

Recent publications by IBM authors

The information listed here is supplied by the Institute for Scientific Information and other outside sources. Reprints of the papers may be obtained by writing directly to the first author cited.

- Journals are listed alphabetically by title; papers are listed sequentially for each journal.

A

Surface and Internal Excess Electron States in Molecular Clusters, R. N. Barnett, U. Landman (Georgia Institute of Technology, Atlanta, GA 30332), D. Scharf (IBM, Rüschlikon, Switzerland), and J. Jortner (Tel Aviv University, Tel Aviv, Israel), *Accounts of Chemical Research* **22**, No. 10, 350–357 (1989).

Problem Solution Mapping in Object Oriented Design, M. B. Rosson and E. Gold (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *ACM SIGPLAN Notices* **24**, No. 10, 7–10 (1989).

Saving a Legacy with Objects W. C. Dietrich, L. R. Nackman, and F. Gracer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *ACM SIGPLAN Notices* **24**, No. 10, 77–83 (1989).

Good News, Bad News: Experience Building a Software Development Environment Using the Object Oriented Paradigm, W. H. Harrison (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), J. J. Shilling (Georgia Institute of Technology, Atlanta, GA), and P. F. Sweeney (IBM, Yorktown Heights, NY), *ACM SIGPLAN Notices* **24**, No. 10, 85–94 (1989).

Three Steps to Views: Extending the Object-Oriented Paradigm, J. J. Shilling (Georgia Institute of Technology, Atlanta, GA 30332) and P. F. Sweeney (IBM, Yorktown Heights, NY), *ACM SIGPLAN Notices* **24**, No. 10, 353–361 (1989).

Index Scans Using a Finite LRU Buffer: A Validated I/O Model, L. F. Mackert (IBM Germany, Tiergartenstrasse 15, D-6900 Heidelberg, Federal Republic of Germany) and G. M. Lohman (IBM, San Jose, CA), *ACM Transactions on Database Systems* **14**, No. 3, 401–424 (1989).

Automatic Parsing of Degenerate Quadric-Surface Intersections, R. T. Farouki, C. A. Neff, and M. A. O'Connor (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *ACM Transactions on Graphics* **8**, No. 3, 174–203 (1989).

An Algebra for Structured Office Documents, R. H. Guting (University of Dortmund, 4600 Dortmund 50, Federal Republic of Germany), R. Zicari (Politecnico di Milano, Milan, Italy), and D. M. Choy (IBM, San Jose, CA), *ACM Transactions on Information Systems* **7**, No. 2, 123–157 (1989).

A Re-Examination of the Analysis of Toughening in Brittle-Matrix Composites, M. D. Thoules (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Acta Metallurgica* **37**, No. 9, 2297–2304 (1989).

Electrical and Structural Properties of Coevaporated $\text{NiSi}_{2.4}$ Thin Films, I. Grimberg, B. Z. Weiss (Technion, Israel Institute of Technology, Haifa 32000, Israel), and S. R. Herd (IBM, Yorktown Heights, NY), *Acta Metallurgica* **37**, No. 9, 2475–2484 (1989).

A Discrete Lattice Plane Analysis of the Energy of Coherent $\{0001\}_{\text{h.c.p.}} // \{111\}_{\text{f.c.c.}} <11\bar{2}0>_{\text{h.c.p.}} // <1\bar{1}0>_{\text{f.c.c.}}$ Interfaces, R. V. Ramanujan (Carnegie-Mellon University, Pittsburgh, PA 15213), J. K. Lee (Michigan Technological University, Houghton, MI), F. K. Le Goues (IBM, Yorktown Heights, NY), and H. I. Aaronson (Carnegie-Mellon University, Pittsburgh, PA), *Acta Metallurgica* **37**, No. 11, 3051–3059 (1989).

Conductance Fluctuations in Loops of Gold, S. Washburn (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *American Journal of Physics* **57**, No. 12, 1069–1078 (1989).

Finding a Single Molecule in a Haystack: Optical Detection and Spectroscopy of Single Absorbers in Solids, W. E. Moerner (IBM

Corporation, 650 Harry Road, San Jose, CA 95120) and L. Kador (University of Bayreuth, Bayreuth, Federal Republic of Germany), *Analytical Chemistry* **61**, No. 21, 1217-1223 (1989).

Magnetism in Very Thin Films of Permalloy Measured by Spin Polarized Cascade Electrons, D. Mauri, D. Scholl, H. C. Siegmann, and E. Kay (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Applied Physics A* **49**, No. 5, 439-447 (1989).

Detection of Neutral Products Formed During Excimer Laser Ablation of Polyimide by UV and VUV Laser Photoionization/Mass Spectrometry, C. E. Otis (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Applied Physics B* **49**, No. 5, 455-461 (1989).

Thermal Stability of the Cu/Pd/Si Metallurgy, C. A. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 15, 1543-1545 (1989).

Resonant Tunneling Through X-Valley States in GaAs/AlAs/GaAs Single Barrier Heterostructures, R. Beresford, L. F. Luo, W. I. Wang (Columbia University, New York, NY 10027), and E. E. Mendez (IBM, Yorktown Heights, NY), *Applied Physics Letters* **55**, No. 15, 1555-1557 (1989).

Electrical Characterization of Plasma Generation in KRF Laser Cu Ablation, P. E. Dyer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 16, 1630-1632 (1989).

Lateral Dopant Profiling with 200 nm Resolution by Scanning Capacitance Microscopy, C. C. Williams, J. Slinkman, W. P. Hough, and H. K. Wickramasinghe (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 16, 1662-1664 (1989).

Nanometer Scale Hole Formation on Graphite Using a Scanning Tunneling Microscope, T. R. Albrecht, M. M. Dovek, M. D. Kirk, C. A. Lang, C. F. Quate (Stanford University, Stanford, CA 94305), and D. P. E. Smith (IBM, Munich, Federal Republic of Germany), *Applied Physics Letters* **55**, No. 17, 1727-1729 (1989).

Resistance of Very Small Area Ohmic Contacts on GaAs, P. Gueret, P. Buchmann, K. Daetwyler, and P. Vettiger (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Applied Physics Letters* **55**, No. 17, 1735-1737 (1989).

Effect of Heat Treatments on the Electrical Resistivity of Sb Doped Amorphous Si Films Deposited by Molecular Beam on (100)Si, Y. Komem, M. Arienzo, and S. S. Iyer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 17, 1780-1782 (1989).

Transient Grating Dynamics in Cd_{1-x}Mn_xTe Diluted Magnetic Semiconductor Superlattices, A. Harwit, M. B. Ritter, J. M. Hong, D. D. Awschalom, and L. L. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 17, 1783-1785 (1989).

Deposition of Epitaxial Thin Films of Nd_{1.85}CuO_{4-y} by Laser Ablation, A. Gupta, G. Koren, C. C. Tsuei, A. Segmuller, and T. R. McGuire (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 17, 1795-1797 (1989).

Microscopic Imaging of Residual Stress Using a Scanning Phase Measuring Acoustic Microscope, S. W. Meeks, D. Peter, D. Horne, K. Young, and V. Novotny (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Applied Physics Letters* **55**, No. 18, 1835-1837 (1989).

Time Resolved Transmission of Thin Gold Films During Laser Blow-Off, R. J. Baseman and N. M. Froberg (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 18, 1841-1843 (1989).

Superconducting InGaAs Junction Field Effect Transistors with NB Electrodes, A. W. Kleinsasser, T. N. Jackson, D. McInturff, F. Rammo, G. D. Pettit, and J. M. Woodall (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 18, 1909-1911 (1989).

Picosecond Laser Sputtering of Sapphire at 266 nm, A. C. Tam, J. L. Brand, D. C. Cheng, and W. Zapka (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Applied Physics Letters* **55**, No. 20, 2045-2047 (1989).

Surface Segregation of Ba in Polycrystalline YBa₂Cu₃O₇ Oxides: The Effect of Silver, A. G. Schrott, G. Singco, and K. N. Tu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 20, 2126-2128 (1989).

Spatial Imaging of the Critical Current Density in Epitaxial Y₁Ba₂Cu₃O₇ Films, R. Gross, K. Hipler, J. Mannhart, R. P. Huebener (University of Tübingen, D-7400 Tübingen 1, Federal Republic of Germany), P. Chaudhari, D. Dimos, C. C. Tsuei, J. Schubert (IBM, Yorktown Heights, NY), and U. Poppe (KFA Jülich GmbH, Jülich, Federal Republic of Germany), *Applied Physics Letters* **55**, No. 20, 2132-2134 (1989).

Electrical Characteristics of Regrown Interfaces Using Diethylgallium Chloride Based Metalorganic Vapor Phase Epitaxy, M. A. Tischler, T. F. Kuech, A. Palevski, and P. Solomon (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 21, 2214-2216 (1989).

Dielectric Properties of Uniaxial Crystals Measured with Optoelectronically Generated Microwave Transient Radiation, Y. Pastol, G. Arjavalingam, G. V. Kopcsay, and J. M. Halbout (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 22, 2277-2279 (1989).

Collisional Cooling and Ablation Product Dynamics Observed by Resonant Ionization Spectroscopy of Nascent Carbon Monoxide from 193 nm Laser Ablation of Polyimide, P. M. Goodwin and C. E. Otis (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Applied Physics Letters* **55**, No. 22, 2286-2288 (1989).

High Hole Mobility in Si/Si_{1-x}Ge_x/Si p-Type Modulation Doped Heterostructures, P. J. Wang, B. S. Meyerson, F. F. Fang, J. Nocera, and B. Parker (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 22, 2333-2335 (1989).

Magnetic Force Microscopy with 25 nm Resolution, P. C. D. Hobbs, D. W. Abraham, and H. K. Wickramasinghe (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 22, 2357-2359 (1989).

Thermal Dependence of Voiding in Narrow Aluminum Microelectronic Interconnects, T. D. Sullivan (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), *Applied Physics Letters* **55**, No. 23, 2399–2401 (1989).

