

PUBLICATIONS AND REPORTS

MEETING PAPERS PRESENTED

Second European Conference on Computational Physics – Computing in Plasma Physics and Astrophysics, Max-Planck Institute for Plasma Physics, Garching, Germany

April 27-30, 1976

A. Bers, J. L. Kulp, and C. F. F. Karney, Symbolic Computation of Nonlinear Wave Interactions on MACSYMA (invited)

Optical Society of America, New England Section, Boston, Massachusetts

May 17-24, 1976

S. Ezekiel, Ultra-High Resolution Optical Spectroscopy (invited)

NICHD Conference on Communicating by Language: Implications of Basic Speech and Language Research for the School and Clinic, Elkridge, Maryland

May 23-26, 1976

K. N. Stevens, The Speech Signal

Eighth NSF Grantee-User Meeting on Optical Communications, M. I. T., Cambridge, Massachusetts

June 8-9, 1976

Papers in Proceedings

H. A. Haus, Filter Design with Cascaded Index Corrugations (pp. 58-59)

J. H. Shapiro, Propagation Characteristics of Low-Visibility Atmospheres: An Experimental Program (pp. 32-36)

1976 IEEE-MTT-S International Microwave Symposium, Cherry Hill, New Jersey

June 14-16, 1976

Papers in Proceedings

R. S. Chu, J. A. Kong, and D. L. Lee, Theory for Electro-optical Grating Modulators (pp. 24-26)

NATO Advanced Study Institute on Digital Image Processing and Analysis Meeting, Bonas, France

June 14-25, 1976

L. F. Pau, Infrared Source Classification System

2nd Symposium on Frequency Standards and Metrology, Copper Mountain, Colorado

July 5-7, 1976

L. A. Hackel, R. P. Hackel, and S. Ezekiel, Molecular Beam Stabilized Multiwatt Argon Lasers

F. Y. Wu, R. E. Grove, and S. Ezekiel, Frequency Distribution of Resonance Fluorescence in an Intense Monochromatic Field

3rd OT Optical Communication Task Force Meeting, Applications and Users Working Group, Boulder, Colorado

July 7-8, 1976

R. S. Kennedy, Optical Communication within the Atmosphere

MEETING PAPERS PRESENTED (continued)

J. I. L. A., Battelle Workshop on Highly Excited States, University of Colorado, Denver, Colorado

July 21-23, 1976

T. W. Ducas and M. L. Zimmerman, Infrared Spectroscopy of Rydberg States in Sodium

D. Kleppner, Highly Excited Atoms (invited)

5th International Conference on Atomic Physics, University of California, Berkeley, California

July 26-30, 1976

J. Apt and D. E. Pritchard, Fine Structure Changing Cross Section for Na-Ne, Ar, Kr, Xe, N₂, and CO₂

W. E. Cooke and R. R. Freeman, Measurement of the Spin-Rotational Interaction in RbKr by Molecular Beam Magnetic Resonance

T. W. Ducas and M. L. Zimmerman, Infrared Spectroscopy of Rydberg States in Sodium

R. R. Freeman and D. Kleppner, Core Polarization and Quantum Defects in High Angular Momentum States of Sodium

D. Kleppner, Highly Excited Atoms (invited)

M. G. Littman, M. L. Zimmerman, and D. Kleppner, Electric Field Ionization Rates of Selected Stark States in Sodium

W. D. Phillips and D. Kleppner, Crossed Beam Measurement of Fine Structure Changing Collision Cross Section

D. E. Pritchard and J. A. Serri, NaCs Potentials from Scattering of Polarized Atoms

Thirty-Eighth Linguistic Society of America Meeting, State University of New York, Oswego, New York

July 30 - August 1, 1976

Abstracts in Meeting Handbook

Judy A. Kegl, Ella M. Lentz, and Marie J. Philip, ASL Pronouns and Conditions on Their Use (p. 21)

Barbara Lust, Gapped Coordinate Sentences: An Examination of Their Logical Form (p. 26)

