7, 3793-3798 (1983).

B

B. Barbara (Centre National de la Recherche Scientifique, Grenoble, France) and A. P. Malozemoff (RES Yorktown Hts., NY), **On the Non-Linear Susceptibility of Amorphous $Gd_{37}Al_{63}$ Spin Glass**, *Journal of the Less-Common Metals* **94**, No. 1, 45-57 (1983).

A. E. Bell (RES San Jose, CA), **Critical Issues in High-Density Magnetic and Optical Data Storage**, *Laser Focus* **19**, No. 9, 125-136 (1983).

R. Bhaskar (DSD Kingston, NY), J. A. Herstein (State University of New York, Stony Brook), and J. R. Hayes (Carnegie-Mellon University, Pittsburgh, PA), **How To Decide How To Decide**, *Instructional Science* **12**, No. 3, 267-277 (1983).

K. W. Blazey and K. A. Muller (RES Zurich, Switzerland), **Paramagnetic resonance and optical absorption of CO^{4+} in $SrTiO_3$** , *Journal of Physics C* **16**, No. 28, 5491-5502 (1983).

D. G. Bounds (University of Oxford, England) and P. J. Bounds (DSD Poughkeepsie, NY), **Potential surfaces derived from gradient calculations, New potentials for Li^+/H_2O , Na^+/H_2O and K^+/H_2O** , *Molecular Physics* **50**, No. 1, 25-32 (1983).

M. J. Brady and A. Davidson (RES Yorktown Hts., NY), **Correction for chromatic aberration in microscope projection photolithography**, *Review of Scientific Instruments* **54**, No. 10, 1292-1295 (1983).

M. S. S. Brooks (European Institute for Transuranium Elements, Karlsruhe, Federal Republic of Germany) and P. J. Kelly (RES Yorktown Hts., NY), **Large Orbital-Moment Contribution to 5f Band Magnetism**, *Physical Review Letters* **51**, No. 18, 1708-1711 (1983).

C

J. A. Cairns, J. E. E. Baglin, G. J. Clark, and J. F. Ziegler (RES Yorktown Hts., NY), **Strong Metal-Support Interactions for Pt and Rh on Al_2O_3 and TiO_2 : Application of Nuclear Backscattering Spectrometry**, *Journal of Catalysis* **83**, No. 2, 301-314 (1983).

W. K. Chu, C. K. Pan (University of North Carolina, Chapel Hill), and C.-A. Chang (RES Yorktown Hts., NY), **Superlattice interface and lattice strain measurement by ion channeling**, *Physical Review B* **28**, No. 7, 4033-4036 (1983).

J. I. Crowley, R. D. Balanson, and J. J. Mayerle (RES San Jose, CA), **Effect of Crystal Packing on the Solid State Spectral Properties of Vicinal Diketones**, *Journal of the American Chemical Society* **105**, No. 21, 6416-6422 (1983).

E

B. Erman and P. J. Flory (RES San Jose, CA), **Experimental Results Relating Stress and Birefringence to Strain in Poly(dimethylsiloxane) Networks Comparisons with Theory**, *Macromolecules* **16**, No. 10, 1607-1613 (1983).

B. Erman and P. J. Flory (RES San Jose, CA), **Theory of Strain Birefringence of Amorphous Polymer Networks**, *Macromolecules* **16**, No. 10, 1601-1606 (1983).

G

R. J. Gambino and T. R. McGuire (RES Yorktown Hts., NY), **Concentration Dependence of Magnetic and Transport Properties of Amorphous Gd-Ge Alloys**, *IEEE Transactions on Magnetics* **MAG-19**, No. 5, 1952-1954 (1983).

R. L. Garwin (RES Yorktown, Hts., NY) and C. Sagan (Cornell University, Ithaca, NY), **Ban Space Weapons**, *Bulletin of the Atomic Scientist* **39**, No. 9, 2-3 (1983).

B. Gavish (University of Rochester, NY) and S. L. Hantler (RES Yorktown Hts., NY), **An Algorithm for Optimal Route Selection in SNA Networks**, *IEEE Transactions on Communications* **COM-31**, No. 10, 1154-1161 (1983).

J. A. Given and B. B. Mandelbrot (RES Yorktown Hts., NY), **Diffusion of fractal lattices and the fractal Einstein relation**, *Journal of Physics A* **16**, No. 15, L565-L569 (1983).

H

D. E. Heim (GPD San Jose, CA), **The Sensitivity Function for Shielded Magnetoresistive Heads by Conformal Mapping**, *IEEE Transactions on Magnetics* **MAG-19**, No. 5, 1620-1622 (1983).