Laser Wavelength Dependent Properties of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films Deposited by Laser Ablation, G. Koren, A. Gupta, R. J. Baseman, M. I. Lutwyche, and R. B. Laibowitz (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **55**, No. 23, 2450–2452 (1989).

An Analysis for the Composition and Film Thickness of Organic Layered Photoconductors. Part I: Complex Refractive Indices Over the Infrared for Hydroxysquarilium and Chlorodiane Blue Charge Generation Dyes, J. Pacansky, R. J. Waltman, and R. Grygier (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Applied Spectroscopy* **43**, No. 7, 1233–1240 (1989).

Nucleation and Growth in the Reaction of Titanium with Germanium and Some Silicon–Germanium Alloys, O. Thomas (ENSPG, BP 46, 38402 St. Martin d'Heres, France), F. M. d'Heurle, S. Delage, and G. Scilla (IBM, Yorktown Heights, NY), *Applied Surface Science* **38**, Nos. 1–4, 27–36 (1989).

Some Properties of $\text{Cr}_x\text{V}_{1-x}\text{Si}_2$ and $\text{Cr}_x\text{Mo}_{1-x}\text{Si}_2$ Thin Films, O. Thomas (ENSPG, BP 46, 38402 St. Martin d'Heres, France), S. Molis, F. M. d'Heurle (IBM, Yorktown Heights, NY), T. J. Finstad (University of Oslo, Oslo, Norway), L. Gronberg, I. Suni (Technical Research Center of Finland, Otaniemi, Finland), B. G. Svensson (Royal Institute of Technology, Stockholm, Sweden), and J. Svensson, University of Linköping, Linköping, Sweden, *Applied Surface Science* **38**, Nos. 1–4, 94–105 (1989).

Bilayers with Chromium Disilicide Chromium Vanadium, T. J. Finstad (University of Oslo, Boks 1048, Blindern, 0316 Oslo 3, Norway), O. Thomas (ENSPG, St. Martin d'Heres, France), and F. M. d'Heurle (IBM, Yorktown Heights, NY), *Applied Surface Science* **38**, Nos. 1–4, 106–116 (1989).

Gate Materials Consideration for Submicron CMOS, C. Y. Ting and B. Davari (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Surface Science* **38**, Nos. 1–4, 416–428 (1989).

Atomic Hydrogen in the Orion Star-Forming Region, F. R. Chromey, B. G. Elmegreen (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and D. M. Elmegreen (Vassar College Observatory, Poughkeepsie, NY), *Astronomical Journal* **98**, No. 6, 2203–2209 (1989).

A Comparison of Spiral Tracers in M81, M. Kaufman (Ohio State University, 174 W. 18th Avenue, Columbus, OH 43210), F. N. Bash (University of Texas, Austin, TX), B. Hine (National Radio Astronomy Observatory, Socorro, NM), A. H. Rots (IBM, Yorktown Heights, NY), D. M. Elmegreen (Vassar College Observatory, Poughkeepsie, NY), and P. W. Hodge (University of Washington, Seattle, WA), *Astrophysical Journal* **345**, No. 2, 674–696 (1989).

The Dust Lanes in M81: Tracers of the Molecular Gas, M. Kaufman (Ohio State University, 174 W. 18th Avenue, Columbus, OH 43210), D. M. Elmegreen (IBM, Yorktown Heights, NY), and F. N. Bash (National Radio Astronomy Observatory, Socorro, NM), *Astrophysical Journal* **345**, No. 2, 697+ (1989).

Interface Logic Programming, J. N. Crossley (Monash University, Clayton, Victoria 3168, Australia), P. Lim, and P. Stuckey (IBM, Yorktown Heights, NY), *Australian Computer Journal* **21**, No. 2, 49–55 (1989).

Quadratic Regulatory Theory for Analytic Non-Linear Systems with Additive Controls, T. Yoshida (IBM Japan Ltd., 5–19 Sanbancho, Chiyoda Ku, Tokyo 102, Japan) and K. A. Loparo (Case Western Reserve University, Cleveland, OH), *Automatica* **25**, No. 4, 531–544 (1989).

B

An Electronic Database for Molecular Biology, J. M. Burrige (IBM United Kingdom, 41–43 Jewry Street, Winchester, Hants SO23 8RY, United Kingdom), *Biochemical Society Transactions* **17**, No. 5, 840–841 (1989).

A Stability Checking Procedure for Finite Difference Schemes with Boundary Conditions in Acoustic Media, A. H. Kamei (IBM Corporation, Thormohlensgate 55, 5008 Bergen, Norway), *Bulletin of the Seismological Society of America* **79**, No. 5, 1601–1606 (1989).

C

How to Purge Small Vessels with Nitrogen, W. A. Levinson (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Chemical Engineering* **96**, No. 11, 249–252 (1989).

The Structure of CIS Butadiene, J. E. Rice, B. Liu (IBM Corporation, 650 Harry Road, San Jose, CA 95120), T. J. Lee (NASA Ames Research Center, Moffett Field, CA), and C. M. Rohlfling (Sandia National Laboratories, Livermore, CA), *Chemical Physics Letters* **161**, No. 3, 277–284 (1989).

Variation of the Trapping Probability of Ar on Pt(111) with Kinetic Energy and Angle of Incidence: The Changing Role of Parallel Momentum with Surface Temperature, C. B. Mullins, C. T. Rettner, D. J. Auerbach (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and W. H. Weinberg (University of California, Santa Barbara, CA), *Chemical Physics Letters* **163**, No. 2–3, 111–115 (1989).

A p-Version Finite-Element Approach for Atomic Hartree-Fock Calculations, J. R. Flores, E. Clementi, and V. Sonnad (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Chemical Physics Letters* **163**, No. 2, 3, 198–201 (1989).

Ultraviolet Laser Ablation of Organic Polymers, R. Srinivasan and B. Braren (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Chemical Reviews* **89**, No. 6, 1303–1316 (1989).

Polysilane High Polymers, R. D. Miller (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and J. Michl (University of Texas, Austin, TX), *Chemical Reviews* **89**, No. 6, 1359–1410 (1989).

A Lower Bound on Strictly Non-Blocking Networks, J. Friedman (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Combinatorica* **8**, No. 2, 185–188 (1988).

A Lower Bound for Finding Predecessors in YAO's Cell Probe Model, M. Ajtai (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Combinatorica* **8**, No. 3, 235–247 (1988).

Measured and Predicted Char Reactivity of Three United States Coals, I. H. Leslie (New Mexico State University, Las Cruces, NM 88003), M. Jost (Stanford University, Stanford, CA), and C. H. Kruger (IBM, Yorktown Heights, NY), *Combustion and Flame* **78**, No. 2, 195-203 (1989).

Calendar P's and Queues, G. A. Davison (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Communications of the ACM* **32**, No. 10, 1241-1243 (1989).

Impact of Skew on Access Path Selection in Relational Database Systems, M. S. Lakshmi and P. S. Yu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Computer Systems Science and Engineering* **4**, No. 4, 195-204 (1989).

Automatic Physical System Modelling Using Bond Graphs, S. J. Hood, E. R. Palmer, and D. H. Withers (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Computer-Aided Design* **21**, No. 9, 584-588 (1989).

Use of the Fast Fourier Transform to Improve Direct Numerical Integration Schemes for Transient Structural Response, J. S. Strenkowski (North Carolina State University, Raleigh, NC 27695) and R. D. Ciskowski (IBM, Kingston, NY), *Computers & Structures* **33**, No. 1, 149-154 (1989).

Survey of Software Tools for Evaluating Reliability, Availability, and Serviceability, A. M. Johnson (IBM Corporation, Austin, TX 78758) and M. Malek (University of Texas, Austin, TX), *Computing Surveys* **20**, No. 4, 227-269 (1989).

Masking Technique for Thin-Film Corrosion Specimens to Minimize Crevice Corrosion, G. S. Frankel, C. V. Jahnes, and M. A. Russak (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Corrosion* **45**, No. 8, 630-631 (1989).

The Atmospheric Sulfidation of Silver in a Tubular Corrosion Reactor, L. Volpe and P. J. Petersen (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *Corrosion Science* **29**, No. 10, 1179 (1989).

D

A Linear-Time Algorithm for Computing the Voronoi Diagram of a Convex Polygon, A. Aggarwal (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), L. J. Guibas, J. Saxe (DEC Systems Research Center, Palo Alto, CA), and P. W. Shor (AT&T Bell Laboratories, Murray Hill, NJ), *Discrete & Computational Geometry* **4**, No. 6, 591-604 (1989).

On the Ball Spanned by Balls, N. Megiddo (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Discrete & Computational Geometry* **4**, No. 6, 605-610 (1989).

Implicitly Representing Arrangements of Lines or Segments, H. Edelsbrunner (University of Illinois, Urbana, IL 61801), L. Guibas, J. Hershberger (DEC Systems Research Center, Palo Alto, CA), R. Seidel (IBM, San Jose, CA), M. Sharir (New York University, New York, NY), J. Snoeyink (Stanford University, Stanford, CA), and E. Welzl (Freie Universität Berlin, Berlin, Federal Republic of Germany), *Discrete & Computational Geometry* **4**, No. 5, 433-466 (1989).

On Arrangements of Jordan Arcs with Three Intersections Per Pair, H. Edelsbrunner (University of Illinois, Urbana, IL 61801), L. Guibas, J. Hershberger (DEC Systems Research Center, Palo Alto, CA), J. Pach, R. Pollack (New York University, New York, NY), R. Seidel (IBM, San Jose, CA), M. Sharir (New York University, New York, NY), and J. Snoeyink (Stanford University, Stanford, CA), *Discrete & Computational Geometry* **4**, No. 5, 523-539 (1989).

Resolvable Group Divisible Designs with Block Size 3, A. M. Assaf (Auburn University, Auburn, AL 36849) and A. Hartman (IBM, Haifa, Israel), *Discrete Mathematics* **77**, No. 1-3, 5-20 (1989).