Lise Menn, The Semantics of Intonation Contour in Late Babble and Beginning Speech (English) (p. 29)

Myrl E. Solberg, Developing Phonological Systems: Nomogenesis or Individual Solutions? (p. 35)

Gordon Research Conference on Atomic and Molecular Interactions, Wolfeboro, New Hampshire

August 9-13, 1976

S. Ezekiel, High-Resolution Studies of Atoms and Molecules (invited)

Symposium on Radiation in the Atmosphere, Garmisch-Partenkirchen, West Germany

August 19-28, 1976

P. W. Rosenkranz and D. H. Staelin, Remote Sensing of Atmospheric Temperature and Water in Storms with the Nimbus-6 Scanning Microwave Spectrometer

MEETING PAPERS PRESENTED (continued)

SPIE 20th Annual Technical Symposium, San Diego, California

August 23-27, 1976

A. L. Cassel and D. H. Staelin, Passive Microwave Radiometric Observations of the Atmosphere

S. Ezekiel, High-Resolution Tunable Laser Spectroscopy

Third Symposium on Plasma Heating in Toroidal Devices, Varenna (Como), Italy

September 6-17, 1976

A. Bers, Nonlinear Mechanism for Ion Heating by Electrostatic Waves across the Magnetic Field

A. Bers, Electron Heating in Tokamaks with RF Power at the Lower Hybrid Frequency

Second Topical Meeting on the Technology of Controlled Nuclear Fusion, Richland, Washington

September 21-23, 1976

Abstracts in Proceedings

A. G. Cook and L. M. Lidsky, The Effect of Processing and Fabrication Costs on Design Choices for Hybrid and Symbiotic Fusion Reactor Blankets (pp. 77-78)

D. G. McAleest, N. A. Uckan, E. S. Bettis, P. B. Burn, C. L. Hedrick, C. G. Lawson, R. T. Santoro, H. L. Watts, L. M. Lidsky, D. A. Ehst, A. Pant, J. S. Herring, D. L. Kaplan, and R. E. Potok, The Elmo Bumpy Torus Reactor (pp. 64-65)

D. Oliver, R. Cooper, and L. M. Lidsky, Breeding of Fissile Fuel with Linear Fusion Sources (p. 79)

International Specialist Seminar on the Impact of New Technologies in Signal Processing, Aviemore, Scotland

September 22-27, 1976

J. Allen, Digital Device Technology for Signal Processing

IEEE Electronics and Aerospace Systems Convention, Washington, D.C.

September 26-29, 1976

Papers in EASCON '76 Record

J. Allen, Special Purpose Computer Architecture for Speech Processing (p. 172-A)

D. S. K. Chan, A Novel Framework for the Description of Realization Structures for 1-D and 2-D Digital Filters (pp. 157-A - 157-H)

6th Conference on Plasma Physics and Controlled Nuclear Fusion Research, Berchtesgaden, Germany

October 6-13, 1976

E. Apgar, B. Coppi, A. Gondhalekar, H. Helava, D. Komm, F. Martin, B. Montgomery, D. Pappas, R. Parker, and D. Overskei, High Density and Collisional Plasma Regimes in the Alcator Program

MEETING PAPERS PRESENTED (continued)

B. Basu, B. Coppi, K. Molvig, F. Pegoraro, I. Haber, B. Hui, P. Palmadesso, K. Papadopoulos, and N. Winsor, Transport Processes and Instabilities in Magnetically Confined Plasmas with $T_{i\perp} \approx T_{e\perp}$

1976 Annual Meeting USNC/URSI and 1976 IEEE AP-S International Symposium, University of Massachusetts, Amherst, Massachusetts

October 11-15, 1976

A. H. Barrett, P. C. Myers, and N. L. Sadowsky, Application of Microwave Radiometers to Diagnostic Medicine (Abstract), URSI, p. 142

J. A. Kong, Coupled Mode Approaches to Spatially Periodic Media in Integrated Optics (Abstract), URSI, p. 100

J. A. Kong, D. Cheng, and L. Tsang, Geophysical Subsurface Probing with Horizontal Electric and Magnetic Dipole Antennas (Abstract), URSI, p. 75

