

PUBLICATIONS

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

HONORS AND AWARDS

- R. M. Fristrom, "Kinetics and Mechanisms of Flames and Flame Suppression," *4th Materials Research Symposium on Mechanisms of Pyrolysis, Oxidation, and Burning of Organic Materials*, June 1972, 121-141.
- D. W. Fox and V. G. Sigillito, "New Lower Bounds for Energies of Radial Lithium," *Chem. Phys. Letters* **14**, No. 5, Jul. 1, 1972, 583-585.
- T. P. Armstrong (Univ. Kansas), S. M. Krimigis (APL), D. V. Reames and C. E. Fichtel (Goddard Space Flight Center), "A Comparison of Measurements of the Charge Spectrum of Solar Cosmic Rays from Nuclear Emulsions and the Explorer 35 Solid-State Detector," *J. Geophys. Res.* **77**, No. 19, Jul. 1, 1972, 3607-3612.
- D. M. Silver, "Character of the Least-Energy Trajectory near the Saddle-Point on H_3 Potential Surfaces," *J. Chem. Phys.* **57**, No. 1, Jul. 1, 1972, 586-587.
- S. M. Yionoulis, F. T. Heuring, and W. H. Guier, "A Geopotential Model (APL 5.0-1967) Determined from Satellite Doppler Data at Seven Inclinations," *J. Geophys. Res.* **77**, No. 20, Jul. 10, 1972, 3671-3677.
- A. A. Westenberg, "Carbon Monoxide and Nitric Oxide Consumption in Polluted Air: The Carbon Monoxide-Hydroperoxyl Reaction," *Science* **177**, No. 4045, Jul. 21, 1972, 255-256.
- B. L. Gotwols, "Quasi-Periodic Solar Radio Pulsations at Decimetric Wavelengths," *Solar Phys.* **25**, No. 1, Jul. 1972, 232-236.
- P. H. E. Meijer (The Catholic Univ. of America), R. A. Farrell (APL), and E. E. Sommerfeldt (Coppin State Coll.), "Cluster Expansion of the Lattice Gas; Determination of the First Ten High-Temperature Coefficients," *Physica* **60**, No. 1, Jul. 1972, 114-129.
- L. S. Glover, "Approximate Equations for Impact Dispersion Resulting from Winds and Deviations in Density," *J. Spacecraft and Rockets* **9**, No. 7, Jul. 1972, 483-484.
- R. W. Flower (APL), A. Patz (Johns Hopkins Hospital), and P. Speiser, (Univ. of Zurich), "New Method for Studying Immature Retinal Vessels in Vivo," *Invest. Ophthalm.* **7**, No. 4, Aug. 1972, 366-370.
- P. Verzariu and S. M. Krimigis, "Several Observations of Low-Energy Solar-Proton Spectra and Possible Interpretations," *J. Geophys. Res.* **77**, No. 22, Aug. 1, 1972, 3985-3998.
- A. A. Westenberg and N. deHaas, "Measurement of the Rate Constant for $H + H_2CO \rightarrow H_2 + HCO$ at 297-652°K," *J. Phys. Chem.* **76**, No. 16, Aug. 3, 1972, 2213-2214.
- A. A. Westenberg and N. deHaas, "Relative Rate Constants for $O + HCO \rightarrow OH + CO$ and $O + HCO \rightarrow H + CO_2$," *J. Phys. Chem.* **76**, No. 16, Aug. 3, 1972, 2215-2216.
- B. F. Kim, J. Bohandy, and C. K. Jen, "Polarized Sharp Line Absorption Spectra of Zn Porphin," *J. Chem. Phys.* **57**, No. 4, Aug. 15, 1972, 1792-1793.
- R. R. Newton, "The Earth's Acceleration as Deduced from Al-Biruni's Solar Data," *Memoirs Roy. Astr. Soc.* **76**, 1972, 99-128.
- R. R. Newton, "Astronomical Evidence Concerning Non-Gravitational Forces in the Earth-Moon System," *Astrophys. and Space Sci.* **16**, No. 2, 1972, 179-200.
- R. E. Hicks, "Polyimide Films for Hybrid Circuits," *NEPCON West/East Proc.*, 1972, 34-44.
- Helen S. Hopfield, "Tropospheric Range Error at the Zenith," *Report of Annual COSPAR Meeting, Seattle, Washington: Space Research* **12**, 581-594, Akademie-Verlag, Berlin, 1972.
- W. H. Avery, Supervisor of the Aeronautics Division, has been awarded the Sir Alfred Egerton (gold) Medal of the Combustion Institute. Dr. Avery was cited for his "distinguished continuing and encouraging contributions to the field of combustion, 1972."
- A. J. Zmuda, a member of the staff of the Research Center, has been appointed to a three-year term as a member of the National Research Council representing the American Geophysical Union in the Council's division of Physical Sciences.
- R. A. Rollins, Jr., a member of the staff of the Operational Evaluation Group, Missile Systems Division, has been appointed national chairman of the combined Infrared Countermeasures and Infrared Target Groups of the IRIS.

