PUBLICATIONS

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

- D. W. Fox and V. G. Sigillito, "Bounds for Energies of Radial Lithium." *J. Appl. Math and Phys.* (ZAMP) 23, 1972, 392–411.
- B. L. Gotwols and J. Phipps, "A Solar Radio Spectrograph with High Time Resolution," Solar Phys. 26, 1972, 386–392.
- J. G. Parker and D. N. Ritke, "Vibrational Relaxation Times of Oxygen at High Pressure," J. Acoust. Soc. Am. 52, No. 5, (Part 2), 1972, 1380–1384.
- P. Verzariu (APL), M. Sugiura (Goddard Space Flight Center), I. B. Strong (Los Alamos Scientific Laboratory), "Geomagnetic Field Variations Caused by Changes in the Quiet-Time Solar Wind Pressure," Planet. Space Sci. 20, 1972, 1909–1914.
- W. H. Avery, "Practical Requirements for Advanced Public Transportation Systems," Highway Research Record No. 397, Transp. Systems and Technology Research Board, National Research Council, 1972, 12–25.
- D. G. Grant, "Three-Dimensional X-Ray Image Synthesis," Advances in X-Ray Analysis, 16, 336–343, Plenum Publishing Corp.: New York, 1972.
- E. J. Hinman, "Control Concepts for Automated Urban Transit Systems," Record of Northeast Electronics Research Engineering Meeting, 14, Part I, 1972, 293– 296.
- J P. Wagner, "Survey of Toxic Species Evolved in the Pyrolysis and Combustion of Polymers," Fire Research Abstracts and Reviews 14, No. 1, 1972, 1-23.
- B. W. Kuvshinoff, "Soviet Fire Information Dissemination Media," Fire Research Abstracts and Reviews 14, No. 3, 1972, 227-231.
- W. H. Avery, "The Potential Role of Mechanically Linked Systems in Urban Transportation," *Personal Rapid Transit*, Inst. of Tech., Univ. of Minnesota, Apr. 1972.
- B. M. Ford, W. J. Roesler, M. C. Waddell, "Vehicle Management for PRT Systems," Personal Rapid

- Transit, Inst. of Tech., Univ. of Minnesota, Apr. 1972.
- R. C. Rand, "Fiscal Policy for Urban Transportation," *Personal Rapid Transit*, Inst. of Tech., Univ. of Minnesota, Apr. 1972.
- R. W. Blevins, V. J. Dietz, and R. D. Burson, "Variable Speed Walkways," Man/Transportation Interface Specialty Conf., Washington, D. C., May 31-June 2, 1972.
- R. K. Frazer, "An Experiment to Correlate the Thermal Stress Failure Level to Modulus of Rupture in Ceramic Materials," Symposium on Electromagnetic Windows, Georgia Inst. of Tech., Atlanta, June 1972.
- E. P. Gray, "Numerical Investigation of Nonresonant RF Supplemented Mirror Containment," Proc. of the 1st Topical Conf. on RF Plasma Heating, American Phys. Soc., Univ. of Texas, Lubbock, Jul. 1972, C7-1-C7-5.
- T. G. Konrad and J. C. Howard, "Multiple Contrail Streamers Observed by Radar," 15th Radar Meteorology Conf., Champaign-Urbana, Ill., Oct. 10–12, 1972, 155–160.
- E. B. Dobson and J. H. Meyer, "Doppler Radar Measurements of the Velocity Field Associated with a Turbulent Clear Air Layer," 15th Radar Meteorology Conf., Champaign-Urbana, Ill., Oct. 10-12, 1972, 254-257.
- J. R. Rowland, "Intensive Probing in Clear Air Convective Fields by Radar and Instrumented Drone Aircraft," 15th Radar Meteorology Conf., Champaign-Urbana, Ill., Oct. 10-12, 1972, 321-326.
- R. A. Meyer and D. G. Grant, "Two-Dimensional Optical Phased-Array Beam Steering," *Electronic Packaging and Production*, 71–75, Milton S. Kiver Publications, Dec. 1972.
- J. F. Bird and G. H. Mowbray, "Analysis of Transient Visual Sensations Above the Flicker Fusion Frequency," Vision Res. 13, 1973, 673–687.
- E. J. Hinman and G. L. Pitts, "Prac-