L. Tsang and J. A. Kong, Radiative Transfer Theory for Microwave Remote Sensing of Two-Layer Media, AP-S, pp. 598-601

L. Tsang, J. A. Kong, D. H. Staelin, E. Njoku, and J. W. Waters, Passive Remote Sensing of Cloud and Rainfall (Abstract), URSI, p. 10

1976 Annual Meeting, Optical Society of America, Tucson, Arizona

October 18-23, 1976

Abstracts in J. Opt. Soc. Am., Vol. 66, No. 10, October 1976

B. Howland, An Electronic Aberration Synthesizer for Measurements of the Eye (p. 1121)

C. Warde, Lummer-Gehreke Interferometer Modified for Spectroscopy of Thin Films (p. 1089)

1976 Conference "New Ways of Analyzing Variation in English," Georgetown University, Washington, D.C.

October 28-30, 1976

J. R. Ross, Myopia

Seventh Annual Meeting, North Eastern Linguistic Society, Massachusetts Institute of Technology, Cambridge, Massachusetts

November 5-7, 1976

Papers in NELS VII

Sarah Bell and D. M. Perlmutter, Evidence for a 3-Cell Advancement Rule in Three Philippine Languages

L. George and J. Kornfilt, Infinitival Double Passive in Turkish (pp. 65-79)

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J. J. McCarthy, III, CT (pp. 209-217)

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Wendy Wilkins, WH-fronting and the Variable Interpretation Convention (pp. 365-381)

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29th Annual Conference on Engineering in Medicine and Biology, Boston, Massachusetts

November 6-10, 1976

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- T. L. Rhyne, An Ultrasonic Tissue Characterization for the Lung (p. 132)
- L. Tung, The Inadequacy of the Solid Angle Formulation When Used to Describe Cardiac Injury Potentials (p. 80)

6th Annual Meeting of the Society for Neuroscience, Toronto, Canada

November 7-11, 1976

Abstracts in Neuroscience Abstracts, Vol. II

- E. R. Gruberg, In Vitro Uptake of Choline and Synthesis of Acetylcholine in the Optic Nerve and Tectum of Rana pipiens (p. 1115)
- C. M. Oman, L. S. Frishkopf, and M. H. Goldstein, An Upper Limit on the Physiological Range of Cupula Motion in the Semicircular Canal of the Skate (p. 1053)
- S. A. Raymond, Nerve Threshold and Intermittent Conduction (film presented)
- S. A. Raymond, The Effect of Ion Threshold Curves of Frog Sciatic Nerve Axons (p. 417)
- Susan B. Udin, Progressive Alterations in Optic Tract and Retinotectal Topography during Optic Nerve Regeneration in Rana pipiens (p. 838)

IEEE International Pulsed Power Conference, Texas Tech University, Lubbock, Texas

November 9-11, 1976

- G. Bekefi and T. J. Orzechowski, Microwave Emission from Magnetically Insulated Relativistic Electron Beam Diodes
- G. Bekefi and T. J. Orzechowski, Microwave Generation by a Field Emission Relativistic e-Beam Magnetron

NSF Grantee-User Meeting on Optical Communications, University of Washington, Seattle, Washington

November 10-11, 1976

Papers in Proceedings

- J. H. Shapiro, Imaging and Optical Communication through a Turbulent Atmosphere (pp. 60-63)

92nd Meeting, Acoustical Society of America, San Diego, California

November 15-19, 1976

Abstracts in J. Acoust. Soc. Am., Vol. 60, Suppl. No. 1, Fall 1976

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- Sheila E. Blumstein and K. N. Stevens, Perceptual Invariance and Onset Spectra for Stop Consonants in Different Vowel Environments (p. S90)

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18th Annual Meeting of the Division of Plasma Physics, American Physical Society, San Francisco, California

