

Papers by Bell Laboratories Authors

BIOLOGY

Occurrence of Glottal Stops in Fluent Speech. N. Umeda, *J. Acoust. Soc. Amer.*, 64, No. 1 (July 1978), pp. 88-94.

On Perceptual Analyzers Underlying Visual Texture Discrimination—Part I. T. Caelli and B. Julesz, *Biol. Cybern.*, 28, No. 3 (1978), pp. 167-75.

Acoustic Determinants of Phrase Boundary Perception. L. A. Streeter, *J. Acoust. Soc. Amer.*, 64 (1978), pp. 1582-1592.

CHEMISTRY

The Absolute Sense of Pyroelectric P3 and Piezoelectric D33 Coefficients in Lanthanum Acid 10 Date Heptahydrate. S. C. Abrahams and J. L. Bernstein, *Solid State Commun.*, 27 (September 1978), pp. 973-6.

Block Copolymer Theory. 5. Spherical Domains. E. Helfand and Z. R. Wassermann, *Macromolecules*, 11 (September-October 1978), pp. 960-6.

Brownian Dynamics Study of Transitions in a Polymer Chain of Bistable Oscillators. E. Helfand, *J. Chem. Phys.*, 69 (Aug. 1, 1978), pp. 1010-18.

Chain Dynamics of Poly(But-1-ENE) from Carbon-13 Nuclear Magnetic Relaxation Measurements. F. C. Schilling, R. E. Cais, and F. A. Bovey, *Macromolecules*, 11 (March/April 1978), pp. 325-8.

Degradation of Hydrogen-Absorbing Rare Earth Intermetallics by Cycling. R. L. Cohen, K. W. West, and K. H. J. Buschow, *Solid State Commun.* 25 (1978), pp. 293-5.

Effect of Stereosequence on Carbon-13 Spin-Lattice Relaxation Time for Poly(Vinyl Chloride). F. C. Schilling, *Macromolecules* 11 (Nov./Dec. 1978), p. 1290.

The Electronic Structure and Conductivity of Tetrathiotetracene, Tetrathionaphthalene and Tetraselenotetradene Studied by ESCA. J. Riga, J. Verbist, F. Wudl, A. Kruger, *J. Chem. Phys.*, 69 (1978), p. 3221.

The Optical Absorption Spectrum of Fluid Sulfur Up to Supercritical Conditions. G. Weser, F. Hensel, and W. W. Warren, *Ber Bunsenges Phys. Chem.*, 82 (1978), pp. 589-94.

A Positive Photoresist: The Photochemical Wolfe Rearrangement. F. B. Brammall, R. E. Zaojura, C. Paley, and S. R. Fahrenholz, *J. Chem. Ed.*, 55 (June 1978), pp. 403-5.

The Preparation of Some Monophenyltetrathiafulvalenes and P-Vinyl-phenyl-tetrathiafulvalene and Its Polymerization. M. L. Kaplan, R. C. Haddon, F. Wudl, and E. D. Feit, *J. Org. Chem.*, 43 (1978), p. 4642.

Proposed Experiment to Estimate the Mixing Free Energy of Polymers. E. Helfand, *Macromolecules*, 11 (July/August 1978), pp. 682-5.

Pyroelectric Lanthanum Acid Iodate Heptahydrate Crystal Structure of the Transition Metal Iodates. S. C. Abrahams and J. L. Bernstein, *J. Chem. Phys.*, 69 (September 15, 1978), pp. 2505-13.

The Sizes and Shapes of Those Giant Molecules. A. E. Tonelli, *Chemistry*, 51 (1978), pp. 11-13.

Synthesis of Ammonium Cyanate and Urea From Nitrous Oxide Over Platinum Osmium Ruthenium and Copper-Nickel Catalysts. D. J. Freed, F. J. Voorhoeve, and L. E. Trimble, *J. Cata.*, 53 (1978), pp. 251-9.

Synthesis of Isocyanic Acid From Nitrous Oxide Over Palladium and Iridium Catalysts. F. J. Voorhoeve and L. E. Trimble, Science, 202 (November 3, 1978), pp. 525-6.

COMPUTING

Computerized Tomography: The New Medical X-Ray Technology. L. A. Shepp and J. B. Kruskal, Amer. Math., 85, No. 6 (1978), pp. 420-39.

Design and Implementation of the S System for Interactive Data Analysis. R. A. Becker and R. McGill, Proc. Comput. Software Appl. Conf., Nov. 1978, pp. 226-29.

ECONOMICS

A Model of Cooperative Games with Binding Commitments. R. W. Rosenthal, in *Game Theory and Political Science*, P. Ordehook, ed., New York: N.Y.U. Press, 1978, pp. 97-111.

Related Market Conditions and Interindustrial Mergers: Comment. M. K. Perry, Amer. Econ. Rev., 68 (March 1978), pp. 221-4.

Supportable Cost Functions for the Multiproduct Firm. W. W. Sharkey and L. G. Telser, J. of Economic Theory, 18 (1978), pp. 23-37.

Vertical Integration: The Monopsony Case. M. K. Perry, Amer. Econ. Rev., 68 (September 1978), pp. 561-70.

ELECTRICAL AND ELECTRONIC ENGINEERING

Charge-Coupled Devices: Technology and Applications. A. Gershoff, IEEE Trans. Acous. Speech and Signal Processing (April 1978), p. 178.

Charge Routing Networks. B. Gopinath and A. Gershoff, Proc. IEEE Circuit System Int. Symp. (1978), pp. 734-9.

Depolarization of 19 and 28 GHz Earth-Space Signals by Ice Particles. D. C. Cox, H. W. Arnold and H. H. Hoffman, Radio Science, 13, No. 3 (May/June 1978), pp. 511-7.