PATENTS

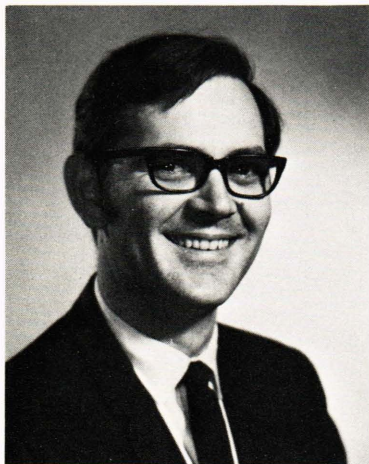
- R. K. Higgins and A. T. Sheets—*Data Conversion and Control System*, Patent No. 3,609,312.
- J. J. Hopkins and R. H. Thayer—*Simplified Proximity Fuze for Mortar and/or Howitzer Shells*, Patent No. 3,611,940.
- R. E. Hicks—*Crossover for Large Scale Arrays*, Patent No. 3,615,949.
- J. B. Garrison—*Radar*, Patent No. 3,618,090.
- H. H. Nall—*Wide Band Delay Line*, Patent No. 3,618,098.
- D. E. Buchholz, R. W. Pickering, D. L. White, R. E. Miller—*Radar Video Recorder System*, Patent No. 3,634,887.
- C. J. Swet—*Deployment Method for a Telescoping Solar Array*, Patent No. 3,635,425.
- A. R. Eaton, Jr.—*Anti-Submarine Missile*, Patent No. 3,636,877.