November 15-19, 1976

Abstracts in Bull. Am. Phys. Soc. 21, 1976

- Gulshan Ara and B. Coppi, Stabilization of Internal Kink Modes in High Temperature Regimes (p. 1090)
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- A. Hershcovitch and P. A. Politzer, Suppression of Trapped Particle Modes by Detrapping Due to Periodic Bursts of External Turbulence (p. 1110)
- S. P. Hirshman and D. J. Sigmar, Neoclassical Transport of a Multispecies Toroidal Plasma in Various Collisionality Regimes (p. 1149)
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- M. Karakawa, K. Molvig, T. J. Orzechowski, and G. Bekefi, Theory of the Steady State Magnetron (p. 1114)
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- K. Molvig and B. Coppi, The Effects of Plasma Wave Emission on Energy Transport and Runaway Electrons in Finite Current-Carrying Plasmas
- T. J. Orzechowski, G. Bekefi, A. Palevsky, W. M. Black, S. P. Schlesinger, V. L. Granatstein, and R. K. Parker, Microwave Radiation from a Magnetron Driven by a 0.2 terawatt Relativistic Electron Accelerator (p. 1112)
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J. West, A. Gondhalekar, K. Molvig, and M. S. Tekula, Observation and Theory of the Fluid-Ion Cyclotron Instability (p. 1139)

1976 Convention, American Speech and Hearing Association, Houston, Texas
November 20-23, 1976

M. C. Schultz, D. Mook, and L. D. Braida, Shifts in Syllable Recognition by Payoff

M. C. Schultz, D. Rowell, C. Reed, W. Rabinowitz, S. Norton, N. I. Durlach, C. Chomsky, and L. D. Braida, Preliminary Performance Measures of a Successful Tadoma Reader

Tenth Annual Asilomar Conference on Circuits, Systems, and Computers, Pacific Grove, California

November 22-24, 1976

J. H. McClellan and D. S. K. Chan, A New Structure for 2-D FIR Filters Designed by Transformations

8th Annual Meeting of the Division of Electron and Atomic Physics, American Physical Society, Lincoln, Nebraska

December 6-8, 1976

Abstracts in Bull. Am. Phys. Soc. 21, 1976

W. E. Cooke and R. R. Freeman, Measurement of the Hyperfine Frequency of the van der Waals Molecule RbKr (p. 1261)

R. R. Freeman, T. W. Ducas, and D. Kleppner, Photoionization of Alkali Rydberg States (p. 1246)

D. E. Pritchard and J. A. Serri, NaCs Interatomic Potentials from Scattering of Polarized Atoms (p. 1261)

U.S. - Japan Seminar on Dynamic Aspects of Speech Production, Tokyo, Japan
December 7-10, 1976

K. N. Stevens and J. S. Perkell, Speech Physiology and Phonetic Features

Fifth Engineering Foundation Conference on Automated Cytology, Pensacola, Florida

December 12-17, 1976

R. P. Bishop and I. T. Young, The Automated Classification of Human Chromosome Spreads

G. Granlund, I. T. Young, and M. Eden, Statistical Karyotyping

I. T. Young, Use of the Kolmogorov-Smirnov Test Statistic in the Analysis of Flow Histograms

I. T. Young, Stephanie E. Sher, M. S. Greenberg, and Allison G. Zack, Leukocyte Adhesion in Leukemias

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Allison G. Zack, I. T. Young, Stephanie E. Sher, and M. S. Greenberg,
Quantitative Morphological Analysis of Erythrocyte Damage in Dialysis
G. W. Zack, W. E. Rogers, and S. A. Latt, Automatic Measurement of
Sister Chromatid Exchange Frequency

JOURNAL PAPERS ACCEPTED FOR PUBLICATION

(Reprints, if available, may be obtained from the Document Room,
36-412, Research Laboratory of Electronics, Massachusetts Insti-
tute of Technology, Cambridge, Massachusetts 02139. Pages are
indicated for papers already published.)