Double Phase Matching Function. D. F. Nelson, J. Opt. Soc. Amer., 68 (December 1978), pp. 1780-1.

The Effects of Large Interference in Digitally Implemented Adaptive Echo Cancellers. R. D. Gitlin and S. B. Weinstein, IEEE Trans. Commun., 26, No. 6 (June 1978), pp. 833-39.

Electrooptic Nonlinear Fabry-Perot Devices. P. W. Smith, E. M. Turner and P. J. Maloney, IEEE J. Quantum Electron. 14, No. 3 (March 1978), pp. 207-212.

Empirical Calculation of Microwave Rain Attenuation Distribution on Earth Satellite Paths. S. H. Lin, IEEE Proc. Electron Aerosp. Sys. Conv. (September 1978), 78 (CH 1354-4 AES), pp. 372-8.

Evaluation of Adaptive Speech Coders Under Noisy Channel Conditions. C. Scagliola, Proc. Inter. Conf. Commun. (June 1978), pp. 8.1.1-8.1.5.

Generation of Intense Subnanosecond Pulses 0.58-0.60 Micron with a Flash-lamp Pumped Dye Laser. T. J. Negran and A. M. Glass, Appl. Opt., 17 (Sept. 1978), pp. 2812-16.

The Hagelin Cipher Machine (M-209) Reconstruction of the Internal Settings. R. Morris, Cryptologia, 2, No. 2 (July 1978), pp. 267-89.

Heat Capacity of Europium Sulfide Near the Ferromagnetic Transition. A. Kornblitt, G. Ahler and E. Buehler, Phys. Rev. B, 17, No. 1 (January 1978), pp. 282-92.

A High Capacity Satellite Utilizing Fixed and Scanning Spot Antenna Beams. D. O. Reudink and Y. S. Yeh, Proc. of the 8th Eur. Microwave Conf., 1978.

High Efficiency Solar Cells Based on Indium Phosphide. J. L. Shay, S. Wagner, K. J. Bachmann and E. Buehler, Proc. Soc. Photo-Opt. Instrum. Eng., 114 (August 1977), pp. 16-19.

Integrated Bistable Optical Devices. P. W. Smith, I. F. Kaminow, P. J. Maloney and L. W. Stultz, Appl. Phys. Lett., 33, No. 1 (July 1, 1978), pp. 24-6.

Integrated Electrooptic Nonlinear Fabry-Perot Devices. P. W. Smith, I. F. Kaminow, P. J. Maloney and L. W. Stultz, Proc. Integr. Guid. Wave Opt. Top. Meet., January 1977, p. FUB 2/1-4.

An Introduction to the Use of Digital Signal Processing for TOM/FDM Conversion. S. L. Freeny, Proc. IEEE Commun. Int. Conf., 1978, pp 39.1/1-7.

A Phase Adaptive Structure for Echo Cancellation. R. D. Gitlin and J. S. Thompson, IEEE Trans. Commun., 26, No. 8 (August 1978), pp. 1211-20.

A Phased Array for a 12/14 GHz Toma Transponder. D. C. Reudink, Y. S. Yeh and A. S. Acampora, Proc. Electron. Aerosp. Sys. Conf. (EASCON) (1978), p. 417-24.

PNPN Optical Detectors and Light-Emitting Diodes. J. A. Copeland and A. G. Dentai, Proc. Intern. Electron. Device Conf. (1977), p. 580-1/A-B.

Polarization Characteristics of Non-Circular Core Single Mode Fibers. V. Ramaswamy, W. G. French, and R. D. Standley, Appl. Opt., 17, No. 18 (September 1978), pp. 3014-7.

A Rapid Scan Area Coverage Satellite. D. O. Reudink and Y. S. Yeh, AIAA 7th Comm. Satell. Sys. Conf., San Diego (April 1978), pp. 137-45.

Real-Time Extraction of Bubble Chamber Tracks Using A Single Vidicon. J. O. Limb, E. G. Bowen, and C. E. Roos, Nucl. Instrum. Methods, 153 (1978), pp 383-8.

Scanning Properties of a 7-Meter Offset Cassegrainian Antenna. T. S. Chu and R. M. England, Proc. Antenna Propag. Int. Symp. (August 1978), pp 259-62.

Semiconductor Laser Self-Pulsing Due to Deep Level Traps. J. A. Copeland, Electron. Lett., 14 (December 1978), pp. 809-10.

Signal to Noise Ratio Degradation Due to Cross Polarization Interference Cancellation in Narrow Band or Nondispersive Radio Channels. N. Amitay, Nat. Telecommun. Conf. Rec. (1977), pp. 38.5/1-5.

Single Polarization Optical Fiber: Exposed Cladding Techniques. V. Ramaswamy, I. P. Kaminow, P. Kaiser and W. G. French, Appl. Phys. Lett., 33, No. 9 (November 1978), pp. 814-6.

Some Properties of Palladium Photocathodes Used in the Electron Image Projection System (ELIPS). W. R. Sinclair, L. H. Lin, P. K. Gallagher and R. A. Fastnacht, Electrochem. Soc., 125 (1978), pp. 950-2.

Spatial Differentiation as an Auditory "Second Filter" Assessment on a Non-linear Model of the Basilar Membrane. J. L. Hall, J. Acoust. Soc. Amer., 61 (February 1977), p. 520.

Spotbeams Promise Satellite Communications Breakthrough. D. O. Reudink, IEEE Spectrum (September 1978), pp. 36-42.

Subharmonically Pumped Millimeter Wave Mixtures. E. R. Carlson, M. V. Schneider and T. F. McMaster, IEEE Trans. Microwave Theory Tech., 26 (October 1978), pp. 706-15.

