For Storage And Transport of Liquefied Gases



Also Helium / Hydrogen Containers, Stainless Steel Liquid Helium Research Dewars, and related equipment. Sturdy . . . fastest delivery . . . highest quality . . . advanced cryogenic techniques.



1290 Central Ave., Hillside, N. J.
Phone: Elizabeth 5-1975

CALENDAR

Meeting announcements intended for inclusion in the calendar should I submitted at least eight weeks before meetings are to take place. Sen notices to Physics Today, 335 East 45th Street, New York 17, N. 3

- · denotes first appearance of announcement
- ▲ denotes change in information published in previous listing

October

- 19-20 Physics of Solar Space (L. I. Graduate Center, Polytechnic Inst. of Brooklyn) spons'd by APS N. Y. State Section: G. M. Edelman, Republic Avation Corp., Farmingdale, N. Y.
- 19-20 Midwest Solid-State Conference (Midwest Research Inst.): G. E. Gross, MRI, 425 Volker Blvd., Kansas City 10 Ma
- 23-24 Optical Processing of Information (Dept. of Interior Auditorium, Washington, D. C.) spons'd by Information Systems Branch of Office of Naval Research: Barbara Novy, ONR, Code 437, Washington 25, D. C. (See Sept. PT, p. 98)
- 25-27 Electron Devices (Sheraton Park Hotel, Washington, D. C.): Inst. of Radio Engrs., 1 E. 79 St., New York 21, N. Y.
- 27 AAPT Southern Calif. Section (Mt. San Antonio College, Walnut, Calif.): H. J. Haden, Glendale College, Glendale, Calif.
- 29-31 Society of Rheology (Johns Hopkins U.): E. A. Collins, B. F. Goodrich Chemical Co., PO Box 122, Avon Lake, Ohio (See July PT, p. 82)
- 29-31 Dynamics of Manned Lifting Planetary Entry (Philadelphia) spons'd by AF Office of Scientific Research: S. M. Scala, GE Co., Box 8555, Philadelphia 1, Pa.
- 29-1 Metallurgical Society of the American Institute of Mining, Metallurgical, and Petroleum Engineers (New York City): D. C. Johnston, Inst. of Metals Div., Metallurgical Soc. of AIME, 345 E. 47 St., New York 17, N. Y.
- 31 Fermi Surfaces (Statler Hilton Hotel, New York City) spons'd by American Inst. of Mining, Metallurgical, and Petroleum Engrs.: J. O. Betterton, Metals and Ceramics Div., Oak Ridge Nat'l Lab, PO Box X, Oak Ridge, Tenn. (See Aug. PT, p. 84)
- 31-3 American Vacuum Society (Statler Hilton Hotel, Los Angeles): G. H. Bancroft, Consolidated Vacuum Corp., 1775 Mt. Read Blvd., Rochester 3, N. Y. (See June PT, p. 98)

November

- 2-3 American Geophysical Union (Seattle): F. A. Richards, U. of Washington, Seattle, Wash.
- 5-7 Protection Against Radiation Hazards in Space (Gatlinburg, Tenn.) spons'd by Oak Ridge Nat'l Lab, Nat'l Aeronautics and Space Admin.: E. P. Blizard, ORNL, PO Box X, Oak Ridge, Tenn. (See Aug. PT, p. 84)
- 5-9 Practical Applications of Short-lived Radioisotopes Produced in Small Research Reactors (Vienna) spons'd by Internat'l Atomic Energy Agency: IAEA, United Nations, New York 17, N. Y.