E

Selective Epitaxial Refill for In-Trench Device Fabrication, J. N. Burghartz, J. D. Warnock, S. R. Mader, and B. J. Ginsberg (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Electronics Letters* **25**, No. 20, 1337-1338 (1989).

551-nm Diode Laser Pumped Upconversion Laser, F. Tong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), W. P. Risk, R. M. Macfarlane, and W. Lenth (IBM, San Jose, CA), *Electronics Letters* **25**, No. 20, 1389-1391 (1989).

A Prototype for a Speech Recognition System for the Italian Language, M. Brandetti, P. Dorta, M. Ferretti, and S. Scarci (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), *Elettrotecnica* **76**, No. 9, 773-778 (1989).

Faculty Loans and Second Careers: Two Innovative IBM Programs, R. P. Nord (IBM Corporation, 2000 Purchase Street, Purchase, NY 10577), *Engineering Education* **79**, No. 5, 563-564 (1989).

Dynamics of a Liquid-Metal Surface, S. Iarlori, P. Carnevali, F. Ercolessi (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), and E. Tosatti (International School for Advanced Studies, Trieste, Italy), *Europhysics Letters* **10**, No. 4, 329-334 (1989).

Oxygen Ordering and Superconducting Phases in Ceramics, J.-P. Locquet (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), J. Vanacken, B. Wuyts, Y. Bruynseraede (Katholieke Universiteit Leuven, Leuven, Belgium), and I. K. Schuller (University of California, La Jolla, CA), *Europhysics Letters* **10**, No. 4, 365-370 (1989).

Three-Dimensional Flows in Complex Geometries with the Lattice Boltzmann Method, S. Succi, E. Foti (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), and F. Higuera (Universidad Politécnica de Madrid, Madrid, Spain), *Europhysics Letters* **10**, No. 5, 443-438 (1989).

F

Imaging of Cell Membraneous and Cytoskeletal Structures with a Scanning Tunneling Microscope, J. P. Ruppertsberg, J. K. H. Horber (Max Planck Institut, Jahnstrasse 29, D-6500 Heidelberg, Federal Republic of Germany), C. Gerber, and G. Binnig (IBM, Rüschlikon, Switzerland), *Febs Letters* **257**, No. 2, 460-464 (1989).

A Short Recipe for Seashell Synthesis, C. A. Pickover (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Computer Graphics and Applications* 9, No. 6, 8-11 (1989).

Robust Set Operations on Polyhedral Solids, C. M. Hoffman (Purdue University, West Lafayette, IN 47907), J. E. Hopcroft (Cornell University, Ithaca, NY), and M. S. Karasick (IBM, Yorktown Heights, NY), *IEEE Computer Graphics and Applications* 9, No. 6, 50-59 (1989).

Sidewall Oxidation of Polycrystalline-Silicon Gate, C. Y. Wong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), J. Piccirillo, A. Bhattacharyya (IBM, Essex Junction, VT), Y. Taur, and H. I. Hanafi (IBM, Yorktown Heights, NY), *IEEE Electron Device Letters* 10, No. 9, 420-422 (1989).

Sub-300-ps CBL Circuits, S. K. Wiedmann, T.-C. Chen, C.-T. Chuang, K. Heuber, D. F. Wendel, J. Warnock, G. P. Li, K. Chin, and T. H. Ning (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Electron Device Letters* 10, No. 11, 484-486 (1989).

Speech Recognition Using Noise-Adaptive Prototypes, A. Nádas, D. Nahamoo, and M. A. Picheny (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Acoustics, Speech, and Signal Processing* 37, No. 10, 1495-1503 (1989).

Design of Multioutput CMOS Combinational Logic Circuits for Robust Testability, S. Kundu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 8, No. 11, 1222-1226 (1989).

Simulation of Spatial Fault Distributions for Integrated Circuit Yield Estimations, C. H. Stapper (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 8, No. 12, 1314-1318 (1989).

On T-Error Correcting All Unidirectional Error Detecting Codes, M. Blaum (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and H. Van Tilborg (Eindhoven University, Eindhoven, The Netherlands), *IEEE Transactions on Computers* 38, No. 11, 1493-1501 (1989).

A Method to Optimize the Detection and Measurement of EMI Signals, R. Southwick (EMC Consulting, Tucson, AZ 85705) and G. Runger (IBM Tucson, AZ), *IEEE Transactions on Electromagnetic Compatibility* 31, No. 4, 409-413 (1989).

Heterojunction Bipolar Transistors Using Si-Ge Alloys, S. S. Iyer, G. L. Patton, J. M. C. Stork, B. S. Meyerson, and D. L. Hareme (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Electron Devices* 36, No. 10, 2043-2064 (1989).

Analysis of the Operation of GaAlAs/GaAs HBT's, S. Tiwari and D. J. Frank (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Electron Devices* 36, No. 10, 2105-2121 (1989).

Simple Theory of Double-Barrier Tunneling, P. J. Price (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Electron Devices* 36, No. 10, 2340-2343 (1989).

Process Dependence of Hole Trapping in Thin Nitrided SiO₂ Films, M. Severi (CNR-Istituto Lamel, Via de'Castagnoli n. 1, 40126 Bologna, Italy), L. Dori (IBM, Yorktown Heights, NY), M. Impronta, and S. Guerri (CNR-Istituto Lamel, Bologna, Italy), *IEEE Transactions on Electron Devices* 36, No. 11, 2447-2451 (1989).

Injection-Induced Bandgap Narrowing and Its Effects on the Low-Temperature Operation of Silicon Bipolar Transistors, J. D. Cressler, D. D. L. Tang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and E. S. Yang (Columbia University, New York, NY), *IEEE Transactions on Electron Devices* 36, No. 11, 2576-2586 (1989).

The Effects of X-Rays on p-n-Junction Leakage Currents, D. D. Tang, E. Hackbarth, and J. R. Maldonado (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Electron Devices* 36, No. 11, 2587-2591 (1989).

WN, Diodes of Plasma-Treated GaAs Surface, A. Paccagnella, A. Callegari, N. Braslau, H. Hovel, and M. Murakami (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Electron Devices* 36, No. 11, 2595-2597 (1989).

Neural Networks, Error-Correcting Codes, and Polynomials over the Binary n -Cube, J. Bruck and M. Blaum (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Information Theory* 35, No. 5, 976-987 (1989).

Connectivity Properties of a Packet Radio Network Model, T. K. Philips (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), S. S. Panwar (Polytechnic University, Brooklyn, NY), and A. N. Tantawi (IBM, Yorktown Heights, NY), *IEEE Transactions on Information Theory* 35, No. 5, 1044-1047 (1989).

Tight Upper Bounds on the Redundancy of Huffman Codes, R. M. Capocelli (Università di Roma, 00185 Rome, Italy) and A. Desantis (IBM, Yorktown Heights, NY), *IEEE Transactions on Information Theory* 35, No. 5, 1084-1091 (1989).

On Error-Correcting Balanced Codes, H. Van Tilborg (Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands) and M. Blaum (IBM, San Jose, CA), *IEEE Transactions on Information Theory* 35, No. 5, 1091-1095 (1989).

Domain Structures Due to Induced Anisotropy and Stresses in Film Heads, R. E. Jones, Jr., R. D. Holmes (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), and P. Kasiraj (IBM, San Jose, CA), *IEEE Transactions on Magnetics* 25, No. 5, 3203-3205 (1989).

Film-Head Pulse Distortion Due to Microvariation of Domain Wall Energy, M. L. Williams and S. E. Lambert (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* 25, No. 5, 3206-3208 (1989).

Irreversible Wall Motion in Inductive Recording Heads, K. B. Klaassen and J. C. van Peppen (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* 25, No. 5, 3209-3211 (1989).

Delayed Relaxation in Thin-Film Heads, K. B. Klaassen and J. C. van Peppen (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* **25**, No. 5, 3212-3214 (1989).

Magnetic Properties and Critical Currents of Epitaxial $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Films, T. R. McGuire, D. Dimos, R. H. Koch, R. B. Laibowitz, and J. Mannhart (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Magnetics* **25**, No. 5, 3218-3220 (1989).

Track Density Limitation for Dual-Layer Perpendicular Recording in a Rigid Disk Environment, T. J. Beaulieu, D. J. Seagle, M. A. Meiningier, and C. J. Spector (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *IEEE Transactions on Magnetics* **25**, No. 5, 3369-3371 (1989).

Reduction of Edge Noise in Thin Film Metal Media Using Discrete Tracks, S. E. Lambert, I. L. Sanders, T. D. Howell, D. McCown, A. M. Patlach, and M. T. Krounbi (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* **25**, No. 5, 3381-3383 (1989).

Track Edge Phenomena in Thin Film Longitudinal Media, J. Su and K. Ju (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* **25**, No. 5, 3384-3386 (1989).

The Determination of Transition Noise by Lorentz Electron Microscopy, R. P. Ferrier, F. J. Martin (Glasgow University, Glasgow G12 8QQ, United Kingdom), T. C. Arnoldussen, L. L. Nunnally, and M. A. Burleson (IBM, San Jose, CA), *IEEE Transactions on Magnetics* **25**, No. 5, 3387-3389 (1989).

Domain Conversion Under High Frequency Excitation in Inductive Thin Film Heads, P. L. Trouilloud, B. E. Argyle, B. Petek, and D. A. Herman (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Magnetics* **25**, No. 5, 3461-3463 (1989).

Numerical Micromagnetics: Prolate Spheroids, D. R. Fredkin (University of California, La Jolla, CA 92093) and T. R. Koehler (IBM, San Jose, CA), *IEEE Transactions on Magnetics* **25**, No. 5, 3473-3475 (1989).

The Importance of Domain Nucleation and Growth During Thermomagnetic Recording in Gd_2TbFeCo Disks, C.-J. Lin and N. Notarys (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* **25**, No. 5, 3533-3535 (1989).

