

## PUBLICATIONS

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

- F.S. Billig, "External Burning in Supersonic Streams," *Proc. of XVIII International Astronautical Congress*, Belgrade, Sept. 24-30, 1967, Pergamon Press, New York, 23-54.
- V.L. Pisacane, P.P. Pardoe, and J.M. Whisnant, "Simulation of the Attitude Stabilization of the DODGE Spacecraft with Time-Lag Magnetic Damping," *Proc. XVIII International Astronautical Congress*, Belgrade, Sept. 24-30, 1967, Pergamon Press, New York, 437-445.
- C. K. Jen, L. C. Aamodt, and A. H. Piskis, "Changes Induced in the Phosphorescent Radiation of Aromatic Molecules by Paramagnetic Resonance in Their Metastable Triplet States," *The Triplet State*, Cambridge University Press, New York, 143-162.
- P. M. Bainum and D. L. Mackison, "Gravity-Gradient Stabilization of Synchronous Orbiting Satellites," *J. British Interplanetary Soc.* **21**, 1968, 341-369.
- H. H. Hart, "Effect of Supersonic Interference on Lateral Stability of Low-Aspect-Ratio Missiles in Combined Pitch and Yaw," *J. Spacecraft and Rockets* **5**, No. 12, Dec. 1968, 1457-1462.
- A.I. Mahan, C. Bitterli, S.M. Cannon, and D.G. Grant, "Ruby as a Macroscopic Fluorescing and Laser Material," *J. Opt. Soc. Am.* **59**, No. 1, Jan. 1969, 49-59.
- F. J. Adrian, E. L. Cochran, V. A. Bowers, and B.C. Weatherley, "ESR Spectrum and Structure of HCN<sup>-</sup> in KCl at 4°K," *Phys. Rev.* **177**, No. 1, Jan. 5, 1969, 129-135.
- A. A. Westenberg and N. deHaas, "Atom-Molecule Kinetics Using ESR Detection V. Results for O + OCS, O + CS<sub>2</sub>, O + NO<sub>2</sub>, and H + C<sub>2</sub>H<sub>4</sub>," *J. Chem. Phys.* **50**, No. 2, Jan. 15, 1969, 707-719.
- J. B. Oakes, "The Navy Navigation Satellite System and its Applications," *J. Wash. Acad. Sci.* **59**, Jan.-Mar. 1969, 7-16.
- J.P. Kuttler and V.G. Sigillito, "An Inequality for a Stekloff Eigenvalue by the Method of Defect," *Proc. Am. Math. Soc.* **20**, No. 2, Feb. 1969, 357-360.
- A.G. Carlton, "On the Bias of Information Estimates," *Psych. Bull.* **71**, No. 2, Feb. 1969, 108-109.
- K. Moorjani and T. Tanaka (Catholic Univ.), "Green Function Theory of a Spin-½ Heisenberg Ferromagnet," *Phys. Letters* **28A**, No. 9, Feb. 10, 1969, 645-646.
- Vivian O'Brien and S. Weinbaum, "Comments on 'Class of Exact Solutions of the Magnetohydrodynamic Equations'," *Phys. Fluids* **12**, No. 2, Feb. 1969, 471-472.
- G. H. Mowbray and J. F. Bird, "Simple Reaction-Time as an Aid in Determining the Sign of a Visual Transient Response," *Psychol. Acta* **30**, "Attention and Performance II." (W. G. Koster, Ed.), North Holland Publishing Co., Amsterdam, 1969, 84-95.
- H. J. Unger, F. K. Hill, and N. G. Paul, "Spectroscopic Determination of High Velocity Flow Field Static Temperatures," International Congress on Instrumentation in Aerospace Simulation Facilities, 1969 Record, 303-308.