- tical Safety Considerations for Short Headway Automated Transit Systems," *Transp. Planning* and *Tech.* 1, 1973, 219–224.
- L. Monchick and N. J. Brown, "Viscosity of Ortho and Para Hydrogen Mixtures," *Molecular Phys.* 25, No. 2, 1973, 249–263.
- L. F. Fehlner and T. A. McCarty, "A Precision Position and Time Service for the Air Traffic of the Future," J. Navigation 26, No. 1, Jan. 1973, 37-54.
- B. M. Halpin (APL) and H. E. Hickey (Univ. of Maryland), "Tactics Case Designed for Command Control," Fire Engineering 126, No. 1, Jan. 1973, 50-52.
- H. B. Land III, "Dry Ice Baths, the Easy Way," J. Chem. Ed. 50, No. 1, Jan. 1973, 78.
- T. O. Poehler, J. C. Pirkle, Jr., and R. E. Walker, "MD2—A High-Pressure Pulsed CO₂ Chemical Transfer Laser," *IEEE J. Quan*tum Electronics **QE-9**, No. 1, Jan. 1973, 83–93.
- J. A. Schetz (Virginia Polytechnic Inst.) and S. Favin and L. W. Ehrlich, (APL), "Density Stratified, Viscous Flow Past a Flat Plate," J. Hydronautics 7, No. 1, Jan. 1973, 22–28.
- P. J. Waltrup and J. A. Schetz, "Supersonic Turbulent Boundary Layer Subjected to Adverse Pressure Gradients," *AIAA J.* 11, No. 1, Jan. 1973, 50–57.
- J. G. Parker and D. N. Ritke, "Vibrational Relaxation Times of Oxygen in the Pressure Range 10—110 Atm.," *J. Chem. Phys.* 58, No. 1, Jan. 1, 1973, 314–323.
- S. N. Foner and R. L. Hudson, "Mass Spectrometric Studies of Tetrafluorohydrazine and the Difluoroamino Radical," J. Chem. Phys. 58, No. 2, Jan. 15, 1973, 581–587.
- J. Bohandy, B. F. Kim, and C. K. Jen, "Low-Temperature Optical Absorption Spectra of Hematoporphyrins," J. Molec. Spectroscopy 45, No. 2, Feb. 1973, 199–207.

WITH THE AUTHORS



John Dassoulas, the author of "The TRIAD Spacecraft," was born in Washington, D. C. He attended North Georgia College and received a B.A. degree in physics from American University and has taken graduate work in physics at the University of Maryland. He joined the Laboratory in 1955 after engineering positions at Frederick Research Corp., Thieblot Aircraft Co., and American Research and Manufacturing Corp. From 1955 to 1959 Mr. Dassoulas worked on several projects, including missile stabilization and control and auxiliary systems for Talos, Triton and Typhon missiles. He joined the Space Development Department at its inception in 1960. Mr. Dassoulas has served as Director of Transit/Anna satellite launch operations and has been responsible for studies of multiple launch techniques, factors affecting the deployment of the Navigation Satellite System and the introduction of nuclear power to spacecraft. Since 1962 he has served as Project Engineer for 5E-1 (1963-38C) 5E-2, 5E-3 (1963-49C), 5E-5 (1964-83C), DODGE (1967-66F), TRIAD (TIP-I) (1972-69A) and is currently directing the Transit Improvement Program.

D. B. DeBra, the author of "Disturbance Compensation System Design," is a native of New York City. He has a B. E. degree in

mechanical engineering from Yale University, an M. S. in mechanical engineering from M. I. T., and a Ph. D. in engineering mechanics from Stanford University. A specialist in guidance and attitude control of aerospace vehicles, Dr. DeBra joined Stanford University in 1964. Prior to that he was Project



Engineer with the Thermix Corp. 1953-1954, Mechanical Engineer with the U.S. Air Force, Rome Air Development Center, 1954-1956, and Supervisor of Dynamics and Control Analysis, Satellite Systems, with Lockheed Missile and Space Co. from 1956 to 1964. At Stanford he is Professor and Director, Guidance and Control Laboratory of the Department of Aeronautics and Astronautics. In addition to these positions, Dr. DeBra has been Consultant to many organizations and has served on a number of committees including the Mine Advisory Committee of the National Academy of Sciences; the Space Vehicles Committee of NASA's Research and Technology Advisory Council; the Aerospace Control and Guidance Systems Committee of the Society of Automotive Engineers; and the Scientific Advisory Board of the U. S. Air Force for Guidance and Control. Dr. DeBra is a member of several professional societies including the American Astronautical Society, the American Astronomical

Society, the American Geophysical Union, the American Society of Mechanical Engineers, and is a Fellow of the British Interplanetary Society.



R. E. Jenkins, the author of "Performance in Orbit of the TRIAD Disturbance Compensation System," is a native of Maryland. He has a B.S. degree in mechanical engineering, and an M.S. in physics, both from the University of Maryland. A specialist in celestial mechanics, relativity, satellite geodesy, satellite tracking, and computer applications, he was employed as Associate Engineer by APL in 1960. Originally assigned to the Planning Analysis Group of the Assessment Division. Mr. Jenkins designed and constructed large-scale computer models to study naval problems. In 1966 he transferred to the Space Development Department as an Engineer in the Space Analysis and Computation Group, where he is currently the Project Supervisor of the Theory Project. Here he has worked on a variety of problems, including the development of methods for the accurate prediction of satellite orbits for long time spans; development of new doppler tracking programs; development of a theory for relativistic effects on satellite doppler signals and satellite clocks; and observation of relativistic effects using the GEOS-I satellite.