

PUBLICATIONS

Compilation of principal recently published books and technical articles written by APL staff members.

- A. A. Westenberg and N. de Haas, "Absolute Measurements of the $O + C_2H_4$ Rate Coefficient," *Twelfth Symposium (International) on Combustion*, The Combustion Institute, Pittsburgh, Penna., 1969, 289-299.
- W. E. Wilson, Jr., J. T. O'Donovan, and R. M. Fristrom, "Flame Inhibition by Halogen Compounds," *Twelfth Symposium (International) on Combustion*, The Combustion Institute, Pittsburgh, Penna., 1969, 929-942.
- F. S. Billig and G. L. Dugger, "The Interaction of Shock Waves and Heat Addition in the Design of Supersonic Combustors," *Twelfth Symposium (International) on Combustion*, The Combustion Institute, Pittsburgh, Penna., 1969, 1125-1139.
- R. C. Evans, "The APL Resistance Welder," *IEEE Trans. Ind. and Gen. Applications IGA-5*, No. 2, Mar./Apr. 1969, 212-230.
- R. A. Farrell and P. H. E. Meijer (Catholic Univ. of America), "High-Temperature Specific Heat of the Ising Model," *Phys. Rev.* **180**, No. 2, Apr. 1969, 579-581.
- B. B. Holland, "Doppler Tracking of Near-Synchronous Satellites (DODGE)," *J. Spacecraft and Rockets* **6**, No. 4, Apr. 1969, 360-365.
- C. S. Leffel, Jr. and E. P. Gray, "Adiabaticity of Charged-Particle Trajectories in a Cusped Magnetic Field," *Phys. Fluids* **12**, No. 5, May 1969, 1008-1017.
- W. R. Powell, "Determination of Electron Concentrations from Two Intensity Measurements within the H Line," *Appl. Optics* **8**, No. 5, May 1969, 1041-1044.
- A. Brandt and L. L. Perini, "One-Dimensional Combustor Optimization," *J. Spacecraft and Rockets* **6**, No. 5, May 1969, 570-576.
- C. C. Kilgus, "Resonant Quadrafilary Helix," *IEEE Trans. Antennas and Propagation AP-17*, No. 3, May 1969, 349-351.
- D. J. Williams (Goddard Space Flight Center) and C. O. Bostrom, "Proton Entry into the Magnetosphere on May 26, 1967," *J. Geophys. Res., Space Phys.* **74**, No. 11, June 1, 1969, 3019-3026.
- R. W. Hart and R. A. Farrell, "Light Scattering in the Cornea," *J. Opt. Soc. Am.* **59**, No. 6, June 1969, 766-774.
- M. H. Friedman and H. J. Unger, "Light-Induced Boiling of Blackened Liquids," *J. Phys. Chem.* **73**, No. 6, June 1969, 1634-1641.
- F. J. Adrian, E. L. Cochran, and V. A. Bowers, "ESR Spectrum and Structure of HNO_2 in KCl," *J. Chem. Phys.* **51**, No. 3, Aug. 1, 1969, 1018-1025.
- J. F. Bird and G. H. Mowbray, "Visual Treatment Phenomenon: Its Polarity and a Paradox," *Science* **165**, No. 3893, Aug. 8, 1969, 588-589.
- H. S. Hopfield, "Two-Quartic Tropospheric Refractivity Profile for Correcting Satellite Data," *J. Geophys. Res.* **74**, No. 18, Aug. 20, 1969, 4487-4499.

HONORS AND AWARDS

The *Three-Dimensional X-ray Projection System* conceived by J. B. Garrison and D. G. Grant of the Applied Physics Laboratory and R. J. Johns of The Johns Hopkins School of Medicine was selected as one of the 100 most significant technical products of the past year at the Fifth National Conference on Industrial Research in Chicago. By means of complex optics, the system projects multiple images of an object, superimposing them in space to form a three-dimensional image.

