

Photographic interpretation by William Thonson

Since 1944, when Los Alamos scientists developed the world's first homogeneous reactor as a research tool, they have maintained a lively interest in special purpose reactors. Interest now centers on novel fuel systems, such as use of molten plutonium in high-temperature, high-efficiency devices. Other objectives are the development of low-cost nuclear fuel for high-temperature gas-cooled reactors, and thermionic converters for space applications.

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Paris 5, France. Registration and accommodation information can be obtained by writing to Astronaut, P.K.i.N., p. 23-18, Warsaw, Poland.

### Space Simulation

The National Science Foundation and the National Aeronautics and Space Administration, through the Virginia Associated Research Center, are sponsoring a conference on the role of simulation in space technology. The meeting, to be held at Virginia Polytechnic Institute from August 17 to 21, will cover space environment, structural dynamics, real-time dynamic simulation, hypersonic flight simulation, and simulator studies of physiological processes.

Attendance is by invitation. All correspondence should be addressed to F. J. Maher, Director, Space Conference, Virginia Polytechnic Institute, Blacksburg, Va.

### Spread-F

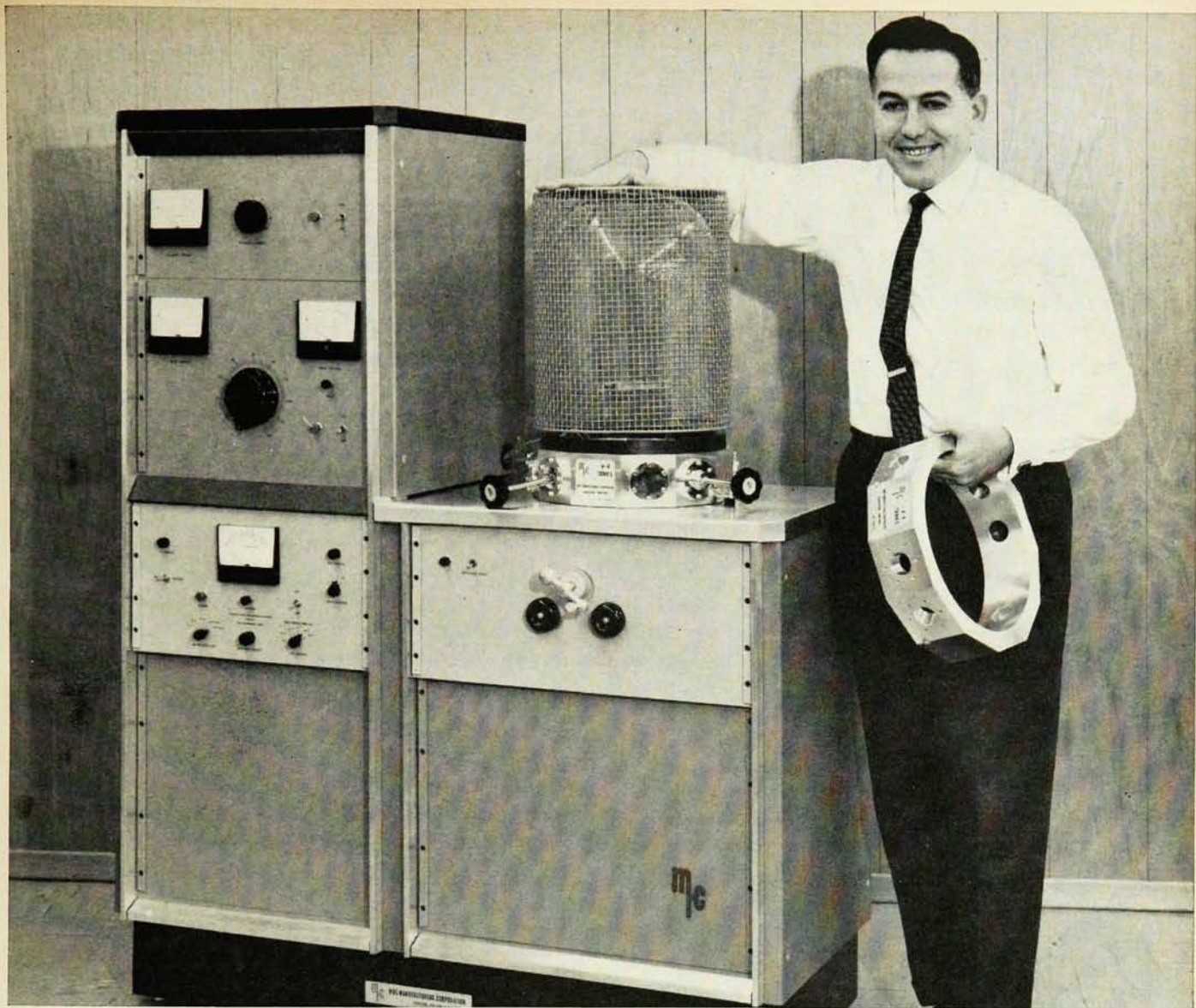
The Ionospheric Research Committee of the Avionics Panel of NATO's Advisory Group for Aeronautical Research and Development is holding its ninth technical meeting in Copenhagen, August 26 to 29. The subject of the meeting will be Spread-F and its effects on radiowave propagation and communication. Persons wishing to contribute to the program should write to the program chairman, Dr. Philip Newman, CRU, Air Force Cambridge Research Laboratories, Laurence G. Hanscom Field, Bedford, Mass.