Subpicosecond Pulse Generation in a Synchronously Mode-Locked CW Rhodamine 6G Dye Laser. R. K. Jain and C. P. Ausschnitt, Opt. Lett. 2, No. 5 (May 1978), pp. 117-9.

Threshold Dependence on Active Layer Thickness in Indium Gallium Arsenide Phosphide Indium Phosphide DH Lasers. R. E. Nahory and M. A. Pollack, Electron. Lett., 14 (1978), pp. 727-9.

Tunable Optical Waveguide Directional Coupler Filter. R. C. Alferness and R. V. Schmidt, Appl. Phys. Lett., 33 (July 1978), pp. 161-3.

Video Transmission Tests Performed on Lightwave IF Entrance Links. A. Albanese and H. F. Lenzing, J. Soc. Motion Picture Telev., 87, No. 12 (December 1978), pp. 821-4.

GENERAL MATHEMATICS AND STATISTICS

Asymptotic Theory of Least Absolute Error Regression. R. Koenker and G. Bassett, J. Amer. Statist. Assoc., 73 (1978), pp. 618-22.

Bounds for Binary Codes of Length Less than 25. M. R. Best, A. E. Brouwer, F. J. MacWilliams, A. M. Odlyzko and N. J. A. Sloane, IEEE Trans. Inform. Theory, 23 (1978), pp. 81-93.

A Definition of Conditional Mutual Information for Arbitrary Ensembles. A. D. Wyner, Inform. Contr., 38, No. 1 (July 1978), pp. 51-9.

Enumeration of Power Sums Modulo A Prime. A. M. Odlyzko and R. P. Stanley, J. Number Theory, 10, pp. 263-72.

On Graphs Which Contain All Small Trees. F. R. K. Chung and R. L. Graham, J. Comb. Theory, Ser. B, 24, No. 1 (February 1978), pp. 1-23.

Maximal Prefix-Synchronized Codes. A. M. Odlyzko and L. J. Guibas, SIAM J. Appl. Math., 35 (1978), pp. 401-8.

Nonnegative Digit Sets in Positional Number Systems. A. M. Odlyzko, Proc. London Mathematical Soc., 3 (1978), p. 37.

A Note on Linear Models of Mutual Deterrence. I. W. Sandberg, J. Peace Science, Spring 1978, pp. 259-260.

Optimal Multistage Switching Networks. F. R. K. Chung, IEEE Trans. Commun., 26, No. 8 (August 1978), pp. 1282-7.

Orthogonal Bases for Two Subspaces With All Mutual Angles Acute. S. Gethmann and L. A. Shepp, Indiana Math. J., 27, No. 1 (1978) pp. 79-90.

On the Partitions of Graphs Into Trees. F. R. K. Chung, Discrete Math., 23 (1978), pp. 23-30.

A Problem on Hook Lengths. J. E. Herman and F. R. K. Chung, Discrete Math., 20 (1977), pp. 33-40.

The Rate Distortion Function for Source Coding with Side Information at the Decoder—II: General Sources. A. E. Wyner, Inform. Contr., 38, No. 1 (July 1978), pp. 60-80.

Realizing a Weak Solution on a Probability Space. V. E. Benes, Stochastic Process. Appl., 7 (1978), pp. 205-25.

A Theorem Concerning Properties of an Arms Race Model. I. W. Sandberg, IEEE Trans. Syst. Man. Cybern., 8, No. 1 (January 1978), pp. 29-31.

Two Results Concerning Multicoloring. V. Chvatal, M. R. Garey, D. S. Johnson, Ann. Math., 2 (1978), pp. 151-4.

MECHANICAL AND CIVIL ENGINEERING

Apparatus for High Resolution Surface Tension Measurements. J. H. Magerlein and T. M. Sanders, Rev. Sci. Inst., 49 (1978), p. 94.

Experiments in the Automation of Visual Inspection. J. F. Jarvis, Proc. JACC, 1 (October 1978), pp. 307-13.

Flow between a Stationary and a Rotating Disk with Suction. L. O. Wilson and N. L. Schryer, J. Fluid Mech., 85 (3), No. 3 (April 1978), pp. 479-98.

A Method for Automating the Visual Inspection of Printed Wiring Boards. J. F. Jarvis, Computer Graph Image Proc., 6 (1977), pp. 452-84.

MATERIALS SCIENCE

Amorphous Metal Films by Getter-Sputtering at 25K. J. J. Hauser, R. J. Schutz, and W. M. Augustyniak, Phys. Rev. B, 18, No. 8 (October 1978).

Analysis of Nonlinear Stress Relaxation in Polymeric Glasses. S. Matsuoka, S. S. Bearder, H. E. Kern, Polymer Eng. Sci., 18, No. 4 (1978), pp. 1074-80.

Bubble Properties of Garnet Films Prepared From Molybdate Fluxes. W. A. Bonner, R. C. LeCraw, R. D. Pierce, and L. G. Van Uitert, J. Appl. Phys., 49, No. 3 (March 1978), pp. 1871-2.

Characterization of a Nonlinear Cochlear Model By Wide Band Stimuli. J. L. Hall, J. Acoust. Soc. Amer., 64 (1978), p. 5133.

Classical Trajectory Calculations of the Dissociation of Hydrogen on Copper (111) The Effect of Surface Roughness. A. Gelb and M. J. Cardillo, Surf. Sci., 75 (July 1978), pp. 199-214.

Compatibility and Physical Properties of Blends of Poly(Vinyl Chloride) and PB3041, A Polymeric Plasticizer. H. E. Bair, D. Williams, T. K. Kwei, and F. J. Padden, Polym. Preprints, 19, No. 1 (March 1978), pp. 143-8.

The Concept of Frustration in Spin Glasses. P. W. Anderson, J. Less Common Metals, 62 (1978) p. 291.