An Optical Method Using a Laser and An Integrating Sphere Combination for Characterizing the Thickness Profile of Magnetic Media, W. C. Leung, W. Crooks, H. Rosen, and T. Strand (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *IEEE Transactions on Magnetics* **25**, No. 5, 3659-3661 (1989).

A New Approach to Making Thin Film Head-Slider Devices, D. W. Chapman (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *IEEE Transactions on Magnetics* **25**, No. 5, 3686-3688 (1989).

A New, Horizontal MR Head Structure, D. W. Chapman, D. E. Heim, and M. L. Williams (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *IEEE Transactions on Magnetics* **25**, No. 5, 3689-3691 (1989).

Unshielded MR Elements with Patterned Exchange Biasing, C. Tsang (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* **25**, No. 5, 3692-3694 (1989).

Exchange Coupled CoPd/TbCo Magneto-Optic Storage Films, R. J. Gambino, R. R. Ruf, and R. Rishi (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Magnetics* **25**, No. 5, 3749-3751 (1989).

Magnetic and Recording Characteristics of Very Thin Metal-Film Media, I. L. Sanders, T. Yogi, J. K. Howard, S. E. Lambert, G. L. Gorman, and C. Hwang (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* **25**, No. 5, 3869-3871 (1989).

Magnetic Instability of Iron Oxide Thin Films, V. S. Sperious, M. M. Chen, and T. Suzuki (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* **25**, No. 5, 3875-3877 (1989).

Thermal Mark Characterization on Static Magneto-Optical Media, M. R. Madison, T. W. McDaniel, and J. S. Nelson (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *IEEE Transactions on Magnetics* **25**, No. 5, 4045-4047 (1989).

The Effect of Media Properties on the Longitudinal Recording Performance of Particulate Barium Ferrite Media, R. G. Simmons (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *IEEE Transactions on Magnetics* **25**, No. 5, 4051-4053 (1989).

Performance and Sensitivity Analysis of Maximum-Likelihood Sequence Detection on Magnetic Recording Channels, F. Dolivo, R. Hermann, and S. Ölçer (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *IEEE Transactions on Magnetics* **25**, No. 5, 4072-4074 (1989).

New Detector for 1,k Codes Equalized to Class II Partial Response, R. Wood (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *IEEE Transactions on Magnetics* **25**, No. 5, 4075-4077 (1989).

Modeling Thin-Film Storage Channels, K. Fisher, J. Cioffi (Stanford University, Durand 125, Stanford, CA 94305), and H. Thapar (IBM, San Jose, CA), *IEEE Transactions on Magnetics* **25**, No. 5, 4081-4083 (1989).

An Estimation Technique for Accurately Modeling the Magnetic Recording Channel Including Nonlinearities, Y. Lin (University of California, La Jolla, CA 92093) and R. Wood (IBM, San Jose, CA), *IEEE Transactions on Magnetics* **25**, No. 5, 4084-4086 (1989).

2-Dimensional Observation of Recorded Magnetization Transitions in Perpendicular Recording, K. Sueoka, F. Sai (IBM Japan, 5-19 Sanban-cho, Chiyoda-ku, Tokyo 102, Japan), and K. G. Ashar (IBM, San Jose, CA), *IEEE Transactions on Magnetics* **25**, No. 5, 4162-4164 (1989).

Easy Axis Orientation Mapping of Soft Magnetic Films Using a Magneto-Optic Kerr BH Imager, C. S. Gudeman, D. E. Peter, J. S. Best, and D. C. Cheng (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Magnetics* **25**, No. 5, 4207-4209 (1989).

Resonance in Cylindrical-Rectangular and Wraparound Microstrip Structure, S. M. Ali (Massachusetts Institute of Technology, Cambridge, MA 02139), T. M. Habashy (Schlumberger-Doll Research, Ridgefield, CT), J. F. Kiung (IBM, Yorktown Heights, NY), and J. A. Kong (Massachusetts Institute of Technology, Cambridge, MA), *IEEE Transactions on Microwave Theory and Techniques* 37, No. 11, 1773-1783 (1989).

SPARTA: Multiple Signal Processors for High-Performance Robot Control, J. Ish-Shalom and P. Kazanzides (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Robotics and Automation* 5, No. 5, 628-640 (1989).

A Case Study in Structure Specification: A Grid Description of Scribe, H. Ossher (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Software Engineering* 15, No. 11, 1397-1416 (1989).

Professional Must Train for Factory of Future's Integrated Work Environment, J. A. Edosomwan (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *Industrial Engineering* 21, No. 10, 20-23 (1989).

Finding Minimal Convex Nested Polygons, A. Aggarwal (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), H. Booth, J. O'Rourke, S. Suri (The Johns Hopkins University, Baltimore, MD), and C. K. Yap (Courant Institute of Mathematical Sciences, New York, NY), *Information and Computation* 83, No. 1, 98-110 (1989).

Feed-Through River Routing, A. Joseph (Technion, Israel Institute of Technology, 32000 Haifa, Israel) and R. Y. Pinter (IBM, Haifa, Israel), *Integration, The VLSI Journal* 8, No. 1, 41-50 (1989).

Artificial Intelligence and the Management Science Practitioner: One Definition of Knowledge-Based Expert Systems, K. Fordyce (IBM Corporation, Neighborhood Road, Kingston, NY 12401), P. Norden (IBM, Yorktown Heights, NY), and G. Sullivan (IBM, Essex Junction, VT), *Interfaces* 19, No. 5, 66-70 (1989).

Recursive Equations for Hardwired Binary Adders, S. Vassiliadis (IBM Corporation, 1701 North Street, Endicott, NY 13760), *International Journal of Electronics* 67, No. 2, 201-213 (1989).

Planning Compliant Motion Strategies, S. J. Buckley (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *International Journal of Robotics Research* 8, No. 5, 28-44 (1989).

The Perfect Club Benchmarks: Effective Performance Evaluation of Supercomputers, M. Berry (University of Illinois, Urbana, IL 61801), D. Chen, P. Koss, D. Kuck, S. Lo, Y. Pang, L. Pointer, R. Roloff, A. Sameh (IBM, Yorktown Heights, NY), and E. Clementi (IBM, Kingston, NY), *International Journal of Supercomputer Applications* 3, No. 3, 5-40 (1989).

A Uniqueness Proof for Discontinuous Inverse Sturm-Liouville Problems with Symmetric Potentials, M. Kobayashi (IBM Japan Ltd., 5-19 Sanban-cho, Chiyoda-ku, Tokyo 102, Japan), *Inverse Problems* 5, No. 5, 767-781 (1989).

Sources of the Increased Longitudinal Relaxational Rates Observed in Melanotic Melanoma: An Invitro Study of Synthetic Melanins, W. S. Enoch, W. B. Hyslop, H. F. Bennett (University of Illinois, Urbana, IL 61801), R. D. Brown, R. D. Koenig, and H. M. Swartz (IBM, Yorktown Heights, NY), *Investigative Radiology* 24, No. 10, 794-804 (1989).

J

Linear Broadcast Routing, C.-T. Chou (University of California, Los Angeles, CA 90024) and I. S. Gopal (IBM, Yorktown Heights, NY), *Journal of Algorithms* 10, No. 4, 490-517 (1989).

On the Distribution of Running Times of Certain Integer Factoring Algorithms, J. L. Hafner (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and K. S. McCurley (University of Southern California, Los Angeles, CA), *Journal of Algorithms* 10, No. 4, 531-556 (1989).

Characterization of Electron Superconducting and Related $Nd_{2-x}Ce_xCuO_{4+y}$, $Nd_{2-x}Th_xCuO_{4+y}$ Compounds, T. C. Huang, E. Moran, A. I. Nazzari, J. B. Torrance, and P. W. Wang (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Japanese Journal of Applied Physics* 28, No. 10, Part 3, L1760-L1762 (1989).

Polymer Melt Confined Between Two Plates, D. Ausserre (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal de Physique* 50, No. 19, 3021-3042 (1989).

Thermal Stability of the Cu/PtSi Metallurgy, C. A. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* 66, No. 7, 2989-2992 (1989).

Novel Second Order Nonlinear Optical Polymers Via Chemical Cross Linking Induced Vitrification Under Electric Field, M. Eich, B. Reck, D. Y. Yoon, C. G. Willson, and G. C. Bjorklund (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* 66, No. 7, 3241-3247 (1989).

Interfacial Roughness in InAs/GaAs Heterostructures Determined by Soft X-Ray Reflectivity, S. C. Woronick, B. X. Yang, A. Krol, Y. H. Kao (State University of New York, Stony Brook, NY 11794), H. Munekata, and L. L. Chang (IBM, Yorktown Heights, NY), *Journal of Applied Physics* 66, No. 8, 3566-3573 (1989).

r.f. Diode Sputtered Permalloy Film, M. M. Yang and J. A. Aboaf (IBM Corporation, Tucson, AZ 85744), *Journal of Applied Physics* 66, No. 8, 3734-3740 (1989).

Scanning Tunneling Microscopy as a Tool to Study Surface Roughness of Sputtered Thin Films, C. Schonenberger (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), S. F. Alvarado, and C. Ortiz (IBM, San Jose, CA), *Journal of Applied Physics* 66, No. 9, 4258-4261 (1989).

Investigation on Resonant Tunneling in III-V Heterostructures: Comparison Between Experimental Data and Model Calculations, P. Gueret, C. Rossel, W. Schlup, and H. P. Meier (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Journal of Applied Physics* 66, No. 9, 4312-4316 (1989).

Soft X-Ray Photoemission Study of Downstream Plasma Enhanced Chemical Vapor Deposited SiO_2 , B. Robinson and F. R. McFeeley (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* 66, No. 9, 4431-4434 (1989).