The film *Prescription: Roses*, produced by the APL Motion Picture Project of the External Relations Group, received the first place "Cindy" award of the Information Film Producers of America, Inc. in the category of "best institutionally produced film for academic instruction." Three awards have now been earned by this film, which is on the subject of cancer treatment.

ADDRESSES

Principal recent addresses made by APL staff members to groups and organizations outside the Laboratory.

- T. Wyatt, "TRANSIT Program," *Ruitan Club, Burkittsville, Maryland, April 15, 1969.*
- R. E. Fischell, "Gravity-Gradient Stabilization of Earth Satellites," *Scientific Colloquium, University of California, San Diego, May 7, 1969.*
- R. M. Hanes, "Environment Color," *The American Ceramic Society, Inc., Design Division, Washington, D.C., May 7, 1969.*
- H. J. Unger, F. K. Hill, and N. G. Paul, "Spectroscopic Determination of High Velocity Flow Field Static Temperatures," *1969 International Congress on Instrumentation in Aerospace Simulation Facilities, The Polytechnic Institute of Brooklyn Graduate Center, Brooklyn, New York, May 5-8, 1969.*
- J. L. Keirsey, "Summary of Jet Extender Investigations," *23rd Meeting of Aerospace Propulsion Testing Association, Indianapolis, Indiana, May 8-9, 1969.*
- C. Feldman and K. Moorjani, "Switching in Elemental Amorphous Semiconductors," *Amorphous Solids Symposium, New York, May 14-17, 1969.*
- C. Feldman, "Switching in Elemental Amorphous Semiconductors," *SEAS Symposium, Picatinny Arsenal, Dover, New Jersey, May 14, 1969.*
- D. G. Grant, J. B. Garrison, and R. J. Johns, "Imaging in Medicine," *7th National Biomedical Sciences Instrumentation Symposium, University of Michigan, Ann Arbor, May 19-23, 1969.*
- S. M. Krimigis, "X-Ray Sources from the Sun," *NATO Advanced Study Institute on Solar Eclipses and the Ionosphere, Athens, Greece, May 26-June 4, 1969.*
- R. A. Farrell and R. W. Hart, "Light Scattering from Corneal Collagen Fibrils," *Polymers Division of the Institute for Materials Research, Washington, D.C., May 27, 1969.*
- R. R. Kepple, "Running an Interna-

ADDRESSES

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tional Library: Some Thoughts in Retrospect and Some Suggestions for the Future," *Special Libraries Association Conference*, Montreal, Canada, June 2-3, 1969.

R. M. Fristrom, "Molecular Beams and Chemical Kinetics," *University of California Department of Thermal Systems Seminar*, Berkeley, June 5, 1969 and *Aerospace Corporation, Propulsion Division*, El Segundo, California, June 6, 1969.

K. Green (The Johns Hopkins University Medical Institute) and M. H. Friedman (APL), "Stroma-Solute Interactions and Hydration Control. I. Experimental Studies; II. Data Analysis," *Cornea Conference*, Boston, June 6, 1969.

The following two addresses were given at the *International Symposium on Fluorescein Angiography* at Albi, France, June 10, 1969:

B. F. Hochheimer (APL), L. V. M. Hyvarinen, and T. W. George (The Johns Hopkins University School of Medicine, Department of Ophthalmology), "Evaluation of Filters for Fluorescein;"

L. V. M. Hyvarinen, B. F. Hochheimer, and T. W. George, "Fundus Camera for Fluorescein Angiography."

W. C. Whitehead, "The APL Story," *Trenton Masonic Temple*, Trenton, New Jersey, June 16, 1969.

L. Monchick, "Ortho-Para Hydrogen Collisions," *FOM-Institut voor Atoom-en Moleculfysica*, Amsterdam, The Netherlands, June 17, 1969.

H. S. Hopfield, "A Two-Quartic Tropospheric Refractivity Profile for Correcting Satellite Data," *International Symposium on Electromagnetic Distance Measurement and Atmospheric Refraction*, Boulder, Colorado, June 23-27, 1969.