Consideration of Processing Conditions on the Properties of Solid Polymers. S. Matsuoka, Polymer Eng. Sci., 18, No. 4 (1978) pp. 264-7.

Correlation Between Elastic Constants and Flow Behavior in Metallic Glasses. H. S. Chen, J. Appl. Phys., 49, No. 1 (Jan 1978), pp. 462-3.

A Coulometric Analysis of Iron (II) In Ferrites Using Chlorine. P. K. Gallagher, Amer. Ceram. Soc. Bull., 57 (June 1978), pp. 578-8.

CuCl: More Facts Generate More Thoughts on High Temperature Copper Chloride Superconductivity. J. A. Wilson, Phil. Mag. B, 38 (1978), pp. 427-44.

- Defects in Indium Phosphide Homoepitaxial Layers.** S. Mahajan, K. J. Bachmann, D. Brasen, and E. Buehler, *J. Appl. Phys.*, **49**, No. 1 (January 1978), pp. 245-8.
- Diffusion in a Palladium Copper-Silicon Metallic Glass.** H. S. Chen, L. C. Kermeling, J. M. Poate, and W. L. Brown, *Appl. Phys. Lett.*, **32**, No. 8 (April 1978), pp. 461-3.
- Electric Micropositioning With Ferroelastic-Ferroelectrics.** R. A. Lemons and L. A. Coldren, *Rev. Sci. Instrum.*, **29**, No. 12 (December 1978), pp. 1650-2.
- On the Diffusion of Excess Vacancies to Free Surfaces and Voids in Thin Films.** J. R. Lloyd and S. Nakahara, *J. Electrochem. Soc.*, **125** (1978), p. 2037.
- An Electroluminescence in Thin Film Zinc Selenide Manganese.** J. Shah and A. E. DiGiovanni, *Appl. Phys. Lett.*, **33** (1978), p. 995.
- The Evidence of Structural Relaxation as the Origin of Curie Temperature Aging in Metallic Glass.** H. S. Chen, *J. Appl. Phys.*, **49**, No. 8 (August 1978), pp. 4595-7.
- Examination of Aluminum Copper Films During Anodic Oxidation—Part I, Corrosion Studies.** H. H. Strehbow and C. J. Doherty, *J. Electrochem. Soc.*, **125**, No. 1 (1978), pp. 30-3.
- The Growth of Indium-Rich Bulk Single Crystals of Gallium Indium (1-x) Phosphide(y) Arsenide (1-y) Via The Gradient Freeze Method.** K. J. Bachmann, F. A. Thiel, and S. D. Ferris, *J. Crys. Growth*, **43**, No. 6 (July 1978), pp. 752-5.
- The History and Present Status of Synthetic Diamond, Part I.** K. Nassau and J. Nassau, *Lapidary J.*, **32** (1978), pp. 79-96.
- The History and Present Status of Synthetic Diamond, Part II.** K. Nassau and J. Nassau, *Lapidary J.*, **32** (1978), pp. 490-508.
- The Influence of Structural Relaxation on the Density and Youngs Modulus of Metallic Glasses.** H. S. Chen, *J. Appl. Phys.*, **49**, No. 6 (June 1978), pp. 3289-91.
- On Interpreting a Quantity in the Burton, Prim and Slichter Equation as a Diffusion Boundary Layer Thickness.** L. O. Wilson, *J. Cryst. Growth*, **44**, No. 2 (September 1978), pp. 247-50.
- Investigation of the Reactions of Silicon Chloride and Dioxide at Elevated Temperatures by Infrared Spectroscopy.** D. L. Wood, J. B. MacChesney, and J. P. Luong, *J. Mater. Sc.*, **13**, No. 8 (August 1978), pp. 1761-8.
- Linear Defects Observed in Nickel Electrodeposits.** S. Nakahara, *J. Electrochem. Soc.*, **125** (1978), p. 1050.
- A New Look at the Burton, Prim and Slichter Model of Segregation During Crystal Growth from the Melt.** L. O. Wilson, *J. Cryst. Growth*, **44**, No. 4 (November 1978), pp. 371-6.
- Nonisothermal Reaction Analysis.** P. K. Gallagher, *Ceramic Abst.*, **57**, No. 9 (1978) p. 255.
- Origin of Coercivity in a Chromium-Cobalt-Iron Alloy (Chrominoup).** S. Mahajan, E. M. Gyorgy, R. C. Sherwood, S. Jin, S. Nakahara, D. Brasen, M. Eibschutz, *Appl. Phys. Lett.*, **32**, No. 10 (May 1978), pp. 688-90.
- The Origin of Color in Minerals.** K. Nassau, *Amer. Mineral*, **63**, No. 3-4 (Mar/Apr 1978), pp. 219-29.
- Plasma Assisted Etching Techniques for Pattern Delineation.** C. M. Melliar-Smith and C. J. Mogab, in *Thin Film Processes*, New York: Academic Press, 1978; pp. 497-556.
- Preparation of P-Type Indium Phosphate Films By Close Space Vapor Transport.** L. Goldstein and S. Wagner, *Mater. Res. Bull.*, **13**, No. 1 (1978), pp. 1455-60.
- Report on the 5th International Conference on Crystal Growth, Boston July '77.** K. Nassau, *Mater. Rec. Bull.*, **13** (1978) pp. 251-6.
- A Room Temperature Interdiffusion Study in a Gold Thin Film Couple.** J. R. Lloyd and S. Nakahara, *Thin Solid Films*, **54** (1978) p. 207.
- The Sputter and S-Gun Magnetrons.** D. B. Fraser, in *Thin Films Process*, New York: Academic Press, 1978.
- Stable Room Temperature Light Emission from Metal-Insulator-Metal Junctions.** P. K. Jain, S. Wagner, and D. H. Olson, *Appl. Phys. Lett.*, **32**, No. 1 (1978), pp. 62-4.
- The State of Tin in Tin-Anodized Aluminum.** R. L. Cohen, G. L. Miller, and K. W. West, *Phys. Rev. Lett.*, **41**, No. 6 (August 1978), pp. 381-4.