- J. Als-Nielsen and R. J. Birgeneau, Mean Field Theory, the Ginzburg Criterion and Marginal Dimensionality of Phase Transitions (Am. J. Phys.)
- A. H. Barrett, P. C. Myers, and N. L. Sadowsky, Application of Microwave Radiometers to Diagnostic Medicine (Radio Sci.)
- Mary C. Bateson, Mother-Infant Exchanges: The Epigenesis of Conversational Interaction (Ann. N.Y. Acad. Sci. 263, 101-113 (1975))
- A. Bers, J. L. Kulp, and C. F. F. Karney, Symbolic Computation of Nonlinear Wave Interaction on MACSYMA (Comput. Phys. Commun.)
- Margaret Bullowa, From Non-verbal Communication to Language (Int. J. Psycholing., pp. 5-14, May 1976)
- N. M. Ceglio, Zone Plate Coded Imaging on a Microscopic Scale (J. Appl. Phys.)
- F. W. Chambers and A. Bers, Parametric Interactions in an Inhomogeneous Medium of Finite Extent - Normal Mode Solutions (Phys. Fluids)
- W. C. Chan, J. A. Kong, and L. Tsang, Geophysical Subsurface Probing with a Horizontal Magnetic Dipole (IEEE Trans., Vol. AP-24, No. 6, pp. 877-879, November 1976)
- R. S. Chu and J. A. Kong, Modal Theory of Spatially Periodic Media (IEEE Trans. (MTT))
- W. E. Cooper, S. G. Lapointe, and Jeanne M. Paccia, Syntactic Blocking of Phonological Rules in Speech Production (J. Acoust. Soc. Am.)
- W. E. Cooper, J. M. Sorensen, and Jeanne M. Paccia, Correlations of Duration for Non-adjacent Segments in Speech: Aspects of Grammatical Coding (J. Acoust. Soc. Am.)
- B. Coppi, R. Galvão, R. Pellat, M. Rosenbluth, and P. Rutherford, Resistive Internal Kink Modes (Plasma Phys. (USSR), Vol. 2, pp. 961-966, 1976) (in Russian)
- C. Deutsch, Rydberg States of He I Using the Polarization Model (Phys. Rev. A. 13, 2311-2313 (1976)).
- C. Deutsch, One-Component Plasma in $2 + \epsilon$ Dimensions (J. Math. Phys. 17, 1404-1413 (1976))

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- T. W. Ducas and M. L. Zimmerman, Infrared Stark Spectroscopy of Sodium Rydberg States (Phys. Rev. A)
- R. R. Freeman and D. Kleppner, Core Polarization and Quantum Defects in High Angular Momentum States of Alkali Atoms (Phys. Rev. A 14, 1614-1619 (1976))
- A. M. Galaburda, S. G. Waxman, T. L. Kemper, and H. R. Jones, Progressive Multifocal Neurological Deficit with Disseminated Subpial Demyelination (J. Neuropathol. Exp. Neurol., Vol. 35, No. 5, pp. 481-494, Sept.-Oct. 1976)
- R. G. Gallager, Basic Limits on Protocol Information in Data Communication Networks (IEEE Trans., Vol. IT-22, No. 4, pp. 385-398, July 1976)
- R. E. Grove, F. Y. Wu, and S. Ezekiel, Measurement of the Spectrum of Resonance Fluorescence from a Two-Level Atom in an Intense Monochromatic Field (Phys. Rev. A 15, 227-233 (1977))
- K. Hale, Linguistic Autonomy and the Linguistics of Carl Voegelin (Anthropol. Ling. 18, 120-128 (1976))
- S. P. Hirshman and D. J. Sigmar, Approximate Fokker-Planck Collision Operator for Transport Theory Applications (Phys. Fluids 19, 1532-1540 (1976))
- S. P. Hirshman and D. J. Sigmar, Neoclassical Transport of a Multispecies Toroidal Plasma in Various Collisionality Regimes (Phys. Fluids)
- B. Howland and H. C. Howland, Subjective Measurement of High-Order Aberrations of the Eye (Science 193, 580-582 (1976))
- Sharon Hunnicutt, Phonological Rules for a Text-to-Speech System (Am. J. Comput. Ling., AJCL 57 Microfiche, 1-72 (1976))
- U. Ingard and V. K. Singhal, Flow Excitation and Coupling of Acoustic Modes of a Side-Branch Cavity in a Duct (J. Acoust. Soc. Am. 60, 1213-1215 (1976))
- M. E. Jernigan and M. Eden, Model for a Three-Dimensional Optical Illusion Percept. Psychophys. 20, 438-444 (1976))
- J. D. Joannopoulos and E. J. Mele, A Local Formalism for the Study of Very Large Bonded Systems (Solid State Commun. 20, 729-732 (1976))
- J. D. Joannopoulos and W. B. Pollard, Electrons and Phonons in Amorphous Pyramidally Bonded Solids (Solid State Commun. 20, 947-950 (1976))
- D. H. Johnson and N. Y. S. Kiang, Analysis of Discharges Recorded Simultaneously from Pairs of Auditory Nerve Fibers (Biophys. J. 16, 719-734 (1976))
- P. Kiparsky and W. O'Neil, The Phonology of Old English Inflections (Ling. Inquiry, Vol. 7, No. 4, pp. 527-557, Fall 1976)
- D. H. Klatt, Structure of a Phonological Rule Component for a Synthesis-by-Rule Program (IEEE Trans., Vol. ASSP-24, No. 5, pp. 391-398, October 1976)
- L. U. E. Kohllöffel, A Study of Neurone Activity in the Spiral Ganglion of the Cat's Basal Turn (Arch. Oto-Rhino-Laryng. 209, 179-202 (1975))