- 7-8 Lasers and Applications (Ohio State U.) spons'd by Ohio State U. Attenna Lab: R. A. Fouty, Ohio State U. 2024 Neil Ave., Columbus 10
- 7-9 Diffraction (Mellon Inst., Pittle burgh): W. H. Robinson, Carneg Inst. of Technology, Pittsburgh, Per (See July PT, p. 82)
- 7-10 Acoustical Society of Americ (Seattle): R. W. Kenworthy, U. i Washington, Seattle, Wash.
- 12-15 Magnetism and Magnetic Material
 (Pittsburgh) spons'd by America
 Institute of Physics, America
 Inst. of Electrical Engrs.: A. C
 Beiler, Magnet and Ceramics Dept.
 Westinghouse Electric Corp., E. Pitts
 burgh, Pa.
- 12-16 Multi-Parameter Analyzer Utilization (Puerto Rico): L. J. Lidofsky, 24. Seeley W. Mudd Bldg., Columbia U., New York 27, N. Y.
- 13-18 American Rocket Society (Los Angeles): R. Hohl, ARS, 500 Fifti Ave., New York 36, N. Y.
- X-Ray Diffractometry (London) spon s'd by Inst. of Physics and Physica Soc.: Inst. of Physics and Physica Soc., 47 Belgrave Sq., London S.W.1 England
- 6-17 American Mathematical Society (Tallahassee): AMS, 190 Hope St. Providence 6, R. I.
- 17 American Mathematical Society (Loc Angeles): AMS, 190 Hope St., Providence 6, R. I.
- 19-21 APS Division of Fluid Dynamies (U. of Oklahoma, Norman); abstracts deadline Oct. 12: R. J. Emrich, Lehigh U., Bethlehem, Pa. (See Sept. PT, p. 98)
- 19-23 Radioactive Dating (Athens) spons'd by Internat'l Atomic Energy Agency, Internat'l Union of Pure and Applied Chemistry: J. H. Kane, Div. of Special Projects, Atomic Energy Commission, Washington 25, D. C. (See Sept. PT, p. 98)
- 22-24 Central Association of Science and Mathematics Teachers (St. Louis): J. Kennedy, Indiana State Teachers College, Terre Haute, Ind. (See Sept. PT, p. 98)
- 23-24 American Physical Society (Cleveland): K. K. Darrow, 538 W. 120 St., New York 27, N. Y.
- 26-27 Combustion Institute Western States Section (Aerojet, Sacramento): G. S. Bahn, 16902 Bollinger Dr., Pacific Palisades, Calif. (See Sept. PT, p. 98)
- Human Factors Society (New York City): George E. Rowland, Rowland and Co., PO Box 61, Haddonfield, N. J.
- 28-30 Ultrasonics (Columbia U.) spons'd by Inst. of Radio Engrs.: R. N. Thurston, Bell Telephone Labs, Murray Hill, N. J. (See Sept. PT, p. 100)

PHYSICS TODAY

(8-1 APS Division of Plasma Physics (Atlantic City) cospons'd by Princeton U. Plasma Physics Lab; abstracts deadline Oct. 22: M. B. Gottlieb, Princeton U., PO Box 451, Princeton, N. J.

December

- 4-6 Computers in the Space Age (Philadelphia) spons'd by American Federation of Information Processing Socs.: J. W. Leas, Radio Corp. of America, Camden, N. J. (See Aug. PT, p. 84)
- 10-14 Neutron Detection, Dosimetry, and Standardization (Rutherford High Energy Lab, Harwell) spons'd by Internat'l Atomic Energy Agency: IAEA, Rm. 2265, United Nations, New York 17, N. Y. (See Sept. PT, p. 100)
- 19 Mass Spectrometry (Imperial College, London) spons'd by Inst. of Physics and Physical Soc.; Inst. of Physics and Physical Soc., 47 Belgrave Sq., London, S.W.1, England (See Sept. PT, p. 100)
- 16-30 American Association for the Advancement of Science (Philadelphia): R. L. Taylor, AAAS, 1515 Massachusetts Ave., N.W., Washington 5, D. C.
- 26-31 Space Physics (Philadelphia) spons'd by American Rocket Soc., American Assoc. for Advancement of Science: R. Hohl, ARS, 500 Fifth Ave., New York 36, N. Y.
- 21-29 American Astronomical Society (National Radio Astronomy Observatory, Green Bank, W. Va.): G. C. McVittie, U. of Illinois Observatory, Urbana, Ill.
- 17-29 American Physical Society (Stanford U.); abstracts deadline Oct. 19: W. A. Nierenberg, U. of Calif., Berkeley 4, Calif.
- 17-29 American Geophysical Union (Stanford U.); send abstracts by Oct. 10 to J. Kaplan, Dept. of Physics, U. of California, Los Angeles: W. W. Kellogg, Rand Corp., 1700 Main St., Santa Monica, Calif. (See Aug. PT, p. 84)