Survey of Chemical Strippers for Silicones. F. X. Ventrice, Plast. Eng., 24 (April 1978), pp. 608-9.

Thermal Expansion of Zinc Oxide. H. M. O'Bryan, L. G. VanUtert, E. D. Kolb, and G. Zyzdik, J. Amer. Ceram. Soc., 61, No. 5-6 (May/June 1978), p. 269.

Thermally Assisted Flash Annealing of Silicon and Germanium. R. L. Cohen, J. S. Williams, L. C. Feldman, and K. W. West, Appl. Phys. Lett., 33 (1978), pp. 751-3.

Thermodynamic Properties of Surface Steps. J. D. Weeks and G. H. Gilmer, J. Cryst. Growth, 43, No. 3 (April 1978), pp. 385-7.

Dynamics of Crystal Growth. J. D. Weeks and G. H. Gilmer, Phys. Rev. Lett., 40 (1978), pp. 733-6.

Topochemical Reactions of Rutile Related Structures with Lithium. D. W. Murphy, F. J. DiSalvo, J. N. Carides, and J. V. Waszczak, Mater. Res. Bull., 13, No. 12 (1978) pp. 1395-1402.

Transformation-Induced Microstructures in Cobalt-Iron Alloys. S. Mahajan and D. Brasen, Phys. Met. Trans. A, 9A (December 1978), pp. 1817-24.

Validity of the Energy and Entropy Interfacial Tension Models Examined in View of the Stability of Metallic Glasses. H. S. Chen, Mater. Res. Bull., 13 (1978) pp. 737-41.

Water Sorption of Polycarbonate and its Effect on the Polymer's Dielectric Behavior. H. E. Bair, G. E. Johnson, R. Merriweather, J. Appl. Phys., 49 (October 1978), pp. 4976-84.

PHYSICS

Angle Resolved Photoemission From Surfaces and Adsorbates. N. V. Smith, J. Appl. Phys., 39, No. 4 (1978) pp. 157-61.

Angular Dependence of the In 4D and Selenium 3D Core Level Photoemission From Indium Selenium. D. Norman, D. P. Woodruff, N. V. Smith, M. Traum, and H. H. Farrell, Phys. Rev. B, 18 (1978), p. 6789.

Angular Dependent Photoemission. N. V. Smith in *Photoemission in Solids I*, M. Cardona and L. Ley (eds.), Vol. 26, Heidelberg: Springer-Verlag, 1978, p. 237.

Anisotropy in the Magnetic Susceptibility of Tantalum Selenide. J. L. Benchinol, F. T. Hedgoock, and F. J. DiSalvo, Solid State Commun., 25 (1978), pp. 677-78.

Annealing Studies of Beryllium-Doped Gallium Arsenide Grown by Molecular Beam Epitaxy. W. V. McLevige, K. X. Vaidyanathan, B. G. Streetman, J. Comas, M. Illegems, and L. Plew, Appl. Phys. Lett., 33 (1978), pp. 127.

Anomalous Behavior in the Low Temperature Properties of Uranium Palladium (3). K. Andres, D. Davidov, P. Dernier, F. Hsu, W. A. Reed, and G. J. Nieuwenhuys, Solid State Commun., 28 (1978), p. 405.

Arbitrary Doping Profiles in Antimony Doped Silicon MBE. J. Bean, Appl. Phys. Lett., 33, No. 7 (1978), pp. 654-6.

Balanced Bridge Modulator Switch Using Titanium Diffused Lithium Niobium Trioxide Strip Waveguides. V. Ramaswamy, M. D. Divino, and R. D. Standley, Appl. Phys. Lett., 32, No. 10 (May 1978) pp. 644-6.

Bandgap vs. Composition and Demonstration of Vegard's Law for Indium (1-x) Gallium (x) Arsenic (y) Phosphorus (1-y) Lattice-Matched to Indium Phosphide. R. E. Nahory, M. A. Pollack, W. D. Johnston, and R. L. Barns, Appl. Phys. Lett., 33 (1978) pp. 659-61.

Capacitance Spectroscopy of Degraded GaAsP Light Emitting Diodes. B. Tell and C. Van Opdorp, J. Appl. Phys., 49 (1978), pp. 2973-7.

Comparison of a Time-of-Flight System with an Electrostatic Analyzer in Low Energy Ion Scattering. T. M. Buck, G. H. Wheatley, G. L. Miller, D. A. H. Robinson, and Y. S. Chen, Nucl. Instrum. Methods, 149 (1978), pp. 591-4.

Compton Profile Studies of Amorphous and Single Crystal Silicon Dioxide. M. Rosenberg, F. Martino, W. A. Reed, and P. Eisenberger, Phys. Rev. B, 18 (1978), p. 844.

Contribution of the Conformational Specific Heat of Polymer Chains to the Specific Heat Difference Between Liquid and Glass. R. J. Roe and A. E. Tonelli, Macromolecules, 11 (1978), pp. 114-7.

Corrections for Scattering in X-Ray Fluorescence Experiments. H. D. Keith and T. C. Loomis, X-Ray Spectrum, 7 (1978) pp. 217-24.