- J. R. Apel, "Experimental Studies of Linear Beam-Plasma Instabilities in a Magnetic Field," *Phys. Fluids* **12**, No. 2, Feb. 1969, 291-302.
- J. F. Bird, "Gravitational Instability of Spheroidal Expansions: A Cosmogenic Fragmentation Mechanism," *Astrophys. and Space Sci.* **3**, No. 2, Feb. 1969, 312-329.
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- J. R. Apel, "Nonlinear Effects and Turbulent Behavior in a Beam-Plasma Instability," *Phys. Fluids* **12**, No. 3, Mar. 1969, 640-648.
- B. F. Hochheimer and C. F. Bradley, "A Fourier Transform Spectrometer for the 10-10,000 cm<sup>-1</sup> Spectral Region," *Appl. Optics* **8**, No. 3, Mar. 1969, 557-562.
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- B. E. Tossman, "Magnetic Attitude Control System for the Radio Astronomy Explorer-A Satellite," *J. Spacecraft and Rockets* **6**, No. 3, Mar. 1969, 239-244.
- J. R. Apel, T. O. Poehler, and C. R. Westgate (The Johns Hopkins University), "Quantum Effects in Electron Cyclotron Resonance in InSb," *Appl. Phys. Letters* **14**, No. 5, Mar. 1, 1969, 161-163.
- A. A. Westenberg and N. de Haas, "Reinvestigation of the Rate Coefficients for O + H<sub>2</sub> and O + CH<sub>4</sub>," *J. Chem. Phys.* **50**, No. 6, Mar. 15, 1969, 2512-2516.
- W. H. Avery, "An Integrated Urban-Interurban Transportation Concept," *Traffic Quarterly*, Apr. 1969, 285-311.
- J. B. Garrison, D. G. Grant, W. H. Guier, and R. J. Johns, "Three Dimensional Roentgenography," *Am. J. Roentgenology, Rad. Therapy and Nuclear Medicine* **CV**, No. 4, Apr. 1969, 903-908.
- K. R. Hardy and I. Katz, "Probing the Clear Atmosphere with High Power High Resolution Radar," *Proc. IEEE* **57**, No. 4, Apr. 1969, 468-480.
- L. J. Viernstein and Mary Cowan (The Johns Hopkins University), "Static and Dynamic Measurements of the Pressure-Volume Relationship in Living and Dead Rabbit Eyes," *Exptl. Eye Res.* **8**, Apr. 1969, 183-192.
- A. A. Westenberg, "Applications of Electron Spin Resonance to Gas-Phase Kinetics," *Science* **164**, No. 3878, Apr. 25, 1969, 381-388.
- J. P. Reilly, "On the Statistical Representation of Targets for Detection Studies," *IEEE Trans. Aerospace and Electronic Systems* **AES-5**, No. 3, May 1969, 560-561.
- K. Moorjani and T. Tanaka (Catholic Univ.), "Critical Properties in a Spin-½ Heisenberg Ferromagnet," *Phys. Letters* **29A**, No. 4, May 5, 1969, 188-189.
- A. A. Westenberg and N. deHaas, "Absolute Measurements of the O + C<sub>2</sub>H<sub>2</sub> Rate Coefficient," *J. Phys. Chem.* **73**, No. 5, May 1969, 1181-1186.
- E. J. Hoffman, "One-shot Multivibrator Requires No Standby Power," *Electronics* **42**, No. 11, May 26, 1969, 91.