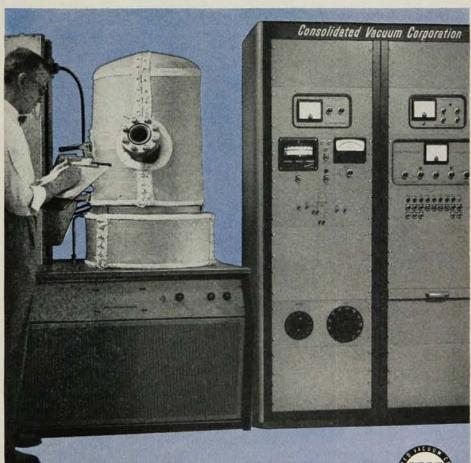
1963

January

- 7-8 Ultra High-Energy Nuclear Physics (U. of Bristol) spons'd by Inst. of Physics and Physical Soc.; send abstracts to D. H. Perkins, H. H. Wills Physical Lab, Royal Fort, Bristol 8, England: Inst. of Physics and Physical Soc., 47 Belgrave Sq., London, S.W.1, England (See Sept. PT, p. 100)
- 8-10 Millimeter and Submillimeter Conference (Orlando, Fla.) spons'd by Inst. of Radio Engrs.: J. W. Dees, MP-172, PO Box 5837, Martin Co., Orlando, Fla. (See Sept. PT, p. 102)
- 11-24 American Meteorological Society (New York City) AMS, 45 Beacon St., Boston 8, Mass.
- 23-26 American Physical Society (New York City); abstract deadline Nov. 9: K. K. Darrow, 538 W. 120 St., New York 27, N. Y.
- 24-28 American Mathematical Society (Berkeley): AMS, 190 Hope St., Providence 6, R. I.
- 26-28 Mathematical Association of America (U. of California, Berkeley): H. M. Gehman, U. of Buffalo, Buffalo 14, N. Y.
- 31-1 Society of Rheology (Shell Development Co., Emeryville, Calif.); abstracts deadline Dec. 1: T. L. Smith, Stanford Research Inst., Menlo Park, Calif.

NEW from Consolidated Vacuum CVU-18 ULTRA-HIGH VACUUM CHAMBER

Now you can work with matched CVC ultra-high components in an integrated, ready-to-use system that handles ultra-high applications from space simulation to vapor deposition. ■ The CVU-18 combines chamber bakeout, baked sorbent trapping, water-cooled baffling and diffusion pumping to reach an ultimate in the 5 x 10⁻¹⁰ torr range—without cryogenic equipment. ■ Bell jar and pumping system are a self-contained unit with adjoining console for vacuum gauging and control equipment. Vacuum chamber has 18″ internal diameter, 30″ height; full range of accessories available. WRITE for Bulletin 1-5.

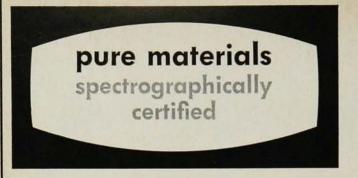


Consolidated Vacuum Corporation

GVG

OCTOBER 1962

ROCHESTER 3, NEW YORK
ASUBSIDIARY OF BELL & HOWELL



Jarrell-Ash . . . as exclusive U.S. distributor for Johnson, Matthey & Co., Ltd. . . . offers you the most complete line of high-purity materials for use in quantitative spectrochemical analysis and research:

METALLIC SALTS
METALS — powder, foil,
sponge, lump, wire, etc.
RARE EARTH OXIDES

ELECTRODES SOLUTIONS

STANDARD SETS OF ALLOYS

Each shipment of each material is accompanied by a laboratory report which lists detected impurities in parts per million.

SPECTROGRAPHIC SUPPLIES

Jarrell-Ash also carries in stock for your convenience:

- Kodak Spectrographic Film, Plates, Developers, Stop Bath, Fixers and Hardener.
- . "National" Electrodes, Pre-Forms, Powders
- · Jarrell-Ash S Q Powder Standards

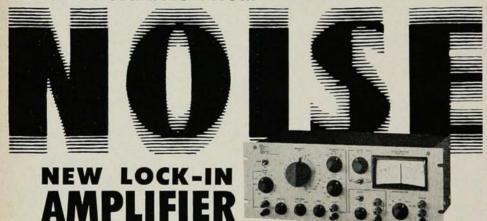
Write for catalogs listing all materials and supplies.

Jarrell —Ash

Farwell Street, Newtonville 60, Mass.

24 HOUR SERVICE ON STOCK ITEMS

RECOVER SIGNALS FROM



Now you can recover signals 40 db below 1 kilocycle bw ambient white noise.

This new signal processing instrument is designed to recover signal information from noise. It is a narrow band detection device, the center frequency of which is locked to the frequency at which the signal information has been made to appear. Therefore, extremely narrow detector band widths can be obtained with complete freedom from drift between the detector center frequency and the characteristic signal frequency. Consequently, it is applicable to situations where narrow band operation will enhance signal-to-noise ratio. Lock-in amplifier techniques are being used in radio astronomy, nuclear and electron magnetic resonance experiments, carrier life time studies in semiconductors, experiments in special and general relativity, and optical pumping.

Pertinent specifications include: frequency range 15 to 15,000 cps continuously tunable; equivalent band width 0.12 cps min. (2 sec. max. RC integrating time). 6 or 12 db per octave selectable roll-off; gain RMS AC in to push-pull DC out — approx. 9,000. Completely transistorized. Price: \$990.