- Deep Level Capacitance Spectroscopy in Nitrogen Doped VPE Gallium Phosphide.** B. Tell and F. P. J. Kuijpers, *J. Appl. Phys.*, **49** (1978) pp. 5938-43.
- Dependence of Oxygen Diffusion in Epitaxial YIG: Calcium on Defect Concentration.** E. M. Gyorgy, R. C. LeCraw, S. L. Blank, R. D. Pierce, and D. W. Johnson, *J. Appl. Phys.*, **49**, No. 2 (March 1978), pp. 1885-7.
- Detection of Atomic Hydrogen and Deuterium by Resonant Three-Photon Ionization.** G. C. Bjorklund, C. P. Ausschnitt, R. R. Freeman, and R. H. Storz, *Appl. Phys. Lett.*, **33**, No. 1 (July 1978), pp. 54-6.
- Diamagnetic Structure of Rubidium in Intense Magnetic Fields.** N. P. Economou, R. R. Freeman, and P. F. Liao, *Phys. Rev. A*, **18** (December 1978), p. 2506.
- Direct Calculation of Wannier Functions, Silicon Valance Bands.** E. O. Kane and A. B. Kane, *Phys. Rev. B*, **17**, No. 6 (March 1978), pp. 2691-704.
- Directional Photoemission From Two-Dimensional Systems.** N. V. Smith and P. K. Larsen in *Photoemission and Electronic Structure of Surfaces*, New York: John Wiley, 1978, p. 409.
- Dynamic Stark Tuned FIR Laser in Rubidium.** T. Y. Chang, T. C. Damen, W. T. Nguyen, J. D. McGee, and T. J. Bridges, *Appl. Phys. Lett.*, **32**, No. 10 (May 1978).
- Effect of Electron-Phonon Scattering on Charge Density Wave Phase Transitions.** D. J. Huntley, F. J. DiSalvo, and T. M. Rice, *J. Phys.*, **11** (1978) pp. 767-70.
- The Effect of Parallel Magnetic Field on Interband Transition in Two-Dimensional Systems.** P. M. Platzman and B. I. Halperin, *Phys. Rev. B*, **18** (1978), pp. 226.
- The Effect of Surfaces and Nonuniform Fields in Electroreflectance: Application to Germanium.** R. DelSole, D. E. Aspnes, *Phys. Rev. B*, **17** (1978) pp. 3310-17.
- Effects of Atomic Order in α and β Phase AgCd Alloys and Reduced by X-Ray Photo-electron Spectroscopy.** G. Crecelius and G. K. Wertheim, *Phys. Rev. B*, **18**, No. 12 (December 1978), pp. 6525-30.
- Effects of Magnetic Fields on Four Wave Mixing Processes in Atomic Vapors.** N. P. Economou, R. R. Freeman, G. C. Bjorklund, *Optics Lett.*, **3** (December 1978) pp. 209-11.
- Electric Dipolar Echoes in Glasses.** L. Bernard, L. Piche, G. Schumaker, J. Joffrin, and J. E. Graebner, *J. Phys. Lett.*, **39** (May 1978), pp. 126.
- Electrochromic Cells Based on Phosphotungstic Acid.** B. Tell and S. Wagner, *Appl. Phys. Lett.*, **33** (1978), pp. 837-38.
- Electrochromism in Anodic Iridium Oxide Films.** S. Gottesfeld, J. McIntyre, G. Beni, and J. L. Shay, *Appl. Phys. Lett.*, **33**, No. 2 (July 1978) pp. 208-10.
- Electrochromism in Lithium (X) Tungsten Trioxide.** S. K. Mohapatra, *J. Electrochem. Soc.*, **125**, No. 2 (February 1978), pp. 284-8.
- Electrochromism of Anodic Iridium Oxide Films on Transparent Substrates.** J. L. Shay, G. Beni, and L. M. Schiavone, *Appl. Phys. Lett.*, **33** (1978) p. 942.
- Electron Collisional Laser in Lead (+) Populated by Recombination.** W. T. Silfvast, L. H. Szeio, and D. R. Wood, *Appl. Phys. Lett.*, **33** (1978) p. 936.
- Electroreflectance and Ellipsometry of Silicon From 3 to 6 EV.** A. Daunois and D. E. Aspnes, *Phys. Rev. B*, **18** (1978), pp. 1824-39.
- Elliptic Polarization of Balmer Radiation From Low Energy Grazing Incidence Collisions of Hydrogen Ions on Surfaces.** N. H. Tolk, J. C. Tully, J. S. Kraus, W. Heiland, and S. H. Neff, *Phys. Rev. Lett.*, **41** (August 1978), pp. 643-6.
- EMF Measurements on Electrochromic Amorphous Lithium Tungstate Films.** S. K. Mohapatra and S. Wagner, *J. Electrochem. Soc.*, **125** (October 1978), pp. 1603-4.
- Epitaxial Laser Crystallization of Thin Film Amorphous Silicon.** J. C. Bean, H. J. Leamy, J. M. Poate, G. A. Rozgonyi, J. S. Williams, T. T. Sheng, and G. K. Celler, *Appl. Phys. Lett.*, **33**, No. 3 (1978), pp. 227-30.
- Extended X-Ray Absorption Fine Structure of Surface Atoms on Single Crystal Substrates: Iodine Adsorbed on Silver (III).** P. H. Citrin, P. Eisenberger, and R. C. Hewitt, *Phys. Rev. Lett.*, **41**, No. 5 (July 1978), pp. 309-12.
- Germanium-Tin Barrier Josephson Tunnel Junctions.** E. L. Hu, L. D. Jackel, A. R. Strand, R. W. Epworth, R. F. Lucey, C. A. Zogg, and E. Gornick, *Appl. Phys. Lett.*, **32**, No. 9 (May 1978), pp. 584-6.
- Hardness and Bonding in A15 Superconducting Compounds.** G. Y. Chin, J. H. Wernick, T. H. Geballe, S. Mahajan, and S. Nakahara, *Appl. Phys. Lett.*, **33**, No. 1 (July 1978), pp. 103-5.