The meeting is unclassified, but attendance is by invitation and limited to participants from NATO countries. Requests for information should be sent to Lt. Col. E. F. Dukes, Executive, Avionics Panel, AGARD, 64, rue de Varenne, Paris 7, France.

### Gordon Research Conferences

Fifty areas of scientific research are scheduled for coverage by this year's Gordon Research Conferences, to be held between June 15 and September 4 at various locations in New Hampshire. Designed to stimulate research by fostering an exchange of ideas





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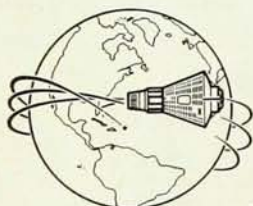
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among persons actively engaged in the selected subject areas, the conferences consist of morning and evening sessions, leaving the afternoons free for recreation or informal discussion. The conferences are intended "to bring experts up to date on the latest developments, to analyze the significance of these developments, and to provoke suggestions concerning the underlying theories and profitable methods of approach for making progress".

Although the majority of the conferences are oriented toward chemistry and the biological and medical sciences, sessions of more specific interest to physicists are listed below.

**Nuclear Structure Physics**, Colby Junior College, New London, N. H. (August 31-September 4). Topics to be covered include proton-induced reactions, deuteron stripping, neutron-induced reactions, inelastic scattering of complex particles, outline of standard theories, recoil and antisymmetrization, introductory sketch of the optical model, status of optical-model parameters, status of non-local potentials, review of distorted-wave Born approximation calculations, finite-range calculations, coupled-channels calculations,  $(d,p)$  polarization, angular correlation experiments,  $(p,\alpha)$  and  $(d,^6\text{Li})$  reactions,  $(p,\alpha)$  and  $(d,^6\text{Li})$  theory, experiments with heavy ions, theory for heavy-ion reactions, unusual cases of inelastic excitation, "doorway" states in compound nucleus formation, new information available from high-energy experiments, use of WKB wave functions in reaction calculations, and dispersion methods in direct nuclear reactions.

**Chemistry and Physics of Solids**, Kimball Union Academy, Meriden, N. H. (August 17-21): elementary excitations in metals, Kohn anomalies, effects of piezoelectric coupling in semiconductors, optical line widths, the polaron problem, ultrasonic attenuation in metals, the Jahn-Teller effect, phonon-assisted tunneling in semi- and superconductors, spin-lattice relaxation in paramagnetic systems, magnon-phonon interactions, effect of lattice coupling on properties of normal metals, phonon drag, and calculation of electron-phonon interactions.

**Infrared Spectroscopy**, Kimball Un-

ion Academy (August 24-28): interactions in dense media, infrared intensities in crystalline solids, ATR, rotation in condensed phases, anharmonic potential functions, compliance matrices and mean amplitudes, vibrational spectra of inorganic molecules, noble gas compounds, normal coordinates and frequency assignments in proteins and polypeptides, infrared studies of polymers, developments in group frequency analyses, stimulated Raman, frozen hot species, current research in the USSR, effect of electronic coupling on vibrational states, chemisorbed species.