Write for Bulletin 103

February

- American Society for Testing and Materials (Queen Elizabeth Hotel, Montreal): ASTM, 1916 Race St., Philadelphia 3, Pa.
- 11-15 Quantum Electronics (Paris) spons'd by Inst. of Radio Engrs, Soc. Francaise des Electroniciens et Radioelectriciens: Mme. Cauchy, Third Quantum Electronics Conf., 7, rue de Madrid, Paris 8, France (See Aug. PT, p. 84)
- 13-15 Electrochemistry (Sydney and Hobart,
 Australia) spons'd by Royal Australian Chemical Inst., U. of Tasmania, U. of New South Wales: F.
 Gutmann, U. of New S. Wales, PO
 Box 1, Kensington, NSW, Australia
- 18-20 American Standards Association (New York City): ASA, 10 E. 40 St., New York 16, N. Y.
- 20-23 Solid-State Circuits (U. of Pa. and Sheraton Hotel, Philadelphia) spons'd by Inst. of Radio Engrs., American Inst. of Electrical Engrs., U. of Pa.; send abstracts by Nov. 1 to A. K. Rapp, Philco Scientific Lab, Blue Bell, Pa.: F. J. Witt, Bell Telephone Labs, Murray Hill, N. J. (See Sept. PT, p. 102)
- 24-28 American Institute of Mining, Metallurgical, and Petroleum Engineers (Dallas): AIME, 345 E. 47 St., New York 17, N. Y.
- 28-2 Experimental Aspects of NMR Spectroscopy (Mellon Inst., Pittsburgh):
 C. W. Wilson, III, Research Dept.,
 Union Carbide Chemicals Co., S.
 Charleston, W. Va.
- 28-2 American Physical Society (Houston); abstract deadline Dec. 14: K. K. Darrow, 538 W. 120 St., New York 27, N. Y.

March

- 4-8 Analytical Chemistry and Applied Spectroscopy (Penn-Sheraton Hotel, Pittsburgh) spons'd by American Chemical Soc., Spectroscopy Soc. of Pittsburgh; abstract deadline Oct. 15: W. A. Straub, Applied Research Lab, US Steel Corp., Monroeville, Pa. (See Aug. PT, p. 86)
- 11-12 Inter-Society Color Council (Statler-Hilton Hotel, New York City): R. M. Evans, Eastman Kodak Co., Color Technology Div., Rochester 4, N. Y.
- 4-15 Advanced Gas-Cooled Reactor (London) spons'd by British Nuclear Energy Soc.: BNES, 1-7 Great George St., London, S.W.1, England
- 19-21 Bionics (Dayton, Ohio) spons'd by Aeronautical Systems Div. and Aerospace Medical Div., AF Systems Command: Commander, Aeronautical Systems Div., Ath.: ASRNEB-3, Lt. Col. L. M. Butsch, Jr., Wright-Patterson AFB, Ohio.
- 20-22 Quantitative Spectroscopy and Selected Applications in Space Science (California Inst. of Technology) spons'd by Caltech and government agencies: A. R. Laujer, Office of Naval Research, 1030 E. Green St., Pasadena, Calij.
- 24-28 Institute of Radio Engineers (New York City): E. G. Gannett, IRE, 1 E. 79 St., New York 21, N. Y.
- 25-28 American Physical Society (St. Louis); abstract deadline Jan. 11: K. K. Darrow, 538 W. 120 St., New York 27, N. Y.

Apri

10-11 Engineering Aspects of Magnetohydrodynamics (U. of California, Berkeley) spons'd by American Inst. of Electrical Engrs.: G. W. Sutton, GE Space Sciences Lab, King of Prussia, Pa.

PHYSICS TODAY



PRINCETON APPLIED RESEARCH CORPORATION

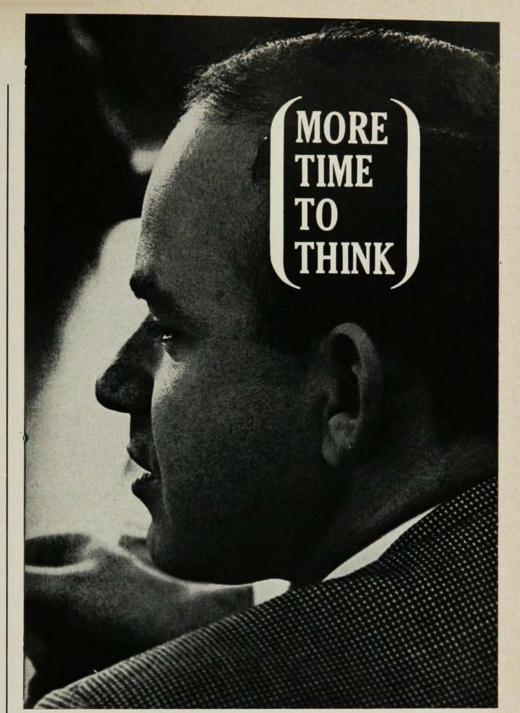
Box 565 / Princeton, New Jersey / Tel. 799-1222, area code 609