Heating of Cathode Surfaces Caused by Glow Discharges and Minimum Conditions Necessary for Catastrophic Bridging. J. R. Pharney, 5th Intern. Conf. on Gas Discharges, 165 (September 1978), pp. 285-8.

Heterostructure Lasers—Part B: Materials and Operating Characteristics. H. C. Casey and M. B. Panish, New York: Academic Press, 1978.

High Efficiency Indium (1-x) Gallium (x) Arsenide (y) Phosphide (1-y)/Indium Phosphide Photodetectors with Selective Wavelength Response Between 0.9 and 1.7 Microns. M. A. Washington, R. E. Nahory, M. A. Pollack, and E. D. Beebe, Appl. Phys. Lett., 33 (November 1978), pp. 854-6.

Hot Electrons and Photons Under High Intensity Photoexcitation of Semiconductors. J. Shah, Solid State Electron., 21 (1978) p. 43.

Hyperfine Enhanced Nuclear Magnetic Cooling. K. Andres, Cryogenics, 1 (1978), pp. 473-7.

Hyperfine Enhanced Nuclear Magnetic Cooling in Praseodymium Beryllium (13). K. Andres and S. Darack, J. de Phys. (Paris) C-6: No. 2 (1978) pp. 1157-8.

An Indium Gallium Arsenide Detector for the 1.0 to 1.7 Micron Wavelength Range. K. J. Bachmann and J. L. Shay, Appl. Phys. Lett., 32, No. 7 (April 1978), pp. 446-8.

Influence of Noncircular Core on the Polarization Performance of Single Mode Fibers. V. Ramaswamy and W. G. French, Electron. Lett., 14, No. 5 (March 1978), pp. 143-4.

Infrared Absorption and Scattering by Electron-Hole Droplets in Germanium. J. H. Rose, H. B. Shore, and T. M. Rice, Phys. Rev. B, 17 (1978), p. 752.

Initial Permeability and Intrinsic Magnetic Properties of Polycrystalline Manganese Zinc Ferrites. B. Hoekstra, E. M. Gyorgy, P. K. Gallagher, D. W. Johnson, G. Zydzik, and L. G. VanUitert, J. Appl. Phys., 49 (September 1978), p. 4902.

Integrated Multijunction Gallium Arsenide Photodetector with a High Output Voltage. M. Illegems, B. Schweartz, L. A. Koszi, and R. C. Miller, Appl. Phys. Lett., 33 (1978), p. 629.

An Introduction to the Physics of Ferroelectrics. P. C. Lissaide, Ferroelectrics, 17 (1978) pp. 583-4.

Landau-Levels—Electron Lifetimes Nitrogen-Indium Antimonide. W. Muller, E. Gornik, T. Y. Chang, and T. J. Bridges, Phys. Rev. Lett., 40, No. 17 (April 1978), pp. 1151-4.

Liquid Phase Epitaxial Indium (1-x) Gallium (x) Arsenide (y) Phosphorus (1-y) Lattice-Matched to (100) Indium Phosphorus Over the Complete Wavelength Range 0.93 Less Than or Equal to Gamma Less Than or Equal to 1.66 Microns. M. A. Pollack, R. E. Nahory, D. E. Winter, and A. A. Ballman, Appl. Phys. Lett., 33, No. 4 (August 1978), pp. 314-6.

Low Energy Ion Scattering (LEIS) for Composition and Structure Analysis of the Outer Surface. M. H. Brongersma and T. M. Buck, Nuc. Inst. and Methods, 149 (1978), pp. 569-75.

Magnetic Field Quantum Beats in Two-Photon Free Induction Decay. N. P. Economou and P. F. Liao, Opt. Lett., 3 (November 1978), p. 172.

Magnetic Order and Giant Negative Magnetoresistance in the Intermediate Valance Compound Tantalum Selenide. K. Andres, W. M. Walsh, S. Darack, L. W. Rupp, and L. D. Longinotti, Solid State Commun., 27 (1978), pp. 825-8.

Manganese-55 Silicon-29 NMR in the Helically Ordered State of Manganese Silicon (X). K. Motoya, H. Yasuoka, Y. Nakamura, V. Jaccarino, and J. H. Webnick, J. Phys. Soc. Jap., 44, No. 3 (March 1978), pp. 833-91.

Many-Body Effect on Level Broadening and Cyclotron Resonance in Two-Dimensional Systems Under Strong Magnetic Fields. H. Fukuyama, Y. Kuramoto, and P. M. Platzman, Surf. Sci., 73 (1978), p. 491.

Measurement of K-Shell Fluorescence Yield and K/Alpha-Beta Intensity Ratio for Nickel. H. D. Keith and T. C. Loomis, X-Ray Spectrom., 7 (1978), pp. 225-40.

A Miniature Electrostatic Lens for Forming MEV Millibeams. W. M. Augustyniak, D. Betteridge, and W. L. Brown, Nucl. Instrum. Methods, 149 (1978), pp. 669-73.

Molecular Cooling and Thermal Balance of Dense Interstellar Clouds. P. F. Goldsmith and W. D. Langer, Astrophys. J., 222, No. 3 (June 1978), pp. 881-895.

Monte Carlo Test of Theories for the Planar Model, the F Model and Related Systems. W. J. Shugard, J. D. Weeks, and G. H. Gilmer, Phys. Rev. Lett., 41 (November 1978), 1399-402.

- Nanosecond Time Resolved Raman Spectra of Photolyzed Carboxyhemoglobin.** K. B. Lyons, J. M. Friedman, and P. A. Fleury, *Nature*, 275, No. 5680, pp. 565-6.
A New Resonant Ellipsometric Technique for Characterizing the Interface Between Gallium Arsenide and its Plasma Grown Oxide. J. B. Theeten, D. E. Aspene, and R. P. H. Chang, *J. Appl. Phys.*, 49 (1978), pp. 6097-6102.
A New Self-Consistent Green's Function Approach to the Electronic Structure of Localized Defects. G. A. Baraff and M. Schluter, *Phys. Rev. Lett.*, 2 (1978), pp. 892-5.