Time Resolved Optical Emission During Laser Ablation of Cu, CuO, and High T_c Superconductors: $Bi_{1-x}Sr_xO_x$ and $YBa_2Cu_3O_{7-x}$, K. L. Saenger (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* 66, No. 9, 4435-4440 (1989).

Liquid Junctions for Characterization of Electronic Materials. V. Comparison with Solid State Devices Used to Characterize Reactive Ion Etching of Si. M. C. A. Fantini, W. M. Shen (State University of New York, Brooklyn, NY 11210), M. Tomkiewicz, and J. P. Gambino (IBM, Hopewell Junction, NY), *Journal of Applied Physics* **66**, No. 10, 4846-4853 (1989).

Tungsten Etching Mechanisms in CF_4/O_2 Reactive Ion Etching Plasmas. T. D. Bestwick and G. S. Oehrlein (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **66**, No. 10, 5034-5038 (1989).

Processing Effects on the Tribological Characteristics of Reactively Sputtered Chromium-Oxide (Cr_2O_3) Overcoat Films. A. S. Kao, M. F. Doerfel, and V. J. Novotny (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* **66**, No. 11, 5315-5321 (1989).

The Steady State Model for Coupled Defect Impurity Diffusion in Silicon. F. F. Morehead and R. F. Lever (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of Applied Physics* **66**, No. 11, 5349-5352 (1989).

Electrical Studies on Plasma and Reactive Ion Etched Silicon. A. Henry (Linköping University, S-58183 Linköping, Sweden), O. O. Awadelkarim (Swedish Defense Research Establishment, Linköping, Sweden), J. L. Lindstrom, and G. S. Oehrlein (IBM, Yorktown Heights, NY), *Journal of Applied Physics* **66**, No. 11, 5388-5393 (1989).

High Resolution Surface Charge Measurements on an Organic Photoconductor. E. J. Yarmchuk and G. E. Keefe (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **66**, No. 11, 5435-5439 (1989).

Dicke Narrowing of the Polarized Stokes-Raman Q Branch of the $\nu = 0 \rightarrow 1$ Transition of D_2 in He. R. Blackmore (IBM Corporation, Bethesda, MD 20817), S. Green (NASA Goddard Space Flight Center, Institute for Space Studies, New York, NY), and L. Monchick (The Johns Hopkins University, Laurel, MD), *Journal of Chemical Physics* **91**, No. 7, 3846-3853 (1989).

The Bonding of Acetonitrile and CH_3CN on $\text{Ag}(110)$ Determined by Near Edge X-Ray Absorption Fine Structure: Evidence for π -Donor Bonding and Azimuthal Ordering. P. A. Stevens, R. J. Madix (Stanford University, Stanford, CA 94305), and J. Stohr (IBM, San Jose, CA), *Journal of Chemical Physics* **91**, No. 7, 4338-4345 (1989).

Ab Initio Calculations of Polarizability and Second Hyperpolarizability in Benzene Including Electron Correlation Treated by Møller-Plesset Theory. E. Perrin, P. N. Prasad (State University of New York, Buffalo, NY 14212), P. Mougnot, and M. Dupuis (IBM, Kingston, NY), *Journal of Chemical Physics* **91**, No. 8, 4728-4732 (1989).

Ab Initio Determination of Mode Coupling in HsSh : The Torsional Splitting in the First Excited S-S Stretching State. E. Herbst (Duke University, Durham, NC 27706), G. Winnewisser, K. M. T. Yamada (University of Cologne, Cologne, Federal Republic of Germany), D. J. Defrees (Molecular Research Institute, Palo Alto, CA), and A. D. McLean (IBM, San Jose, CA), *Journal of Chemical Physics* **91**, No. 10, 5905-5909 (1989).

Sticking and Scattering in the Molecular Chemisorption Regime: Co on Pt(111). J. Harris (KFA Jülich GmbH, D-5170 Jülich 1, Federal Republic of Germany) and A. C. Luntz (IBM, San Jose, CA), *Journal of Chemical Physics* **91**, No. 10, 6421-6428 (1989).

Solution of Atomic Hartree-Fock Equations with the P -Version of the Finite Element Method. J. R. Flores, E. Clementi, and V. Sonnad (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Journal of Applied Physics* **91**, No. 11, 7030-7038 (1989).

(p , V_m , T , x) and Virial Coefficients $\{\text{xCO}_2(\text{t}_{1-2})\text{Co}\}$. B. V. Mallu (University of Missouri, Columbia, MO 65211), G. Natarajan (IBM, Hopewell Junction, NY), and D. S. Viswanathan (University of Missouri, Columbia, MO 65211), *Journal of Chemical Thermodynamics* **21**, No. 9, 989-996 (1989).

Eddy Current Responses of an Encircling Sensor in a Czochralski Silicon Crystal Puller. K. S. Choe (IBM Corporation, Route 52, Hopewell Junction, NY 12533), J. A. Stefani, J. K. Tien (Columbia University, New York, NY), and J. P. Wallace (Casting Analysis Corporation, Weyers Care, VA), *Journal of Crystal Growth* **97**, No. 3-4, 622-630 (1989).

Compensation Mechanisms in n -GaAs Doped with Sulfur. R. Venkatasubramanian (Research Triangle Institute, Research Triangle Park, NC 27709), S. K. Ghandi (Rensselaer Polytechnic Institute, Troy, NY), and T. F. Kuech (IBM, Yorktown Heights, NY), *Journal of Crystal Growth* **97**, No. 3-4, 827-832 (1989).

Cation Effects on the Vibrational Frequencies of Adsorbed Thiocyanate on Platinum. K. Ashley (San Jose State University, San Jose, CA 95192), M. G. Samant, H. Seki, and M. R. Philpott (IBM, San Jose, CA), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* **270**, Nos. 1 + 2, 349-364 (1989).

In Situ FT IR Spectroscopic Study of Bisulfate and Sulfate Adsorption on a Platinum Electrode .2. Mildly Acid and Alkaline Sodium Sulfate Solutions. K. Kunimatsu (Hokkaido University, Sapporo 060, Japan), M. G. Samant, and H. Seki (IBM, San Jose, CA), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* **272**, Nos. 1 + 2, 185-194 (1989).

Comparing Particle Counters: Cost vs. Reproducibility. D. W. Cooper and S. J. Grotzinger (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Environmental Sciences* **32**, No. 5, 32-34 (1989).

Nonprose Alternatives as Sources of Manufacturing Floor Control Software Requirements. R. Rowen (IBM Corporation, Austin, TX 78758), *Journal of Manufacturing Systems* **8**, No. 3, 235-237 (1989).

Oxidation Kinetics of Pb-Sn Alloys. R. A. Konetzki, Y. A. Chang (University of Wisconsin, Madison, WI 53706), and V. C. Marcotte (IBM, Hopewell Junction, NY), *Journal of Materials Research* **4**, No. 6, 1421-1426 (1989).

Interfacial Reactions in the Nb/GaAs System. K. J. Schulz (IBM Corporation, Rochester, MN 55901), X. Y. Zheng, and Y. A. Chang (University of Wisconsin, Madison, WI), *Journal of Materials Research* **4**, No. 6, 1462-1472 (1989).

Effects of Oxidation on the Electrical Resistance of Cermet Thin Films. A. D. Katnani, L. J. Matienzo, and F. Emmi (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Journal of Materials Science Letters* **8**, No. 10, 1177-1178 (1989).

Birefringence Effects Induced by Optical Saturation, Dispersion Effects in the Infra-red, M. W. Evans, C. G. Lie, and E. Clementi (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Journal of Molecular Liquids* **40**, No. 4, 251-260 (1989).

Symmetry Effects of Electric and Magnetic Fields in Liquid State Molecular Dynamics, M. W. Evans (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Journal of Molecular Liquids* **40**, No. 4, 277-283 (1989).

Translational Anisotropy Induced by a Circularly Polarised Laser Field Applied to Liquid Water, M. W. Evans, G. C. Lie, and E. Clementi (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Journal of Molecular Liquids* **40**, No. 4, 285-295 (1989).

On the Material Frame Indifference Controversy: Some Results from Group Theory and Computer Simulation, M. W. Evans (IBM Corporation, Neighborhood Road, Kingston, NY 12401) and D. M. Heyes (University of London, Egham, Surrey, United Kingdom), *Journal of Molecular Liquids* **40**, No. 4, 297-304 (1989).

Cross Correlation Functions in Protein Dynamics and Function, M. W. Evans (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Journal of Molecular Liquids* **41**, 223-231 (1989).

Computer Simulations of Hydrated Proteins, E. Clementi (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Journal of Molecular Liquids* **41**, 233-239 (1989).

Infrared Reflectance Properties of Surface Thin Films, Y. S. Yen (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and J. S. Wong (IBM, San Jose, CA), *Journal of Physical Chemistry* **93**, No. 20, 7208-7261 (1989).

Suppressing Critical Slowing Down in Two-Dimensional Ising Model Simulations by the Multigrid Monte Carlo Method, E. P. Stoll (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Journal of Physics, Condensed Matter* **1**, No. 39, 6959-6966 (1989).

Conductance Determined by Transmission Probes and Quantized Constriction Resistance, R. Landauer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Physics, Condensed Matter* **1**, No. 43, 8099-8110 (1989).

Acid Photogeneration from Sulfonium Salts in Solid Polymer Matrices, D. R. McKean, U. Schaedell, and S. A. MacDonald (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Polymer Science A* **27**, No. 12, 3927-3935 (1989).

The Effects of Advance Organizer and Prerequisite Knowledge Passages on the Learning and Retention of Science Concepts, V. C. Healy (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Research in Science Teaching* **26**, No. 7, 627-642 (1989).

Sinterable β -Spodumene Glass-Ceramics, S. Knickerbocker, M. R. Tuzzolo, and S. Lawhorne (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of the American Ceramic Society* **72**, No. 10, 1873-1879 (1989).