D. A. Herman, Jr. (U.S. Military Academy, West Point, NY) and J. C. DeLuca (RES Yorktown Hts., NY), **Thermal Variation in Magnetic Properties of Laser Annealed Ga-Substituted EuYIG Films**, *IEEE Transactions on Magnetics* **MAG-19**, No. 5, 1811-1813 (1983).

J.-W. Hong (Peking Computer Institute, China), K. Melhorn (Universität des Saarlandes, Saarbrücken, Federal Republic of Germany), and A. L. Rosenberg (RES Yorktown Hts., NY), **Cost Trade-Offs in Graph Embeddings, with Applications**, *Journal of the Association for Computing Machinery* **30**, No. 4, 709-728 (1983).

F. A. Houle (RES San Jose, CA), **Photoeffects on the fluorination of silicon. I. Influence of doping on steady-state phenomena**, *Journal of Chemical Physics* **79**, No. 9, 4237-4246 (1983).

J

S. S. Jha (Tata Institute of Fundamental Research, Bombay, India) and J. C. Tsang (RES Yorktown Hts., NY), **Limit on short-range resonant-charge-transfer contribution to surface-enhanced Raman scattering**, *Physical Review B* **28**, No. 8, 4216-4219 (1983).

M. Johnson (RES Yorktown Hts., NY), **Fiber-end interferometric sensor using cooperative retroreflectors**, *Optics Letters* **8**, No. 11, 593-595 (1983).

K

A. H. Karp (IBM Scientific Center, Palo Alto, CA) and S. Petrack (Oxford University, England), **On the Spherical Harmonics and Discrete Ordinates Methods for Azimuth-Dependent Intensity Calculations**, *Journal of Quantitative Spectroscopy and Radiative Transfer* **30**, No. 4, 351-356 (1983).

R. Kelly (RES Yorktown Hts., NY), **A semi-classical description of excitation in sputtering and in electron-atom collisions**, *Vacuum* **33**, No. 9, 547-554 (1983).

L

W. E. Langlois (RES San Jose, CA), **Czochralski Bulk Flow of Silicon at Large Melt Aspect Ratio**, *Journal of Crystal Growth* **63**, No. 1, 67-69 (1983).

M

A. P. Malozemoff (RES Yorktown Hts., NY), S. E. Barnes (University of Miami, Coral Gables, FL), and B. Barbara (Centre National de la Recherche Scientifique, Grenoble, France), **Non-Mean-Field Interpretation of the Irreversibility Line in Spin-Glasses**, *Physical Review Letters* **51**, No. 18, 1704-1707 (1983).

G. Markowsky (RES Yorktown Hts., NY), **Necessary and Sufficient Conditions for a Phenotype System to Have a Factor-Union Representation**, *Mathematical Biosciences* **66**, No. 1, 115-128 (1983).

P. J. Martin, R. P. Netterfield, W. G. Sainty (CSIRO, Division of Applied Physics, Lindfield, New South Wales, Australia), G. J. Clark (RES Yorktown Hts., NY), W. A. Lanford (State University of New York, Albany), and S. H. Sie (CSIRO, Division of Applied Physics, Lindfield, New South Wales, Australia), **Ion-assisted deposition of bulklike ZrO_2 films**, *Applied Physics Letters* **43**, No. 8, 711-713 (1983).

E. J. Mason (University of Kentucky, Lexington), P. Cegelka, R. Lewis (San Diego State University, CA), S. Henry (IPD Lexington, KY), J. Larkin (Carnegie-Mellon University, Pittsburgh, PA), and F. Danner (University of Kentucky, Lexington), **Three Approaches to Teaching and Learning in Education: Behavioral, Piagetian, and Information-Processing**, *Instructional Science* **12**, No. 3, 219-241 (1983).

R. A. McCorkle (RES Yorktown Hts., NY), **Capillary Discharge Thermo-nuclear Burner Design**, *Nuclear Instruments and Methods in Physics Research* **215**, No. 3, 463-466 (1983).

T. W. McDaniel and D. C. Palmer (SPD Rochester, MN), **Computation of the Fringe Field Due to a Flux Source Near a Large Permeable Block**, *IEEE Transactions on Magnetics* **MAG-19**, No. 5, 2195-2197 (1983).

E. E. Mendez, M. Heiblum, L. L. Chang, and L. Esaki (RES Yorktown Hts., NY), **High-magnetic-field transport in a dilute two-dimensional electron gas**, *Physical Review B* **28**, No. 8, 4886-4888 (1983).