**Nonlinear Optics**, Kimball Union Academy (August 31-September 4): harmonic generation in injection lasers, use of the gas maser for the observation of the nonlinear optical effects, two-quantum transitions within the  $(4f)_n$  configuration, boundary harmonics and a measurement of optical nonlinearities, optically induced coherent molecular and lattice vibrations, nonlinear effects associated with stimulated Raman scattering, laser-induced excitons in a molecular crystal, second harmonic generation in very long crystals, effects of double refraction, absorption and dispersion, quantitative studies of optical harmonic generation in crystals, nonlinear interaction of light in a vacuum, characteristics of stimulated Raman radiation, and recent developments in stimulated Raman emission.

**Chemistry and Physics of Space**, Tilton School, Tilton, N. H. (June 29-July 3): planetary and lunar surfaces, planetary atmospheres, early evolution of sun and stars, comets, cosmic dust, meteorites, and x-ray astronomy.

Other conferences in the 1964 series which may be of interest to physicists include: Nuclear Chemistry (June 22-26), Catalysis (June 29-July 3), Polymers (July 6-10), Corrosion (July 27-31), Scientific Information Problems in Research: Critical Tables (July 20-24), Radiation Chemistry (July 27-31), Solid-State Studies in Ceramics (June 22-26), Physical Metallurgy (July 20-24), Chemistry and Physics of Isotopes (July 13-17), and Chemistry and Metallurgy of Semiconductors (August 24-28).

Attendance at each conference is

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limited to about one hundred persons. Requests for application forms and other correspondence should be sent to W. George Parks, Director, Gordon Research Conferences, University of Rhode Island, Kingston, R. I. After June 15, Dr. Parks can be reached at Colby Junior College, New London, N. H.

#### *Radiation Biology*

The twelfth annual meeting of the Radiation Research Society will be held May 18 to 20 at the Hotel Fontainebleau in Miami Beach, Fla. A program of invited papers will cover radiation and water, cellular reactivation and recovery mechanisms, and cell renewal systems and tissue radiation sensitivity. Shorter contributed papers will deal with radiation physics and chemistry, macromolecular effects, cellular radiobiology, radiation physiology, general effects in higher organisms, and theoretical radiation biology.

Inquiries should be addressed to Dr. G. D. Adams, Radiological Laboratory, University of California Medical Center, San Francisco, Calif. 94122.

#### *Mass Spectrometry*

Committee E-14 of the American Society for Testing and Materials will hold the 1964 Conference on Mass Spectrometry and Allied Topics at McGill University in Montreal, from June 7 through 12. The program will consist of contributed papers and four half-day symposia: basic instrumental advances; mass-spectral studies of free radicals, atoms, and excited molecules; analytical developments and problems; and techniques of mass spectroscopy of solids.

Correspondence should be addressed to Dr. N. D. Coggeshall, Gulf Research and Development Company, PO Drawer 2038, Pittsburgh, Pa.

#### *Vacuum Technology*

The Vacuum Metallurgy Division of the American Vacuum Society will hold its annual conference on June 29 and 30 at the Barbizon Plaza Hotel in New York City. The theme for this

meeting will be vacuum technology in materials processing, and a session planned on this topic will include papers on system design, operation, and control. Other sessions are expected to cover vacuum melting, degassing, and fabrication; solid-state refining and processing, and processing in high vacuum.

Inquiries should be sent to M. A. Cocca, General Electric Company Research Laboratory, PO Box 1088, Schenectady, N. Y. 12301.

#### *Dielectrics*

The Department of Electrical Engineering of the Massachusetts Institute of Technology is sponsoring a conference on the structure and properties of dielectric materials on June 16 and 17. The conference is dedicated to A. R. von Hippel on the occasion of his becoming Institute Professor Emeritus, and a dinner honoring Professor von Hippel is planned for the evening of June 16.

The technical program will include several invited papers and approximately a dozen contributed papers. Emphasis will be on inorganic materials, including magnetic oxides. Brief abstracts, of length sufficient for evaluation, should be submitted on or before May 1.

All correspondence should be directed to Prof. D. J. Epstein, Room 10-139, Department of Electrical Engineering, Massachusetts Institute of Technology, Cambridge 39, Mass.

#### *Reliability Physics*

The Rome Air Development Center and the IIT Research Institute (formerly known as the Armour Research Foundation) will jointly sponsor the third annual Symposium on the Physics of Failure in Electronics. The meeting, to be held in Chicago from September 29 to October 1, will cover the fundamental physical and chemical principles contributing to the degradation of electronic parts and materials.

Requests for additional information should be directed to Morton Goldberg, Symposium Co-chairman, IIT Research Institute, 10 West 35th Street, Chicago, Ill. 60616.