- 11-13 Natural Radiation Environment (Houston) spons'd by Health and Safety Office of Atomic Energy Commission, Rice U.: J. A. S. Adams, Rice U., PO Box 1892, Houston 1, Tex.
- [7-19] Institute of Environmental Sciences (Statler-Hilton Hotel, Los Angeles): H. F. Sander, IES, PO Box 191, Mt. Prospect, Ill.
- 17-19 Sorption Properties of Vacuum-Deposited Metal Films (U. of Liverpool) spons'd by Inst. of Physics and Physical Soc., Joint British Committee for Vacuum Science and Technology; send abstracts by Dec. 1 to J. H. Leck, U. of Liverpool, Brownlow St., Liverpool 3: Inst. of Physics and Physical Soc., 47 Belgrave Sq., London, S.W.1, England
- 17-19 Nonlinear Magnetics (Shoreham Hotel, Washington, D. C.) spons'd by Inst. of Radio Engrs, American Inst. of Electrical Engrs.; send abstracts by Nov. 5 to J. J. Suozzi, Bell Telephone Labs, Whippany, N. J.: H. F. Storm, 1 River Rd., Bldg. 37, GE Co., Schenectady, N. Y. (See Aug. PT, p. 86)
- 17-20 American Meteorological Society (Washington, D. C.) with American Geophysical Union: AMS, 45 Beacon St., Boston 8 ,Mass.
- 18-20 Stereology (Vienna) spons'd by Internat'l Soc. for Stereology: K. H. Spitzy, Viennese Acad. of Medicine, Alserstr. 4, Vienna 9, Austria (See Sept. PT, p. 104)
- 22-25 Weather Radar (Washington, D. C.) spons'd by American Meteorological Soc. and US Weather Bureau; abstracts deadline Jan. 1: S. G. Bigler, Radar Unit, US Weather Bureau, Washington 25, D. C. (See Sept. PT, p. 104)
- 22-25 American Physical Society (Washington, D. C.); abstract deadline Feb. 8: K. K. Darrow, 538 W. 120 St., New York 27, N. Y.
- 23-25 Electronic Processes in Dielectric Liquids (U. of Durham) spons'd by Inst. of Physics and Physical Soc.; send abstracts by Nov. 30 to M. J. Morant, Science Labs, S. Rd., Durham City, England: Inst. of Physics and Physical Soc., 47 Belgrave Sq., London S.W.1, England (See Sept. PT, p. 104)

May

- 1-2 Advances in Polymer Science and Technology (London) spons'd by British Plastics Inst., Soc. of Chemical Industry, Inst. of Rubber Industry; J. N. Ratcliffe, Plastics Inst., 6 Mandeville Pl., London W.1, England (See Sept. PT, p. 106)
- 10-22 Professional Group on Microwave Theory and Technique (Santa Monica, Calif.) spons'd by Inst. of Radio Engrs; send abstracts by Jan. 5 to I. Kaufman, Space Technology Labs, Inc., 1 Space Park, Redondo Beach, Calif.: A. Clavin Rantec Corp., Ventura Blvd., Calabasas, Calif.
- Mid-America Spectroscopy Symposium (Chicago) spons'd by Soc. for Applied Spectroscopy; abstract deadline Jan. 15: J. E. Forette, Borg-Warner Corp., Des Plaines, Ill.
- Park Hotel, Washington, D. C.)

 Spons'd by Nat'l Bureau of Standards,
 US Weather Bureau, American
 Meteorological Soc., and engineering
 Socs.; send abstracts by Nov. 1 to
 A. Wesler, NBS, Washington 25,
 D. C.; J. W. Morgan, Johnson Service Co., Washington, D. C. (See Sept. PT, p. 106)



••• AT ORI The accent is on thought . . . on providing an excellent scientific environment for work and exchange of ideas (as befits an organization controlled and directed by scientists).

The result: productive effort. ORI has doubled its business volume every year since 1956 and the expansion goes on unabated. Consequently, we have unusual opportunities for engineers and scientists interested in analyzing operational and executive decision problems in astronautics, missile systems, undersea and surface warfare, and industrial transportation systems.

You will deal with top level technical and management personnel... you will work on critical national problems... your financial rewards will reflect the importance of your work and are worthy of your attention.