W. Miller (SSD Princeton, NJ) and T. W. Suther (SPD Rochester, MN), **Display Station Anthropometrics: Preferred Height and Angle Settings of CRT and Keyboard**, *Human Factors* **25**, No. 4, 401-408 (1983).

S. Mohmand, J. Bargon, and R. J. Waltman (RES San Jose, CA), **Improved Synthesis of Selenophene**, *Journal of Organic Chemistry* **48**, No. 20, 3544-3545 (1983).

N

A. Nádas (RES Yorktown Hts., NY), **A Decision Theoretic Formulation of a Training Problem in Speech Recognition and a Comparison of Training by Unconditional Versus Conditional Maximum Likelihood**, *IEEE Transactions on Acoustics, Speech, and Signal Processing* **ASSP-31**, No. 4, 814-817 (1983).

W. Nolting (Universität Würzburg, Federal Republic of Germany) and B. Reihl (RES Zurich, Switzerland), **"Magnetically dead" surface layers on ferromagnetic semiconductors**, *Physical Review B* **28**, No. 7, 3886-3889 (1983).

P

A. G. Pacholczyk (University of Arizona, Tucson), N. D. Lubart (CPD Austin, TX), W. R. Penning, D. H. Ferguson (University of Arizona, Tucson), and D. Turnshek (University of Pittsburgh, PA), **A Search for Periodicities in the Light Variations of the Seyfert Galaxy NGC 4151**, *Astrophysical Letters* **23**, No. 4, 225-233 (1983).

B. N. J. Persson (RES Yorktown Hts., NY) and A. Liebsch (Institut für Festkörperforschung der Kernforschungsanlage Jülich, Federal Republic of Germany), **Optical properties of two-dimensional systems of randomly distributed particles**, *Physical Review B* **28**, No. 8, 4247-4254 (1983).

R

B. Ricco, M. Ya. Azbel, and M. H. Brodsky (RES Yorktown Hts., NY), **Novel Mechanism for Tunneling and Breakdown of Thin SiO_2 Films**, *Physical Review Letters* **51**, No. 19, 1795-1798 (1983).

K. H. Rieder, M. Baumberger, and W. Stocker (RES Zurich, Switzerland), **Selective Transition of Chemisorbed Hydrogen to Subsurface Sites on Pd(110)**, *Physical Review Letters* **51**, No. 19, 1799-1802 (1983).

T. P. Russell (RES San Jose, CA), **An Absolute Intensity Standard for Small-Angle X-ray Scattering Measured with Position-Sensitive Detectors**, *Journal of Applied Crystallography* **16**, Part 5, 473-478 (1983).

S

R. Schmalensee, A. K. Silk (Massachusetts Institute of Technology, Cambridge), and R. Bojanek (IBM Scientific Center, Cambridge, MA), **The Impact of Scale and Media Mix on Advertising Agency Costs**, *Journal of Business* **56**, No. 4, 453-475 (1983).

P. E. Schmid, P. S. Ho, H. Föll, and T. Y. Tan (RES Yorktown Hts., NY), **Effects of variations of silicide characteristics on the Schottky-barrier height of silicide-silicon interfaces**, *Physical Review B* **28**, No. 8, 4593-4601 (1983).

R. A. Scranton, T. K. Worthington (RES Yorktown Hts., NY), D. W. Hunter (DSD Poughkeepsie, NY), D. A. Thompson (RES Yorktown Hts., NY), M. O. Thompson (Cornell University, Ithaca, NY), and J. Cocke (RES Yorktown Hts., NY), **A Novel, High Performance, Low Mass Disk Head Actuator**, *IEEE Transactions on Magnetics* **MAG-19**, No. 5, 1692-1694 (1983).

H. Seifert, R. P. Huebener (Universitat Tubingen, Federal Republic of Germany), and P. W. Epperlein (RES Zurich, Switzerland), **High-Resolution Imaging of Inhomogeneities in Superconducting Tunnel Junctions by Scanning with a Modulated Electron Beam**, *Physics Letters A* **97**, No. 9, 421-423 (1983).

H. Seki and T. J. Chuang (RES San Jose, CA), **The Role of Cavity Sites in Surface-Enhanced Raman Scattering**, *Chemical Physics Letters* **100**, No. 5, 393-396 (1983).

P. Selinger, D. Daniels, L. Haas, B. Lindsay, P. Ng, P. Wilms, and R. Yost (RES San Jose, CA), **Site Autonomy Issues in R*: A Distributed Database Management System**, *Information Sciences* **29**, No. 2-3, 249-257 (1983).

