

CALENDAR

Information in the calendar is compiled from a file maintained in the PHYSICS TODAY editorial offices. The date at the end of each item refers to the issue of PHYSICS TODAY in which the item is listed with more detail than appears in subsequent issues. Readers are invited to write or telephone for additional information.

• new listing ♦ new information

April 1967

- 12-14 Optical Society of America (Columbus, Ohio) *PT Dec. 1966*
- 14,15 AAPT Central Pennsylvania Section (Huntingdon) *PT Dec. 1966*
- 14,15 APS Ohio Section (Columbus) *PT Dec. 1966*
- 17-19 Nondestructive Evaluation of Aerospace and Weapons Systems Components and Materials (San Antonio) *PT Dec. 1966*
- 17-19 Thermal Balance of Spacecraft (New Orleans) *PT Dec. 1966*
- 17-20 American Geophysical Union (Washington, D.C.) *PT March 1967*
- 19-22 Acoustical Society of America (New York City) *PT Feb. 1966*
- 20-21 Intermolecular Forces and the Thermodynamic Properties of Mixtures (Ohio State University) *PT March 1967*
- 22 American Association of Physics Teachers Iowa Section (Drake U., Des Moines) *PT Jan. 1967*
- 24-26 Frequency Control (Atlantic City) *PT Jan. 1967*
- 24-27 American Physical Society (Washington, D.C.) *PT Dec. 1966*
- 28,29 Physics of Superconducting Devices (U. of Virginia) *PT Jan. and Feb. 1967*

May 1967

- 3-6 Rare Earths (Gatlinburg) *PT Dec. 1966*
- 5-6 Interaction of Light with Matter (Webster, N.Y.) *PT Dec. 1966*
- 8-10 Origin and Distribution of the Elements (Paris) *PT Dec. 1966*
- 8-10 High Temperature Chemistry

(Argonne National Lab) *PT Dec. 1966*

- 8-10 Fluidics (Chicago) *PT Feb. 1967*
- 8-10 Microwave Theory and Technique (Boston) *PT Dec. 1966*
- 15-18 Spectroscopy (Chicago) *PT Dec. 1966*
- 22-24 ♦ Electromagnetic Sizes of Nuclei (Ottawa, Canada) *PT Apr. 1967*
Contact: M.K. Sundaresan, Physics Department, Carleton University, Ottawa, Canada
- 24-26 Canadian High-Polymer Forum (Quebec) *PT Dec. 1966*
- 25 Photochromism (Letchworth College of Technology, England) *PT Dec. 1966*
- 26, 27 Midwest Conference on Theoretical Physics (U. of Illinois) *PT Dec. 1966*
- 29-31 International Conference, Exhibit and World Review on Nuclear Reactors and Radioisotopes (Montreal) *PT Dec. 1966*

June 1967

- 4-17 ♦ Recent Advances in Astronomy and Cosmology (U. of Nebraska) *PT Feb. 1967*
This summer school, a NATO advanced study institute as well as an NSF summer institute, includes as speakers H. Bondi (King's College), Margaret and Geoffrey Burbidge (U. of California), R. Kippenhahn (Göttingen), S. Refsdal (U. of Oslo), I. Roxburgh (U of Sussex) and K. Thorne (Cal Tech).
- 6-7 Deposition of Thin Films by Sputtering (U. of Rochester) *PT Jan. 1967*
- 7-9 Industrial Physics—the Contribution of Government-Sponsored Laboratories (Harrogate) *PT Jan. 1967*

SYMMETRIES AND REFLECTIONS

Scientific Essays

By Eugene P. Wigner

A selection of Dr. Wigner's more popular papers on the nature of physical symmetry, the structure of solid bodies and of the compound nucleus, the theory of nuclear fission, the effects of radiation on solids, and epistemological problems of quantum mechanics. 256 pages \$7.50

PERSPECTIVES IN GEOMETRY AND RELATIVITY

Edited by Banesh Hoffmann

More than forty papers on a wide range of topics in relativity and geometry by such eminent mathematicians and physicists as Andre Lichnerowicz, J. L. Synge, H. S. M. Coxeter, Pascual Jordan, R. S. Mishra, E. T. Davis, Nathan Rosen, T. Y. Thomas, J. A. Wheeler, and many others. 512 pages illus. \$15.00

INDIANA UNIVERSITY PRESS
Tenth and Morton Streets
Bloomington, Indiana 47401



The Scientists and Engineers served by Corcoran in the last year have found the difference between "a job" and "the job."

● Whether your search for a new working environment is based on a desire for larger responsibility, wider scope of action, broader technical interests, or for financial gain, the individual attention offered by Corcoran assures a greater chance of success.

● Nationwide, we serve large and small clients on a fee paid basis. Please airmail background to:

JOSEPH P. CORCORAN
Personnel Consultants

505 E Germantown Pike
Lafayette Hill, Pa. 19444
(215) 825-0848

**We're looking
for Ph.Ds
who'd appreciate the
university atmosphere
with the personal ad-
vantages of working
for private industry.**

The Avco Everett Research Laboratory is a somewhat unusual institution by normal industry standards. It is run by Research Scientists engaged in pure research in Aero Physics, Atomic Physics, Plasma Physics, Re-entry Physics, Gas Lasers, and Magnetohydrodynamics. Many of them have won an international reputation, as has the Laboratory in high temperature gas dynamics.

This university atmosphere and an interdisciplinary approach have proven attractive to men and women with their doctorates.