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## HONORS AND AWARDS

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Glen San Lwin, staff member of the Space Physics and Instrumentation Group, was presented the \$1,000 grand prize award in the Eighth Annual Ansochrome Slide of the Year Contest for his picture of a maple leaf and plastic clothesline painted with fluorescent paint and photographed under ultraviolet light.

A.I. Mahan, a member of the Research Center staff, has been named by Frederick Seitz, President of the National Academy of Sciences, to serve as a member of the Evaluation Panel in Physics of the National Research Council's Research Associationship program.

In a recent announcement by the National Society of Professional Engineers, the Laboratory's development of the Navy Navigation Satellite System was named, along with the Apollo moon flight, as among the four major engineering achievements of 1968.

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## PATENTS

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- L. Wilson and A.F. Hogrefe—*Battery Charge Controller Utilizing Coulometer*, Patent No. 3,421,067.
- J. Frank and C.A. Shipley—*Utilizing a Resilient Waveguide Wall*, Patent No. 3,421,116.
- W.E. Hull—*Mass Release Mechanism for Satellites*, Patent No. 3,424,403.
- R.E. Fischell—*Satellite Attitude Detection System Including Cosine and Spinrate Detectors*, Patent No. 3,424,907.

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## APL COLLOQUIA

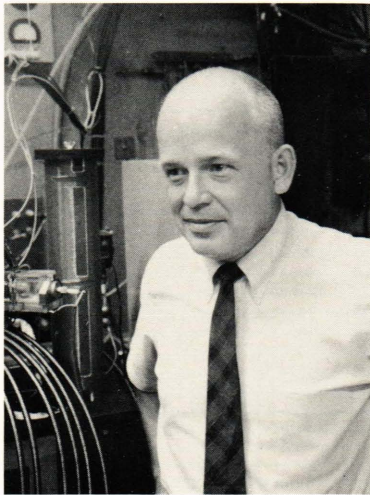
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- May 2—"Nature, Art, and Mathematics," by R. Seeger, National Science Foundation.
- May 9—"The Status of Surface-Effect Vehicles," by P. G. Fielding, Booz Allen Research, Inc.
- May 16—"The Man-Machine Interface in the Use of Artificial Hands," by W. Seamone, Applied Physics Laboratory.
- May 23—"Cultural Factors and Population Control," by Margaret Mead, American Museum of Natural History.
- May 29—"Control of Vehicular Emissions: Methods and Limitations," by E. S. Starkman, University of California at Berkeley.

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## WITH THE AUTHORS

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R. Turner, the author of "Theta-Pinch Plasma Gun Studies," was born in Boston. He received a B.S. degree in electrical engineering from the Massachusetts Institute of Technology in 1945 and an M.S. degree, also in electrical engineering, from Harvard University in 1948. Before joining the Talos Systems Group of the Applied Physics Laboratory in 1955, Mr. Turner worked on the development of servo systems for naval

fire control radars at the Sperry Gyroscope Company and as a scientific analyst with the Operations Evaluation Group, Washington, D.C. Since 1960 he has been a member of the Plasma Dynamics Research Group where his work has involved the study of high temperature-high density gases and their interaction with magnetic fields. He is a member of the American Physical Society.

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R. E. Harkness, author of "Performance of the GEOS-II Heat Pipe System," is a native of Illinois. He received a B.S. degree in engineering from the U.S. Naval Academy in 1950 and the M.M.E. degree from The Catholic University of America in 1966. He has also completed all requirements for the Ph.D. degree at The Catholic University except for the final oral examination. After leaving the Navy in 1955, Mr. Harkness was a nuclear engineer at Combustion Engineering, Inc., Windsor, Conn. until 1958; he was senior engineer at ACF Industries of Washington, D.C. from 1958 to 1959; he became senior engineer at Washington Technological Associates (WTA), Rockville, Md. in 1959;



and he left WTA in 1962 to become an engineer in the Polaris Division at the Applied Physics Laboratory. In 1966 he joined the Space Power, Thermal, and Attitude Control Systems Group of the Space Development Department, where he is engaged in developing high-performance thermal control devices for satellites. Mr. Harkness is a member of the National Society of Professional Engineers.

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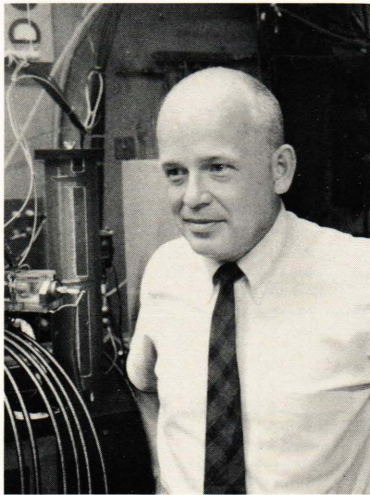
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