K. Moorjani and C. Feldman, "Optical Constants of Amorphous Borons," *3rd International Symposium on Boron*, Warsaw, Poland, June 25-29, 1969.

The following two addresses were given at the *NATO Summer School on Earth Resources Satellites*, Cambridge University, England, July 14-25, 1969:

D. K. Anand, "I-R Sensor Coolers";

F. W. Schenkel, "Design Consideration for Infrared Imaging in the 10-12.6

Micron Band from a Synchronous Altitude Earth Satellite."

D. D. Zimmerman, "Microelectronic Packaging," *RCA Technical Seminar*, Burlington, Massachusetts, July 16, 1969.

L. J. Viernstein, "Dynamic Properties of First Order Afferents Responsive to Joint Rotation," *Eighth International Conference of Medical and Biological Engineering*, Chicago, July 20-25, 1969.

W. E. Buchanan, "APL's Work in Space," *Rotary Club*, Ellicott City, Maryland, July 24, 1969.

C. K. Jen, J. C. Murphy, and L. C. Aamodt, "ESR Population-Modulation Spectroscopy of Optical Transition Processes in Dilute and Concentrated Ruby," *International Symposium on Electron and Nuclear Magnetic Resonance*, Monash University, Clayton, Victoria, Australia, August 11-14, 1969.

J. M. Whisnant, D. K. Anand, V. L. Pisacane, and M. Sturmanis, "The Dynamic Modeling and Application of Hysteretic Damping of Satellite Oscillations," *1969 AIAA Joint Specialists Conference*, Princeton, New Jersey, August 18-20, 1969.

A. A. Westenberg, "Applications of ESR Spectroscopy to Gas Phase Kinetics," *Atom and Free Radical Reactions Section of the 22nd Congress of the International Union of Pure and Applied Chemistry*, Sydney, Australia, August 18-22, 1969.

A. A. Westenberg, "The Mechanisms of Hydrocarbon Oxidation," *Seminar at Coal Research Laboratory of C.S.I.R.O.*, Sydney, Australia, August 22, 1969.

The following three lectures were presented by A. A. Westenberg at the *University of Witwatersrand*, Johannesburg, South Africa, August 22-27, 1969:

"Combustion Research";

"Measurements of Gas Phase Radicals by ESR";

"Applications of ESR to Gas Phase Kinetics."

A. A. Westenberg, "Applications of ESR to Gas Phase Kinetics," *National Physical Laboratory*, Pretoria, South Africa, August 26, 1969.

S. N. Foner, "Mass Spectrometry of Free Radicals Formed in High Intensity Crossed Molecular Beams," *Ninth International Symposium on Free Radicals*, Banff, Alberta, Canada, August 25-29, 1969.

WITH THE AUTHOR



R. B. Kershner, author of "On Paving the Plane," is an earlier contributor to the *Digest*, having prepared the paper on "Present State of Navigation by Doppler Measurements from Near Earth Satellites," which was published in the November-December 1965 issue. A native of Ohio, Dr. Kershner received the Ph.D. degree in mathematics from The Johns Hopkins University in 1937. He joined APL in 1946 as a member of the Launching Group and was engaged in the development of booster rockets for guided missiles and the solution of launching problems. Since leaving the Launching Group, Dr. Kershner has served as Supervisor of the Guidance and Control Group, Supervisor of the Terrier/Tartar Division, and, until 1963, as Supervisor of the Polaris Division. Currently he is Supervisor of the Space Development Department, in which the APL Navy Navigation Satellite System was developed. Dr. Kershner was awarded the Presidential Certificate in 1948 for meritorious service during World War II, and has three times received the Navy Distinguished Public Service Award for his work on Terrier, Polaris, and the Navy Navigation Satellite System. Dr. Kershner is a member of the American Association for the Advancement of Science, the Philosophical Society of Washington, and is a Fellow of the American Institute of Aeronautics and Astronautics.

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