The Characterization of Electron Cyclotron Resonance Plasma Deposited Silicon Nitride and Silicon Oxide Films, S. Van Nguyen and K. Albaugh (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), *Journal of the Electrochemical Society* **136**, No. 10, 2835-2840 (1989).

Reactive Ion Etching of Tungsten with Chlorinated Fluorocarbons, T. H. Daubenspeck, E. J. White (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), and P. C. Sukanek (Clarkson University, Potsdam, NY), *Journal of Electrochemical Society* **136**, No. 10, 2973-2979 (1989).

Refinement of Zinc Silicate Phosphor Synthesis, I. F. Chang, J. W. Brownlow, T. I. Sun, and J. S. Wilson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **136**, No. 11, 3532-3536 (1989).

Charge Profiles of Thin Electret Films Mapped with Subnanosecond Thermal Pulses, H. Coufal and R. K. Grygier (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of the Optical Society of America B* **6**, No. 11, 2013-2017 (1989).

Micropatterning of Surface by Excimer Laser Projection, J. H. Brannon (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology B* **7**, No. 5, 1064-1071 (1989).

Surface Photoprocesses in Laser-Assisted Etching and Film Growth, F. A. Foule (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology B* **7**, No. 5, 1149-1154 (1989).

Comparison of Disilane and Hydrogen Adsorption on Si(111)- 7×7 , K. J. Uram and U. Jansson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology B* **7**, No. 5, 1176-1181 (1989).

Ultraviolet Laser Excited Adsorbate-Surface Interactions NH_3 , C_2H_4 , and CH_2I_2 on Al and Oxidized Al Surfaces, T. J. Chuang and K. Domen (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology B* **7**, No. 5, 1200-1207 (1989).

Ultraviolet Photoetching of Copper, J. H. Brannon (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and K. W. Brannon (IBM, San Jose, CA), *Journal of Vacuum Science and Technology B* **7**, No. 5, 1275-1283 (1989).

L

Complexities in the Structure of Ferroelectric Liquid Crystal Cells: The Chevron Structure and Twisted States, A. Fukuda, Y. Ouchi (Tokyo Institute of Technology, Meguro-ku, Tokyo 152, Japan), A. Arai (Japan Atomic Energy Research Institute, Gunma, Japan), H. Takano, K. Ishikawa (IBM Japan, Kanagawa, Japan), and H. Takezoe (Tokyo Institute of Technology, Meguro-ku, Tokyo, Japan), *Liquid Crystals* **5**, No. 4, 1055-1073 (1989).

Potential Infrared Liquid Crystals, S. T. Wu (Hughes Research Laboratories, 3011 Malibu Canyon Road, Malibu, CA 90265) and R. J. Cox (IBM, San Jose, CA), *Liquid Crystals* **5**, No. 5, 1415-1424 (1989).

The Structural Basis of Transitions Between Highly Ordered Smectic Phases in Semifluorinated Alkanes, C. Viney (University of Washington, Seattle, WA 98195), R. J. Twieg, T. P. Russell, and L. E. Depero (IBM, San Jose, CA), *Liquid Crystals* **5**, No. 6, 1783-1788 (1989).

M

Synthesis and Characterization of a Thermotropic, Liquid Crystalline Polyester Comprising Phenyl Benzoate Groups Connected Via a Tris(ethylene oxide) Spacer, W. Volksen, D. Y. Yoon, and P. M. Cotts (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Macromolecules* **22**, No. 10, 3846-3850 (1989).

Blocked Amine Functional Initiator for Anionic Polymerization, W. H. Dickstein and C. P. Lillya (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Macromolecules* **22**, No. 10, 3882-3885 (1989).

Telechelic Star Poly(Dimethylsiloxane)s of Highly Defined Structure, W. H. Dickstein (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and C. P. Lillya (University of Massachusetts, Amherst, MA), *Macromolecules* **22**, No. 10, 3886-3888 (1989).

Phase Behavior of a Semiflexible Polymer with Both Thermotropic and Lyotropic Properties, C. Viney, D. Y. Yoon (IBM Corporation, 650 Harry Road, San Jose, CA 95120), B. Reck, and H. Ringsdorf (University of Mainz, Mainz, Federal Republic of Germany), *Macromolecules* **22**, No. 10, 4088-4093 (1989).

Lattice Model for Interphases in Binary Semicrystalline Amorphous Polymer Blends, S. K. Kumar and D. Y. Yoon (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Macromolecules* **22**, No. 10, 4098-4101 (1989).

Hydrogen Bonding in Poly(amic acid)s, B. Thomson, Y. Park, P. C. Painter (Pennsylvania State University, University Park, PA 16802) and R. W. Snyder (IBM, Endicott, NY), *Macromolecules* **22**, No. 11, 4159-4166 (1989).

FTIR Studies of Polyimides: Thermal Curing, R. W. Snyder (IBM Corporation, 1701 North Street, Endicott, NY 13760), B. Thomson, B. Bartges, D. Czerniawski, and P. C. Painter (Pennsylvania State University, University Park, PA 16802), *Macromolecules* **22**, No. 11, 4166-4172 (1989).

Four Problems of Graphs with Excluded Minors, H. Gan (State University of New York, Stony Brook, NY 11790) and E. L. Johnson (IBM, Yorktown Heights, NY), *Mathematical Programming* **45**, No. 2, 311-330 (1989).

Workability of 1045 Spheroidized Steel Under Superimposed Hydrostatic Pressure, A. S. Kao (IBM Corporation, 650 Harry Road, San Jose, CA 95120), H. A. Kuhn (University of Pittsburgh, Pittsburgh, PA), O. Richmond (Alcoa Laboratories, Alcoa Center, PA), and W. A. Spitzig (Iowa State University of Science and Technology, Ames, IA), *Metallurgical Transactions A* **20**, No. 9, 1735-1741 (1989).

Application of Picosecond Optoelectronics in Broadband Microwave Material Measurements, G. Arjavalingam, Y. Pastol, J. M. Halbout, and G. V. Kopcsay (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Microwave Journal* **32**, No. 11, 133-140 (1989).

Charge Flow and Potential Shifts in Electrochemical Double Layer Emersion, W. N. Hansen (Utah State University, Logan, UT 84322), D. Henderson (Technical University of Denmark, Lyngby, Denmark), and J. Ulstrup (IBM, San Jose, CA), *Molecular Physics* **68**, No. 2, 401-406 (1989).

N

A Neural Network Capable of Forming Associations by Example, A. Hartstein and R. H. Koch (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Neural Networks* **2**, No. 5, 395-403 (1989).

Measurement of Blower and Fan Noise Using Sound Intensity Techniques, A. C. Balant, G. C. Maling, and D. M. Yeager (IBM Corporation, P.O. Box 390, Poughkeepsie, NY 12602), *Noise Control Engineering Journal* **33**, No. 2, 77-88 (1989).

X-Ray and Raman Studies of MeV Ion-Bombarded GaInAs/GaAs, C. R. Wie (State University of New York, 201 Bonner Hall, Amherst, NY 14260), G. Burns, F. H. Dacol, G. D. Pettit, and J. M. Woodall (IBM, Yorktown Heights, NY), *Nuclear Instruments & Methods in Physics Research Section B* **43**, No. 4, 560-564 (1989).

O

Terahertz Time-Domain Spectroscopy of Water Vapor, M. van Exter, C. Fattinger, and D. Grischkowsky (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Optics Letters* **14**, No. 20, 1128-1130 (1989).

Second-Harmonic Diffraction from a Monolayer Grating, T. Suzuki and T. F. Heinz (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Optics Letters* **14**, No. 21, 1201-1203 (1989).

64-dB Amplification of 19-psec Laser Diode Pulses in a Ti Sapphire Laser, S. Basu (Massachusetts Institute of Technology, Cambridge, MA 02139), P. May, and J. M. Halbout (IBM, Yorktown Heights, NY), *Optics Letters* **14**, No. 22, 1272-1274 (1989).

Mechanistic Studies on the Thermal and Photochemical Decomposition of Dimethyl(2,4-Pentanedionato)Gold(III) in Solution, R. B. Klassen and T. H. Baum (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Organometallics* **8**, No. 10, 2477-2482 (1989).

P

Performance of Parallel Processors, H. P. Flatt (IBM Corporation, 1530 Page Mill Road, Palo Alto, CA 94304) and K. Kennedy (Rice University, Houston, TX), *Parallel Computing* **12**, No. 1, 1-20 (1989).

A Multistage Algorithm for Fast Classification of Patterns, H. El-Shishiny (IBM Corporation, 56 Gameaat Al Dowal Al Arabeya, Giza, Cairo, Egypt), M. S. Abdeltmottaleb, M. Elraey, and A. Shoukry (University of Alexandria, Alexandria, Egypt), *Pattern Recognition Letters* **10**, No. 4, 211-215 (1989).

Performance Comparison of IO Shipping and Database Call Shipping: Schemes in Multisystem Partitioned Databases, P. S. Yu, D. Cornell, D. M. Dias, and A. Thomasian (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Performance Evaluation* **10**, No. 1, 15-33 (1989).

In situ Studies of Microstructural Changes in YBa₂Cu₃O_{7-x} During O and He Irradiation, F. K. LeGoues (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), M. O. Ruault (Center de Spectrometrie Nucléaire et Spectrometrie de Masse, Orsay, France),

G. Clark (IBM, Yorktown Heights, NY), H. Bernas (Centre de Spectrometrie Nucléaire et Spectrometrie de Masse, Orsay, France), and M. Gasgnier (CNRS, Meudon, France), *Philosophical Magazine A* **60**, No. 5, 525-538 (1989).

Magnetic Instabilities in Invar, V. L. Moruzzi (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physica B* **161**, Nos. 1-3, 99-104 (1989).

The Effects of Substrate Temperature on the Superconducting Properties of $TiCa_2Ba_2Cu_3O_{10}$ Films Sputter-Deposited from Stoichiometric Oxide Targets, W. Y. Lee, J. Salem, V. Lee, V. Deline, T. C. Huang, R. Savoy, J. Duran (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and R. L. Sandstrom (IBM, Yorktown Heights, NY), *Physica C* **160**, Nos. 5 & 6, 511-516 (1989).