A New Inter-Impurity Recombination in Gallium Phosphide Revised Values for Acceptor Binding Energies. M. O. Sturge, A. T. Vink, and F. J. M. Kuijpers, *Appl. Phys. Lett.*, 32, No. 1 (Jan 1978), pp. 49-51.

Nonlinear Instability of Electromagnetic Drift Waves. K. Mina and A. Hasegawa, *Phys. Fluids*, 21, No. 1 (1978), pp. 81-6.

Nonlinear Optical Measurements in the Excitonic Region of Cadmium Sulfide at 4.2K. J. L. Jackle and H. Mahr, *Phys. Rev. B*, 17, No. 8 (1978), pp. 3387-400.

Nonlinear Wave Effects in Laboratory Plasmas. M. Porkolab and R. P. H. Chang, *Rev. Mod. Phys.*, 50 (1978), p. 745.

Nuclear Resonance Excitation by Synchrotron Radiation. R. L. Cohen, G. L. Miller and K. W. West, *Phys. Rev. Lett.*, 41, No. 6 (August 1978), pp. 381-4.

Observation of Focusing of Neutral Atoms by the Dipole Forces of Resonance Radiation Pressures. J. E. Bjorkholm, R. R. Freeman, A. Ashkin, and D. B. Pearson, *Phys. Rev. Lett.*, 41, No. 20 (November 1978), pp. 1361-4.

Observation of Phase Separation in a Chromium Cobalt-Iron Alloy (Chromindur) by Mossbauer Effect. M. Eibschutz, G. Y. Chin, S. Jin, and D. Brasen, *Appl. Phys. Lett.*, 33 (1978), p. 362.

PSYCHOLOGY

The Attention Operating Characteristic: Examples From Visual Search. G. Sperling and M. J. Melchner, *Science*, 202 (October 20, 1978), pp. 315-318.

Distortion Criteria of the Human Viewer. J. O. Limb, *Nat. Telecomm. Conf. Rec.*, 1977 (621.38/N275).

On Identifying Detectors. J. Krauskopf in *Visual Psychophysics and Physiology*, J. C. Armington, J. Krauskopf, and B. R. Wootter (eds.), New York: Academic Press, 1978, pp. 283-295.

Experiments on Temporal Aspects of Keyboard Entry. S. Sternberg, R. L. Knoll, and C. E. Wright in *Getting it Together: Research and Applications in Human Factors*, J. P. Duncanson (ed.), Santa Monica: Human Factors Society, 1978, pp. 29-50.

Future Prospects in Language and Communication for the Congenitally Deaf. G. Sperling, in *The Development of Deaf Children*, L. Liben (ed.), New York: Academic Press, 1978, pp. 103-114.

Hearing Words Without Words—Prosodic Cues for Word Perception. L. H. Nakatani and J. A. Schaffer, *J. Acoust. Soc. Amer.*, 63, No. 1 (January 1978), pp. 234-245.

The Latency and Duration of Rapid Movement Sequences: Comparisons of Speech and Typewriting. S. Sternberg, S. Monsell, R. L. Knoll, and C. E. Wright, in *Information Processing in Motor Control and Learning*, G. E. Stelmach (ed.), New York: Academic Press, 1978, pp. 117-152.

A New Program of Research on Interpersonal Communication: Laboratory Facility and Some Early Results. P. D. Bricher and M. Wish, *Conf. Record, Nat. Telecommun. Conf.*, 1978, Paper 34.3.

Pitch Changes During Attempted Deception. L. A. Streeter, R. M. Krauss, V. Geller, C. Olson, and W. Apple, *J. Personality and Social Psychology*, 35 (1977), pp. 345-350.

Recency, Immediate Recognition Memory, and Reaction Time. S. Monsell, *Cog. Psychol.*, 10 (1978), pp. 465-501.

Visual Search, Visual Attention, and the Attention Operating Characteristic. G. Sperling and M. J. Melchner, in *Attention and Performance VII*, J. Reguin (ed.), Hillsdale, N.J.: Erlbaum, 1978, pp. 675-686.

SYSTEMS ENGINEERING AND OPERATIONS RESEARCH

Automatic Trouble Analysis System. J. R. Lyons, *Proc. Electron. Nat. Conf.*, 32 (October 1978), pp. 314-317.

- A Continuous Presence Video Conference System.** E. F. Brown, J. O. Limb, and B. Prasada, Nat. Telecommun. Conf. Rec., 3 (December 3-6, 1978), pp. 34.1.1-34.1.4.
- Experimental Speakerphone System for Teleconferencing.** J. E. West, D. J. MacLean, J. R. Nelson, and J. L. Flanagan, J. Acoust. Soc. Amer., 64 (1978), pp. 1561-1565.
- A Flexible Experimental Digital Switching Office.** R. W. Lucky, Proc. Digit. Commun./Digit Trans. Switch Local Network Int. Sem., March 1978, pp. A4/1-4.
- An Intelligent Network Processor for a Digital Central Office.** H. G. Alles, Proc. Digital Commun/Digit Trans. Switch Local Network Int. Sem. (March 1978), pp. A5/1-6.
- A Microprocessor-Based, Programmable Laboratory Equipment Controller and Data Acquisition System.** D. W. Taylor, Rev. Sci. Instrum., 49, No. 11 (November 1978), pp. 1551-1556.
- Selection of Microform Readers and Reader Printers.** C. H. Robertshaw, J. Microgr., 12, No. 2 (Nov-Dec 1978), pp. 70-72.