Write: Harvey Kushner, Director, Physical Systems Division

OPERATIONS RESEARCH INCORPORATED

8605 CAMERON STREET, SILVER SPRING, MARYLAND (RESIDENTIAL SUBURB OF WASHINGTON, D.C.) • AN EQUAL OPPORTUNITY EMPLOYER





VIBRATING REED ELECTROMETER



The newest Vibrating Reed Electrometer Type N616B measures direct currents down to -1015 amps full scale using internal resistance! Very low noise and drift-±100 Microvolts over 24 hours. Applied D.C. is converted to A.C. by a vibrating reed capacitor and amplified by a stable A.C. amplifier. Output meter calibrated in voltage plus recorder output facility. Proven performance at low cost!

For full information on the N616B Electrometer or on any of the wide range of Ekco Equipment used in research, medicine, aviation and industry in more than 80 countries-write to



electronics

EKCO ELECTRONICS LTD SOUTHEND-ON-SEA ENGLAND

In U.S.A. contact associate company American Tradair Corporation 34-01 30th Street, Long Island City 6, New York

- Spring Joint Computer Conference (Cobo Hall, Detroit) spons'd by American Federation of Information Processing Socs.; send abstracts and manuscripts by Dec. 1 to B. W. Pollard, Burroughs Corp., 6071 Second Ave., Detroit 32, Mich.: Phyllis Higgins, AFIPS, PO Box 55, Malibu, Calif. 21-23
- 22-25 Acoustical Society of America (New York City) abstracts deadline Feb. 20: H. F. Olson, Radio Corp. of America, Princeton, N. J.

June

- Vacuum Engineering (Frankfurt/Main) spons'd by European Fed. of Chem. Engrs., European Vacuum Study Circle, Union of German Physical Socs.: Symp. Sec., Rheingauallee 25, Frankfurt/Main, Germany
- Canadian Association of Physicists (Laval U., Quebec City): Leon Katz, U. of Saskatchewan, Saskatoon, Canada
- Canada
 Molecular Structure and Spectroscopy
 (Columbus), concurrent with Internat'l Union of Pure and Applied
 Physics, Internat'l Union of Pure
 and Applied Chemistry, Internat'l
 Astronomical Union Triple Commission on Spectroscopy (Columbus):
 H. H. Neilsen, Ohio State U., Columbus 10, Ohio
 Heat Transfer and Fluid Mechanics
 Institute (California Inst. of Technology); abstracts deadline Jan. 11:
 A. Roshko, Caltech, Pasadena, Calif.
 American Nuclear Society (Cincin-10-14
- 12-14
- 17-20 American Nuclear Society (Cincinnati): ANS, 86 E. Randolph St., Chicago 1, Ill.
- Automatic Control (U. of Minnesota, Minneapolis) spons'd by engineering socs.: O. L. Updike, U. of Va., Charlottesville, Va.
- American Society for Testing and Materials (Chalfonte-Haddon Hall, Atlantic City): ASTM, 1916 Race St., Philadelphia 3, Pa. 23-28
- Thermodynamics and Thermochem-24-28 istry (Lund, Sweden) spons'd by Internat'l Union of Pure and Applied Chemistry: S. Sunner, Lund U., Lund, Sweden
- 24-28 Physico-Chemical Properties of Metal-Ammonia Solutions: 1863-1963 (Lille) spons'd by Faculté Libre des Sciences de Lille, Ecole de Chimie E.H.E.I.: G. LePoutre, Laboratory of Physical Chemistry, 13, rue de Toul, Lille, Nord, France

July

- Ionization Phenomena in Gases (Orsay, France): P. Hubert, CEN-FAR, B. P. No. 6, Fontenay-aux-Roses, Seine, France 8-13
- Physics of Electronic and Atomic Collisions (London): Conference Secretariat, Physics Dept., University College, Gower St., London, W.C.1, England

August

- Aerospace Support (Sheraton Park Hotel, Washington, D. C.) spons'd by American Inst. of Electrical En-grs.; send abstracts by Dec. 3 to Technical Sessions Committee, PO Box 6635, Washington 9, D. C.: American Inst. of Electrical Engrs., PO Box 6635, Washington 9, D. C.
- 12-15 International Geophysical Year Results (Los Angeles) spons'd by Internat'l Union of Geodesy and Geophysics: W. L. Godson, Internat'l Assoc. of Meteorology and Atmospheric Physics, c/o Meteorological Office, 315 Bloor St. W., Toronto 5, Canada

elementary particle recording

WITH THE 35mm MULTIDATA® CAMERA



Tracks of elementary particles wer sequence recorded in 90° stereo at leading university by two Flight Researc Model IV-C MULTIDATA 35mm instrumer tation cameras. They were chosen be cause of their rapid pull-down time allowing more than one set of picture during each pulse of the particle acce erator. Two chains of image intensifier in shown in the partial installation photo graph, increased the faint track light b= about 105, the output being displayed o kinescopes which were photographed.