A Thermal Analysis Study of the System Bi-Sr-Ca-Cu-O at Variable Oxygen Pressure, P. Strobel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), W. Korczak, and T. Fournier (CNRS, Grenoble, France), *Physica C* **161**, No. 2, 167-174 (1989).

Dynamic Structure Factor of Fractals, O. Entin-Wohlman (Tel Aviv University, IL-69978 Tel Aviv, Israel), U. Sivan (IBM, Yorktown Heights, NY), R. Blumenfeld (Tel Aviv University, Tel Aviv, Israel), and Y. Meir (Weizman Institute of Science, Rehovot, Israel), *Physica D* **38**, Nos. 1-3, 93-97 (1989).

Multifractal Measures and Stability Islands in the Anisotropic Kepler Problem, M. C. Gutzwiller (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physica D* **38**, Nos. 1-3, 160-171 (1989).

Johnson-Nyquist Noise Derived from Quantum Mechanical Transmission, R. Landauer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physica D* **38**, Nos. 1-3, 226-229 (1989).

Random Fractals: Self-Affinity in Noise, Music, Mountains, and Clouds, R. F. Voss (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physica D* **38**, Nos. 1-3, 362-371 (1989).

Global Complexity and Essential Simplicity, a Conjectural Picture of the Boundary of Chaos for Smooth Endomorphisms of the Interval, M. V. Otero-Espinar (Facultade de Matemáticas, Campus Universitario, Santiago de Compostela 15706, Spain) and C. Tresser (IBM, Yorktown Heights, NY), *Physica D* **39**, Nos. 2 & 3, 163-168 (1989).

Low Field Microwave Absorption of Granular Superconductors, K. W. Blazey (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Physica Scripta T29*, 92-96 (1989).

Oxygen Disorder Effects in High- T_c Superconductors, Y. Bruynseraede, J. Vanacken, B. Wuyts, C. Van Hesendonck (Catholic University of Leuven, B-3030 Heverle, Belgium), J.-P. Locquet (IBM, Rüschlikon, Switzerland), and I. K. Schuller (University of California, La Jolla, CA), *Physica Scripta T29*, 100-105 (1989).

Phonon-Fractal Crossover and Self-Similarity in Real Fractals, R. Vacher (Université des Sciences et Techniques du Languedoc, F-34060 Montpellier, France) and E. Courtens (IBM, Rüschlikon, Switzerland), *Physica Scripta T29*, 239-243 (1989).

Critical Phenomena in a Nonequilibrium Model of Heterogeneous Catalysis, G. Grinsten (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), Z. W. Lai (Louisiana State University, Baton Rouge, LA), and D. A. Browne (University of Chicago, Chicago, IL), *Physical Review A* **40**, No. 8, 4820-4823 (1989).

Point Charge Effects on the Vibrational Frequency of Co Chemisorbed on Cu and Pd Clusters: A Model for Co with Ionic Coadsorbrates, G. Pacchioni and P. S. Bagus (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physical Review B* **40**, No. 9, 6003-6011 (1989).

Diffraction of He and Ne and Selective Adsorption of He on Rh(110), G. Parschau, E. Kirsten (Free University of Berlin, D-1000 Berlin 33, Federal Republic of Germany), A. Bischof (IBM, Rüschlikon, Switzerland), and K. H. Rieder (Free University of Berlin, D-1000 Berlin 33, Federal Republic of Germany), *Physical Review B* **40**, No. 9, 6012-6017 (1989).

Electronic Properties of Na Overlayers on the GaAs(110) Surface, C. Y. Fong, L. H. Yang (University of California, Davis, CA 95616), and I. P. Batra (IBM, San Jose, CA), *Physical Review B* **40**, No. 9, 6120-6123 (1989).

Splitting of the States Derived from the Bulk X Minima in GaAs AlAs Superlattices, L. D. L. Brown, M. Jaros (University of Newcastle upon Tyne, Newcastle Tyne NE1 7RU, Tyne & Wear, England), and D. J. Wolford (IBM, Yorktown Heights, NY), *Physical Review B* **40**, No. 9, 6413-6416 (1989).

Phonons in $CaCuO_2$, G. Burns (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), M. K. Crawford (E. I. du Pont de Nemours & Company, Wilmington, DE), F. H. Dacol (IBM, Yorktown Heights, NY), E. M. McCarron, and T. M. Shaw (E. I. du Pont de Nemours & Company, Wilmington, DE), *Physical Review B* **40**, No. 10, 6717-6720 (1989).

Superconducting Energy Gap and a Normal State Excitation in $Ba_{0.4}K_{0.6}BiO_3$, Z. Schlesinger, R. T. Collins, J. A. Calise (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. G. Hinks, A. W. Mitchell, Y. Zheng, B. Dabrowski (Argonne National Laboratory, Argonne, IL), N. E. Bickers (University of Southern California, Los Angeles, CA), and D. J. Scalapino (University of California, Santa Barbara, CA), *Physical Review B* **40**, No. 10, 6862-6866 (1989).

Transient Solid Phase Crystallization Study of Chemically Vapor Deposited Amorphous Silicon Films by *In situ* X-Ray Diffraction, R. Bisaro, J. Magarino (Thomson Company, Domaine Corbeville, F-91404 Orsay, France), Y. Pastol (IBM, Yorktown Heights, NY), P. Germain (Eurodisplay, Orsay, France), and K. Zellama (University of Paris, Paris, France), *Physical Review B* **40**, No. 11, 7655-7662 (1989).

Surface Electronic Structure of Submonolayer to Full Monolayer Coverages of Alkali Metals on GaAs(110): K and Cs, K. O. Magnusson and B. Reihl (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Physical Review B* **40**, No. 11, 7814-7818 (1989).

Isolated As Antisite in GaAs Possibility of the EI₂ Defect, E. Kaxiras and K. C. Pandey (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **40**, No. 11, 8020-8023 (1989).

Low Energy Electron Diffraction Study of Multilayer Relaxation on a Pb(110) Surface, Y. S. Li, J. Quinn, F. Jona (State University of New York, Stony Brook, NY 11794), and P. M. Marcus (IBM, Yorktown Heights, NY), *Physical Review B* **40**, No. 12, 8239-8244 (1989).

Transverse Magnetotunneling in $\text{AlGa}_{1-x}\text{As}$ Capacitors. I. Angular Dependence, T. W. Hickmott (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **40**, No. 12, 8363-8369 (1989).

Resonant Inverse Photoemission Study of Layer Dependent Surface at the Epitaxial GaAs(110)-Bi Interface, A. B. McLean and F. J. Himpsel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **40**, No. 12, 8425-8430 (1989).

Properties that Change as Superconductivity Disappears at High Doping Concentrations in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$, J. B. Terrance, A. Bezing, A. I. Nazzari, T. C. Huang, S. S. P. Parkin (IBM Corporation, 650 Harry Road, San Jose, CA 95120), D. T. Keane, S. J. Laplace, P. M. Horn, and G. A. Horn (IBM, Yorktown Heights, NY), *Physical Review B* **40**, No. 13, 8872-8877 (1989).

Nucleation and Growth in Systems with Two Stable Phases, R. M. Bradley (Colorado State University, Ft. Collins, CO 80523) and P. N. Strenski (IBM, Yorktown Heights, NY), *Physical Review B* **40**, No. 13, 8967-8977 (1989).

New Superconducting State of the Anderson Lattice Model, D. H. Lee (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and G. T. Zimanyi (Rutgers State University, Piscataway, NJ), *Physical Review B* **40**, No. 13, 9404-9407 (1989).

Scanning Tunneling Microscopy and First-Principles Theory of the Sn/GaAs(110) Surface, C. K. Shih, E. Kaxiras, R. M. Feenstra, and K. C. Pandey (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **40**, No. 14, 44-47 (1989).

Spectra and Energy Levels of $\text{TM}^{3+}:\text{Y}_3\text{Al}_5\text{O}_{12}$, J. B. Gruber (San Jose State University, Washington Square, San Jose, CA 95192), M. E. Hills (U.S. Navy, China Lake, CA), R. M. Macfarlane (IBM, San Jose, CA), C. A. Morrison, G. A. Turner (U.S. Army, Adelphi, MD), G. J. Quarles, G. J. Kintz, and L. Esterowitz (U.S. Navy, China Lake, CA), *Physical Review B* **40**, No. 14, 9464-9478 (1989).

Electron Energy Loss Studies of Dislocations in Diamond, J. Bruley and P. E. Batson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **40**, No. 14, 9888-9894 (1989).

Evidence for a Large Valence Band Offset at HGTE/CDTE Heterojunctions, J. Tersoff (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **40**, No. 15, 615-616 (1989).

Spin One Kemmer-Duffin-Petiau Equations and Intermediate Energy Deuteron Nucleus Scattering, R. E. Kozack (University of California, Los Alamos, NM 87545), B. C. Clark, S. Hama, V. K. Mishra (Ohio State University, Columbus, OH), R. L. Mercer (IBM, Yorktown Heights, NY), and L. Ray (University of Texas, Austin, TX), *Physical Review C* **40**, No. 5, 2181-2194 (1989).

Theory of a Single-Atom Point Source for Electrons, N. D. Lang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598),

A. Yacoby, and Y. Imry (Weizmann Institute of Science, Rehovot, Israel), *Physical Review Letters* **63**, No. 14, 1499-1502 (1989).

Experimental Evidence for Vortex-Glass Superconductivity in Y-Ba-Cu-O, R. H. Koch, V. Foglietti, W. J. Gallagher, G. Koren, A. Gupta, and M. P. A. Fisher (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **63**, No. 14, 1511-1514 (1989).