L. T. Shi and P. Chaudhari (RES Yorktown Hts., NY), **Computer Simulation of Dislocationlike Motion in a Lennard-Jones Amorphous Solid**, *Physical Review Letters* **51**, No. 17, 1581-1583 (1983).

R. E. Simons (DSD Poughkeepsie, NY), **Thermal Management of Electronic Packages**, *Solid State Technology* **26**, No. 10, 131-137 (1983).

R. H. Swendsen (RES Zurich, Switzerland) and A. N. Berker (Massachusetts Institute of Technology, Cambridge), **Critical behavior of the three-state Potts model: Monte Carlo renormalization group**, *Physical Review B* **28**, No. 7, 3897-3903 (1983).

T

L.-J. Tao, A. M. Desouches, D. M. Hannon, and R. D. Holmes (GPD San Jose, CA), **A High-Performance Bubble Memory Chip**, *IEEE Transactions on Magnetics* **MAG-19**, No. 5, 1832-1834 (1983).

E. Terrenzio and J. C. Slonczewski (RES Yorktown Hts., NY), **Signal Propagation in a Bubble Lattice with Long Range Dipole Interaction**, *IEEE Transactions on Magnetics* **MAG-19**, No. 5, 1844-1846 (1983).

P. Thioulouse, I. F. Chang, and E. A. Giess (RES Yorktown Hts., NY), **Comparative Study of Phosphorescence and Photostimulated Luminescence in Zinc Silicate Phosphors and Their Description by a Tunneling Model**, *Journal of the Electrochemical Society* **130**, No. 10, 2065-2071 (1983).

R. K. Toms (IBM Netherlands, Uithoorn), **Writing and Compiling Computer User Documentation in a Text Processing Environment**, *Journal of Technical Writing and Communication* **13**, No. 4, 307-317 (1983).

P. Trefonas III, P. I. Djurovich, X.-H. Zhang, R. West (University of Wisconsin, Madison), R. D. Miller, and D. Hofer (RES San Jose, CA), **Organosilane High Polymers: Synthesis of Formable Homopolymers**, *Journal of Polymer Science, Polymer Letters* **21**, No. 10, 819-822 (1983).

P. Trefonas III, R. West (University of Wisconsin, Madison), R. D. Miller, and D. Hofer (RES San Jose, CA), **Organosilane High Polymers: Electronic-Spectra and Photodegradation**, *Journal of Polymer Science, Polymer Letters* **21**, No. 10, 823-829 (1983).

Y.-O. Tu (RES San Jose, CA), **Depletion and Retention of Fluid on a Rotating Disk**, *Journal of Lubrication Technology (ASME)* **105**, No. 4, 625-629 (1983).

W

L. F. Wagner, R. W. Young, and A. Sugerman (GTD East Fishkill, NY), **A Note on the Correlation Between the Schottky-Diode Barrier Height and the Ideality Factor as Determined from IV Measurements**, *IEEE Electron Device Letters* **EDL-4**, No. 9, 320-322 (1983).

E. A. Whittaker, P. Pokrowsky, W. Zapka, K. Roche, and G. C. Bjorklund (RES San Jose, CA), **Improved Laser Technique for High Sensitivity Atomic Absorption Spectroscopy in Flames**, *Journal of Quantitative Spectroscopy and Radiative Transfer* **30**, No. 4, 289-296 (1983).

A. R. Williams, V. L. Moruzzi, A. P. Malozemoff, and K. Terakura (RES Yorktown Hts., NY), **Generalized Slater-Pauling Curve for Transition-Metal Magnets**, *IEEE Transactions on Magnetics* **MAG-19**, No. 5, 1983-1988 (1983).

E. L. Wolf, J. H. Magerlein, W. J. Gallagher, and C. J. Kircher (RES Yorktown Hts., NY), **Phonon Structure of Unusually High Energy and Strength in Nb-Nb Oxide-Pb Tunnel Junctions**, *Physics Letters A* **97**, No. 8, 349-353 (1983).

J. M. Woodall, G. D. Pettit, T. N. Jackson, C. Lanza (RES Yorktown Hts., NY), K. L. Kavanagh, and J. W. Mayer (Cornell University, Ithaca, NY), **Fermi-Level Pinning by Misfit Dislocations at GaAs Interfaces**, *Physical Review Letters* **51**, No. 19, 1783-1786 (1983).

Y

K. H. Yang (RES Yorktown Hts., NY), **Weak boundary storage liquid crystal displays**, *Journal de Physique* **44**, No. 9, 1051-1059 (1983).