The dataphoto from a portion of the 35mm frame shows an event created by а т meson having one highly ionizing recoil particle and a more lightly ioniz ing one. The octal-coded data shown of the right was fed into the camera sta that the film can be read directly by TX-O computer.

When highly accurate photographic recording of any sequential experimenor operation is required, Flight Research can design and produce precision cam eras to meet practically any specifica tions. Let our engineering staff know your requirements. At Flight Research, precision is a product, not a problem



FLIGHT RESEARCH

PHYSICISTS

Expansion of our Electron Tube operation in commercial, industrial and military markets has created several outstanding opportunities for qualified candidates. Physicists with experience or interest in R&D, Product Design, Manufacturing Engineering, or Application Engineering are invited to explore immediate openings in the following areas:

IMAGE TUBES. Storage tubes and devices, image display devices, pick-up tubes, circuitry.

CATHODE RAY. Black and white picture tubes, industrial and military, electro luminescent ferro electric display devices.

POWER TUBES. Radiation detectors, industrial R. F., mercury pool, high vacuum switch, communication.

MICROWAVE TUBES. Magnetrons, klystrons, TWT's, special electron devices, fundamental study programs on interaction circuits, beam study programs.

An Equal Opportunity Employer

Write or send resume to:

Mr. Wm. Kacala, Technical Recruiting P.O. Box 284, Elmira, New York or phone collect REgent 9-3611



POSITIONS OPEN

PHYSICIST

Ph.D. Physicist for graduate school faculty. Academic environment, graduate level teaching vitalized by very active research program. We are interested in your competence in any of these areas: Dynamics, Theories of Elasticity and Viscoelasticity, Heat & Thermodynamics, Electricity, Physical Optics, and "Modern Physics." As a physicist you will be intrigued with the scope for your field here.

Write:

THE INSTITUTE OF PAPER CHEMISTRY APPLETON, WISCONSIN

Attention: Dr. McLeod

Physicist, B.S., recent graduate ('61 or '62) interested in solid state to work on applied research in thin film radiation sensors visible to infrared; pyrolytic graphite and thermistors. Opportunity to learn vacuum technology and for graduate study. Large industry near Boston, Mass. Salary commensurate with qualifications. "Equal Opportunity Employer" will pay transfer expenses and fee. Please reply to Physics Today, Box 1062, 335 East 45 St., New York 17, N. Y.



PHYSICISTS and PHYSICAL SCIENTISTS

For professional, individualized fee-paid service, write for confidential application.

A national employment agency for the Nuclear & Scientific Fields.

ATOMIC PERSONNEL, INC. Suite 1207M, 1518 Walnut Street, Philadelphia 2, Pa.

Position Open: Physicists or Physical Chemists with doctor's degree for academic position, full-time independent research in nuclear physics, biophysics, magnetic resonance and computer operations, teaching duties optional. Mid-south, starting salary \$8,900 to \$10,635. Physics Today, Box 962, 335 E. 45 St., New York 17, N. Y.

PHYSICS DEPARTMENT OKLAHOMA STATE UNIVERSITY

Has openings for persons interested in combining teaching and academic research. Especially urgent is the need for staff to guide and supervise the research of both M.S. and Ph.D. candidates. Appointments effective immediately or as convenient. Prefer candidates who can qualify for rank of Associate Professor or Professor but would consider applicants at Assistant Professor level. Salary dependent upon experience but competitive.

If interested, write to: H. E. Harrington, Head Stillwater, Oklahoma



ENGINEERS: Systems, Design, Development PHYSICISTS

opportunity and advancement are "GO"

DYNAMIC EXPANSION CREATES NEW CAREER POSITIONS

at VITRO!

Vitro Laboratories is expanding on all fronts . . . missile systems engineering . . . design and development . . . analysis . . . research and study. We are stretching the parameters of knowledge in space, in the air, on the ground and underseas. We invite you to enter the "go" climate of Vitro.

Vitro is a good place to work. Here you will find a professional atmosphere conducive to original and imaginative thinking. Skilled clerical and technical support frees you to concentrate on the creative aspects of your assignments, and salaries are at a level worthy of your attention. You will advance as fast as your talents allow.