Role of the Madelung Energy in Hole Conductivity in Copper Oxides: Difference Between Semiconductors and High- T_c Superconductors, J. B. Torrance (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and R. M. Metzger (University of Alabama, Tuscaloosa, AL), *Physical Review Letters* **63**, No. 14, 1515-1518 (1989).

Stability of Metallic Dimers on the Si(001) Surface, I. P. Batra (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physical Review Letters* **63**, No. 16, 1704-1707 (1989).

Novel Strain-Induced Defect in Thin Molecular-Beam-Epitaxy Layers, F. K. LeGoues, M. Copel, and R. Tromp (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **63**, No. 17, 1826-1829 (1989).

Diluted Magnetic III-V Semiconductors, H. Munekata, H. Ohno, S. von Molnar, A. Segmuller, L. L. Chang, and L. Esaki (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **63**, No. 17, 1849-1852 (1989).

Ion-Surface Interactions, and Electronically Stimulated Desorption of Physisorbed Atoms, R. E. Walkup, P. Avouris, N. D. Lang (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and R. Kawai (University of California, La Jolla, CA), *Physical Review Letters* **63**, No. 18, 1972-1975 (1989).

Bonding and Disorder in Liquid Silicon, I. Stich, R. Car (International School of Advanced Studies, Strada Costiera 11, 34014 Trieste, Italy), and M. Parrinello (IBM, Rüschlikon, Switzerland), *Physical Review Letters* **63**, No. 20, 2240-2243 (1989).

Focused Electron Emission from Planar Quantum Point Contacts, H. De Raedt (University of Antwerp, Universiteitsplein 1, B-2610 Wilrijk, Belgium), N. García (IBM, Rüschlikon, Switzerland), and J. J. Saenz (Universidad Autónoma de Madrid, Madrid, Spain), *Physical Review Letters* **63**, No. 20, 2260-2263 (1989).

Spin-Dependent Type-I, Type-II Behavior in a Quantum Well System, X. Liu, A. Petrou (State University of New York, Buffalo, NY 14260), J. Warnock (IBM, Yorktown Heights, NY), B. T. Jonker, G. A. Printz, and J. J. Krebs (Naval Research Laboratory, Washington, DC), *Physical Review Letters* **63**, No. 20, 2280-2283 (1989).

Kondo Coherence in UBe_{13} : Magnetoresistance at High Pressure, M. C. Aronson, J. D. Thompson, J. L. Smith, Z. Fisk (Los Alamos National Laboratory, Los Alamos, NM 87545), and M. W. McElfresh (IBM, Yorktown Heights, NY), *Physical Review Letters* **63**, No. 20, 2311-2314 (1989).

Diffusion and Segregation in Inhomogeneous Media and the $\text{Ge}_x\text{Si}_{1-x}$ Heterostructure, S. M. Hu (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Physical Review Letters* **63**, No. 22, 2492-2495 (1989).

New Phenomena in Coupled Transport Between 2D and 3D Electron-Gas Layers, P. M. Solomon, P. J. Price, D. J. Frank, and D. C. La Tulipe (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **63**, No. 22, 2508-2511 (1989).

On the Disordered Fermion Couplings, M. Bernaschi (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), S. Cabasino, E. Marinari, and R. Sarno (INFN, Rome, Italy), *Physics Letters B* **228**, No. 3, 383-388 (1989).

Renormalization Group Study of the Three-State Three-Dimensional Potts Model, M. Bernaschi, L. Biferale (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), L. A. Fernandez (Universidad Complutense de Madrid, Madrid, Spain), U. Marini Bettolo Marconi, R. Petronzio, and A. Tarancon (INFN, Rome, Italy), *Physics Letters B* **231**, No. 1-2, 157-160 (1989).

Effect of Temperature and Shear Rate on Polyisoimide Solution Viscosity, W. Levinson, G. Czornyj (IBM Corporation, Route 52, Hopewell Junction, NY 12533), D. Capo, and J. McMahon (National Starch and Chemical Corporation, Bridgewater, NJ), *Polymer Engineering and Science* **29**, No. 18, 1221-1225 (1989).

Modeling the Chemorheology of Thermosetting Resins During Processing, G. C. Martin, A. V. Tungare (Syracuse University, Syracuse, NY 13244), and J. T. Gotro (IBM, Endicott, NY), *Polymer Engineering and Science* **29**, No. 18, 1279-1285 (1989).

Morphological and Mechanical Property Studies of Polymer Extrudates Obtained by the Rotational Extrusion Process, B. Chung (Cabot Corporation, 157 Concord Road, Billerica, MA 01821) and A. E. Zachariades (IBM, San Jose, CA), *Polymer Engineering and Science* **29**, No. 21, 1511-1515 (1989).

R

A Differential Interferometer for Force Microscopy, C. Schönenberger and S. F. Alvarado (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Review of Scientific Instruments* **60**, No. 10, 3131-3134 (1989).

Design Considerations and Performance Characteristics of a Dual Mode Time-of-Flight Mass Spectrometer System for Surface Reactivity Studies, B. N. Eldridge (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Review of Scientific Instruments* **60**, No. 10, 3160-3170 (1989).

A Novel Approach to Image Processing in Spin Polarized Electron Microscopy, T. Vanzandt, R. Browning, C. R. Helms (Stanford University, Stanford, CA 94305), H. Poppa (IBM, San Jose, CA), and M. Landolt (Laboratorium für Festkörperphysik, ETH, Zurich, Switzerland), *Review of Scientific Instruments* **60**, No. 11, 3430-3433 (1989).

S

Recent Advances in High Temperature Polymers for Microelectronic Applications, J. W. Labadie and J. L. Hedrick (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Sampe Journal* **25**, No. 6, 18-23 (1989).

Electron Beam Testing of Integrated Circuits Using a Picosecond Photoelectron Scanning Electron Microscope, Y. Pastol, J. M. Halbout, P. May, and G. Chiu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Scanning Microscopy* **3**, No. 2, 443-447 (1989).

Stick-Slip During Fiber Pull-Out, R. F. Cook, M. D. Thouless, D. R. Clarke, and M. C. Kroll (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Scripta Metallurgica* **23**, No. 10, 1725-1730 (1989).

Hysteresis and Discontinuity in the Indentation Load-Displacement Behavior of Silicon, G. M. Pharr (Rice University, P.O. Box 1892, Houston, TX 77251), W. C. Oliver (Oak Ridge National Laboratory, Oak Ridge, TN), and D. R. Clarke (IBM, Yorktown Heights, NY), *Scripta Metallurgica* **23**, No. 11, 1949-1952 (1989).

Simulated Annealing Type Markov Chains and Their Order Balance Equations, D. P. Connors (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and P. R. Kumar (University of Illinois, Urbana, IL), *SIAM Journal of Control and Optimization* **27**, No. 6, 1440-1461 (1989).

The Distributed Firing Squad Problem, B. A. Coan (Bell Communication Research, Morristown, NJ 07960), D. Dolev, C. Dwork, and L. Stockmeyer (IBM, Yorktown Heights, NY), *SIAM Journal on Computing* **18**, No. 5, 990-1012 (1989).

TGMS: An Object-Oriented System for Programming Geometry, W. C. Dietrich, Jr., L. R. Nackman, C. J. Sundaresan, and F. Gracer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Software Practice & Experience* **19**, No. 10, 979-1013 (1989).

X-Ray Scattering Study of the Deconstruction and Thermal Roughening of the Au(110) 1×3 Reconstructed Surface, G. A. Held, J. L. Jordan-Sweet, P. M. Horn (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), A. Mak, and R. J. Birgeneau (Massachusetts Institute of Technology, Cambridge, MA), *Solid State Communications* **72**, No. 1, 37-41 (1989).

Variable Range Hopping Conductivity in Hydrogenated Amorphous Silicon Thin Film Transistors, N. Lustig and W. E. Howard (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Solid State Communications* **72**, No. 1, 59-61 (1989).

Comment on Lodder Exact Electromigration Theory, R. Landauer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Solid State Communications* **72**, No. 9, 867-868 (1989).

High- T_c Superconductivity in Digital Electronics, W. J. Gallagher (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Solid State Technology* **32**, No. 11, 151-154 (1989).

Constant Final State Measurements of Surface Core-level Binding Energy Shifts: InP(110) and GaAs(110), A. B. McLean (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Surface Science* **220**, No. 1, L671-L678 (1989).

Epitaxial Growth of γ -Fe on Ni(001), S. H. Lu, Z. Q. Wang, D. Tian, Y. S. Li, F. Jona (State University of New York, Stony Brook, NY 11794), and P. M. Marcus (IBM, Yorktown Heights, NY), *Surface Science* **221**, No. 1/2, 35-47 (1989).

T

Electrical Characteristics of Ti-Si(100) Interfaces, M. O. Aboelfotoh (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), L. Stolt, and C. S. Petersson (Royal Institute of Technology, Stockholm, Sweden), *Thin Solid Films* **176**, No. 2, 173-179 (1989).

V

Nucleation and Growth of Epitaxial Silicon on Si(001) and Si(111) Surfaces by Scanning Tunneling Microscopy, R. J. Hamers, U. K. Köhler, and J. E. Demuth (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Ultramicroscopy* **31**, No. 1, 10-19 (1989).

Z

Simulation of Two-Dimensional and Three-Dimensional Disordered Systems: Lifshitz Tails and Localization Properties, H. Daraedt (University of Instelling Antwerp, B-2610 Wilrijk, Belgium) and P. DeVries (IBM, Rüschlikon, Switzerland), *Zeitschrift für Physik B* **77**, No. 2, 243-251 (1989).

Quantum Monte Carlo Simulations for Fermionic Systems, I. Morgenstern (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Zeitschrift für Physik B* **77**, No. 2, 267-273 (1989).

Anelastic Behavior of Hydrogenated Amorphous Metals, B. S. Berry and W. C. Pritchett (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Zeitschrift für Physikalische Chemie Neue Folge* **163**, No. P2, 381-390 (1989).