JOURNAL PAPERS ACCEPTED FOR PUBLICATION (continued)

- J. A. Kong, Second-Order Coupled Mode Equations for Spatially Periodic Media (J. Opt. Soc. Am.)
- G. E. Kopec, A. V. Oppenheim, and J. M. Tribolet, Speech Analysis by Homomorphic Prediction (IEEE Trans. (ASSP))
- J. Y. Lettvin, On Seeing Sidelong (The Sciences (N.Y. Acad. Sci.), pp. 10-20, July/August 1976)
- W. F. G. Mecklenbräuker and R. M. Mersereau, McClellan Transformations for Two-Dimensional Digital Filtering: II. Implementation (IEEE Trans., Vol. CAS-23, No. 7, pp. 414-422, July 1976)
- E. J. Mele and J. D. Joannopoulos, Gaussian Relaxation Method. I. Homopolar Tetrahedral Solids (Phys. Rev.)
- K. Molvig and N. Rostoker, Plasma Heating with a Rotating Relativistic Electron Beam. I. Return Current Processes (Phys. Fluids)
- K. Molvig and N. Rostoker, Plasma Heating with a Rotating Relativistic Electron Beam. II. Magnetosonic Wave Emission (Phys. Fluids)
- P. C. Myers, On Continuum Radiation from Dark Clouds (Astrophys. J.)
- J. B. Nadol, Jr., M. J. Mulroy, D. A. Goodenough, and T. F. Weiss, Tight and Gap Junctions in a Vertebrate Inner Ear (Am. J. Anat. 147, 281-301 (1976))
- Mary J. Naus and R. J. Shillman, Why a Y Is Not a V: A New Look at the Distinctive Features of Letters (J. Exp. Psychol. 2, 394-400 (1976))
- W. F. Pickard and J. Y. Lettvin, A Physical Model for the Passage of Ions through an Ion-specific Channel - I. The Sodium-like Channel (Math. Biosci. 32, 37-50 (1976))
- D. B. Pisoni, Identification and Discrimination of the Relative Onset Time of Two Component Tones: Implications for Voicing Perception in Stops (J. Acoust. Soc. Am.)
- R. K. L. Poon, Microwave Absorption of Oxygen Measured with a Fabry-Perot Spectrometer (J. Quant. Spectros. Radiat. Transfer)
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