Career appointments are available immediately in the following areas:

MISSILE SYSTEMS ENGINEERING Polaris, Typhon, Talos, Tartar

DESIGN & DEVELOPMENT
Digital equipment
ASW equipment
Underwater vehicles

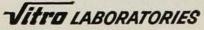
Simulators • Torpedoes Electro-mechanical launching equipment

ANALYSIS

Radar and IR systems Digital and analog equipment Fire control systems

RESEARCH & STUDY
Reliability and feasibility studies
Basic and applied research
Weapons systems analysis
Acoustic studies
ASW studies

WRITE OR PHONE COLLECT for details: Manager, Professional Employment



Division of Vitro Corporation-of America
Dept. 227, 14000 Georgia Ave.
Silver Spring, Maryland
(Residential suburb of Washington, D. C.)
Phone: Whitehall 2-7200
An equal opportunity employer

19-31 International Union of Geodesy and Geophysics (U. of California, Berkeley): D. K. Todd, U. of Calif., Berkeley, Calif. (See Dec. '61 PT, p. 88)

21-24 Interaction Between Atmosphere and Ocean (Berkeley) spons'd by Internat'l Assoc. of Meteorology and Atmospheric Physics, Internat'l Assoc. of Physical Oceanography, in conjunction with general assembly of Internat'l Union of Geodesy and Geophysics, Aug. 19-31, Berkeley: W. L. Godson, IAMAP, c/o Meteorological Office, 315 Bloor St. W., Toronto 5, Canada

21-24 Upper Mantle (Berkeley) in conjunction with general assembly of Internat'l Union of Geodesy and Geophysics, Aug. 19-31, Berkeley: G. Laclavère, IUGG, 53, av. de Breteuil, Paris 7, France

25-28 Creep and Fracture (Hotel Biltmore, New York City) spons'd by US and British engineering socs.: N. L. Mochel, Westinghouse Corp., Lester Branch PO, Philadelphia 13, Pa. (See Aug. '61 PT, p. 80)

26-28 Mathematical Association of America (U. of Colorado, Boulder): H. M. Gehman, U. of Buffalo, Buffalo 14, N. Y.

26-30 American Mathematical Society (Boulder): AMS, 190 Hope St. Providence 6, R. I.

26-30 Rheology (Brown U.) spons'd by Society of Rheology, Internat'l Committee on Rheology; send abstracts by Mar. 30 to E. H. Lee, Brown U.; R. S. Rivlin, Brown U., Providence 12, R. I. (See Oct. '61 PT, p. 88)

28-31 Electron Microscope Society of America (Denver): V. L. Breemen, Mercy Inst. for Biomedical Research, 2920 E. 16 Ave., Denver, 6, Colo.

September

2-7 Dynamic Meteorology (Boulder) spons'd by Internat'l Assoc. of Meteorology and Atmospheric Physics in conjunction with general assembly of Internat'l Union of Geodesy and Geophysics, Aug. 19-31, Berkeley: W. L. Godson, IAMAP, c/o Meteorological Office, 315 Bloor St. W., Toronto 5, Canada
 5-20 International Scientific Padio Union

5-20 International Scientific Radio Union (Tokyo): E. Herbays, 7, pl. Emile Danco, Brussels, Belgium

9-14 International Union of Crystallography (Rome): E. Onorato, Inst. of Mineralogy, University City, Rome, Haly

October

24-28 Society of Exploration Geophysicists (New Orleans): T. O. Hall, Box 1536, Tulsa 1, Okla.

November

6-9 Acoustical Society of America (Ann Arbor): G. Peterson, U. of Mich., Ann Arbor, Mich.

18-21 American Nuclear Society (New York City), meeting jointly with Atomic Industrial Forum and Atom Fair: O. J. Du Temple, ANS, 86 E. Randolph St., Chicago 1, Ill.

19-21 American Physical Society (Norman, Oklahoma); abstracts deadline Oct. 12: K. K. Darrow, 538 W. 120 St., New York 27, N. Y.

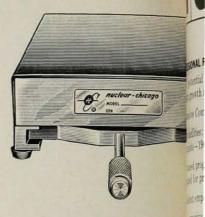
1964

February

 American Society for Testing and Materials (Sheraton Hotel, Philadelphia): ASTM, 1916 Race St., Philadelphia 3, Pa.

LARGE ARE

GAS FLOW DETECTO



For measurement of alpha and radiations in research, health paics, industry, and education counting air filters, large pretates, residues, slurries, or lic of low specific activity; suitable low-level counting.

CONDENSED SPECIFICATIONS

 geiger or proportional gasoperation

RE

- unusually high, uniform setivity
- polished stainless steel
- accepts samples up to 4½x4½
- interchangeable Microm (0.15 mg/cm²) and metali Mylar (0.9 mg/cm²) windov
- with three windows, capill assembly, 12 sample pans, cab instruction manual
- 2½ x 5¾ x 9-13/16 inches

WRITE FOR Model 1180 Deter Data sheet containing detail specifications.

newest product from our Detect Division. An experienced staff vites your consultation and inquies. Write—or phone collect.



nuclear-chicag

373 E. Howard Ave. Des Plaines, Telephone 112-827-4456