ADDRESSES

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

- C. Feldman (APL) and F. G. Satkeiwicz (GCA Technological Division), "The Study of Amorphous and Crystalline Silicon Thin Films by Sputter-Ion Source Mass Spectrometry," *International Conference on Thin Films*, Venice, Italy, May 15, 1972.
- J. H. Zouck and R. T. Cusick, "Diagnostic Monitor: A System for the Automatic Checkout of a Propulsion Research Instrument System," *18th National ISA Aerospace Symposium*, Miami, May 15-17, 1972.
- R. M. Fristrom, "The Fire Program at the Applied Physics Laboratory," *Consieul Internationale du Baitment, Commission W14*, Stockholm, Sweden, May 16, 1972.
- R. A. Meyer and D. G. Grant, "Two-Dimensional Optical Phase Array Beam Steering," *Electro-Optical Systems Design Conference*, Anaheim, California, May 23-25, 1972.
- F. S. Billig, G. L. Dugger, and P. J. Waltrup, "Inlet-Combustor Interface Problems in Scramjet Engines," *First International Symposium on Air Breathing Engines*, Marseilles, France, June 19-23, 1972.
- R. A. Farrell, "Transparency and Ultrastructure of the Rabbit Cornea," *University of Massachusetts Chemistry Department Seminar*, Amherst, June 22, 1972.
- R. L. McCally and R. A. Farrell, "Light Scattering Studies in Normal and Cold Swollen Rabbit Corneas," *7th Annual Cornea Research Conference*, Boston, June 23, 1972.
- J. A. Schetz, S. Favin, and L. J. Ehrlich, "Density Stratified Viscous Flow Past a Flat Plate," *AIAA 5th Fluid and Plasma Dynamics Conference*, Boston, June 26, 1972.
- E. P. Gray, "Numerical Investigation of Nonresonant RF-Supplemented Mirror Containment," *First Topical Conference on RF Plasma Heating*, Lubbock, Texas, July 7, 1972.
- R. M. Fristrom, "The Structure of Flames and Fire," *Conference on the Fundamentals of Combustion and Flammability*, University of Utah, Salt Lake City, July 11, 1972.
- W. G. Berl, "Fire as an Urban Disease," *International Seminar on Human Settlements*, Athens Technological Organization, Athens Center of Ekistics, Athens, Greece, July 18-20, 1972.
- A. A. Westenberg, "Some Relative Kinetics," *Physical Chemistry Seminar, National Bureau of Standards*, Washington, D.C., July 20, 1972.
- T. A. Potemra, "Precipitating Energetic Electrons in the Midlatitude Lower Ionosphere," *1972 Institute on Physics and Chemistry of the Upper Atmosphere*, University of Orleans, Orleans, France, August 4, 1972.
- L. B. Weckesser, "A Method for Measuring Convective Heat Transfer Coefficient in High Temperature Flow," *1972 National Heat Transfer Conference*, Denver, Colorado, August 6-9, 1972.
- A. A. Westenberg, "The Rate of CO-HO₂ Reaction in the Atmospheric CO Sink," *The American Geophysical Union and the American Meteorological Society Meeting on Sources, Sinks, and Concentrations of CO and CH₄ in the Earth's Environment*, St. Petersburg, Florida, August 15, 1972.
- R. A. Fischell, "Past, Present, and Future of Space Control Systems," *AIAA Space Guidance and Control Conference*, Stanford University, Stanford, California, August 16, 1972.
- S. M. Bose (Drexel U.), K. Moorjani (APL), T. Tanaka (Catholic U.), and M. M. Sokoloski (Harry Diamond Labs.), "Application of the Two-Sites Coherent Potential Theory to a Disordered Ferromagnetic Binary Alloy," *International Symposium on Amorphous Magnetism*, Detroit, Michigan, August 17-18, 1972.

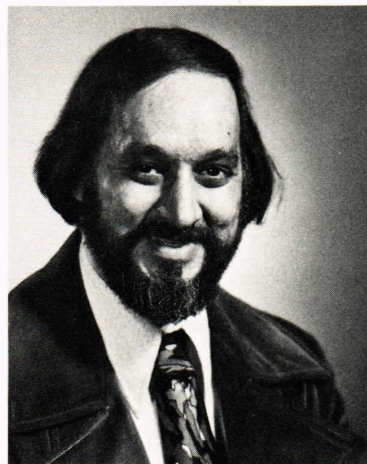
WITH THE AUTHORS



D. W. R. Denzler, author of "Transim: Development and Evaluation," was born in Houston, Texas. He received the B. S. degree in mathematics in 1964 from New Mexico State University and is presently doing graduate work at George Washington University. Mr. Denzler joined APL in 1964 where he worked in the Polaris Division until 1967, when he transferred to the Space Development Department. There he worked in the Space Radio Systems Group on techniques to improve translocation ac-

curacy. In 1971 he was given primary responsibility for development of the Transim system as well as technical direction of the Maritime Administration's evaluation. Currently Mr. Denzler is developing data processing algorithms for a new Navy system that uses advanced translocation techniques.

J. R. Morrison, author of "Learning Disabilities: Who Has a Learning Problem?" is a native of North Carolina. He came to APL in 1953 as an Apprentice Electronics Technician. After graduating from the program in 1955, he joined the Instrumentation Development Group. Mr. Morrison has an Associate of Arts degree from Montgomery College and has taken advanced courses at American University, the University of Maryland, and The Johns Hopkins University. He has worked on a wide variety of projects at APL related to the guided missile, space, Polaris, and transportation programs. At present he is performing analog simulations, signal analysis, and signal processing as a member of the Instrumentation Group's Preprocessing Team. Mr. Morrison early became interested in



community and school affairs, especially in the area of special education. He served for two years as Vice President and National delegate of the Maryland Association for Children with Learning Disabilities and is the immediate Past President of that organization. Since 1971 he has been a member of the Developmental Disabilities Advisory Council to the Governor of Maryland. Mr. Morrison is a member of Simulation Councils, Inc. and the Association for Children with Learning Disabilities.