Right now, we are looking for qualified Research Scientists who would appreciate both our academic climate and the personal advantages of working for private industry. Within reasonable bounds, they'll be able to do the work they wish, and add to their personal reputations. The publishing of papers is encouraged; indeed the Laboratory's output of meaningful papers on high temperature gas dynamics is unique by any objective standards.

Interested? We'll send you a bibliography and abstracts of recent research papers by our staff to assist you in your evaluation. Write Mr. Louis Rudzinsky, Avco Everett Research Laboratory, 2385 Revere Beach Parkway, Everett, Mass. 02149.



2385 REVERE BEACH PARKWAY
EVERETT, MASSACHUSETTS 02149

An Equal Opportunity Employer

**FOR PURITY OF SPECTRA FROM YOUR
PRESENT DIFFRACTION EQUIPMENT**

**...the DUNLEE
4-PORT BERYLLIUM
WINDOW X-RAY
DIFFRACTION TUBES**
cannot be surpassed



Dunlee recognizes that purity of spectra is a prime criterion of quality in diffraction study. The design of the DUNLEE diffraction tube is such that the x-ray spectrum remains free of contamination throughout the life of the tube. This tube also allows closer camera work to any of eight different target materials.

*Descriptive literature is
available on request.*



CORPORATION

DEPT. K, 1023 S. CERNAN DRIVE • BELLWOOD, ILLINOIS 60104
Telephones: Bellwood: Linden 7-9535 • Chicago: Columbus 1-6931

ASSOCIATE DIRECTOR OF RESEARCH FOR MATERIALS—\$25,890 (PER ANNUM)

NAVAL RESEARCH LABORATORY WASHINGTON, D. C.

The Navy's Corporate Laboratory

An outstanding opportunity is available for a person capable of conducting a materials research program, embracing a wide range of physical and engineering sciences and covering research ranging from basic investigations of fundamental problems to applied and developmental research for the Navy, Department of Defense and other government agencies.

The person will head the Materials Department of the Laboratory which has approximately 450 employees and includes the general areas of chemistry, mechanics, applied mathematics, metallurgy and solid state physics. In addition he will collaborate with the Director and the Director of Research in determining overall policies and programs.

Beyond appropriate formal education, applicants should have had at least seven years of broad and significant experience in a pertinent professional, scientific or technical field. They must have demonstrated superior ability in planning, organizing, directing and coordinating research programs of major importance.

This is a career Civil Service position with full benefits. Send resume of education and professional experience (preferably Standard Form 57) and evidence of professional stature such as lists of publications, patents, memberships in professional societies, and honors, to: Director (Code 1818-7), Naval Research Laboratory, Washington, D. C. 20390, no later than 1 June 1967.

An Equal Opportunity Employer

June 1967

8-17 **Solid Mechanics** (Brown U.) *PT Jan. 1967*

12 • (through 1 Sept.), **Gordon Research Conferences** *PT Apr. 1967*

Contact: W.G. Parks, University of Rhode Island, Kingston, R.I. 02881 (after 12 June, Colby Junior College, New London, N.H. 03257). *June 12-16*, molecular electronic spectroscopy, New Hampton School, New Hampton, N.H.

June 19-23, magnetic resonance, Kimball Union Academy, Meriden, N.H.

July 10-14, chemistry and physics of space, Tilton School, Tilton, N. H.; chemistry and physics of isotopes, Crystal Inn, Crystal Mountain, Wash.

July 17-21, scientific information problems, Colby Junior College, New London, N. H.; chemistry and physics of coatings and films, Tilton School.

July 24-28, chemistry and physics of paper, Proctor Academy, Andover, N. H.; quantum solids and liquids, Crystal Inn.

July 31-Aug. 4, nuclear structure, Tilton School; chemistry and physics of liquids, Proctor Academy.

Aug. 7-11, plasma physics, Crystal Inn.

Aug. 14-18, chemistry and physics of solids, Kimball Union Academy; photonuclear reactions, Tilton School; laser interaction with matter, Crystal Inn.

Aug. 21-25, thin films, Tilton School.

12-17 • **Radiation Dose Measurements** (Stockholm, Sweden) *PT Apr. 1967*

Contact: E. Wallauschek, Division of Health, Safety and Radiation Applications, European Nuclear Energy Agency, 28, Blvd. Suchet, 75 Paris 16, France

12-13 **Inter-Society Color Council** (New York City) *PT Dec. 1966*

12 • (through 12 Aug.) **Health Physics** (Oak Ridge, Tenn.) *PT Apr. 1967*

This summer institute, presented by the special training division of Oak Ridge Associated Universities, will provide college science teachers with training necessary to become radiation safety officers.

Contact: Special Training Division, Oak Ridge Associated Universities, PO Box 117, Oak Ridge, Tenn. 37830

13-15 **Vacuum Metallurgy** (New York City) *PT Dec. 1966*

13-15 **American Astronomical Society** (Yerkes Observatory) *PT Dec. 1966*

13-16 **Conjugate-Point Phenomena** (Boulder) *PT Dec. 1966*

15-17 **High-Energy Radiation Therapy Dosimetry** (New York City) *PT March 1967*

15-17 **American Association of Physics Teachers** (St. Lawrence U., Canton, N.Y.) *PT Feb. 1967*

18-22 **Health Physics Society** (Washington, D.C.) *PT Jan. 1967*

18-23 **Kinetics of Reactions in Ionic Systems** (Alfred, N.Y.) *PT Dec. 1966*

19 (through 25 Aug.) **Theoretical Physics** (U. of Colorado) *PT Dec. 1966*

19-23 **Colloquium Spectroscopicum Internationale** (Carleton U., Ottawa) *PT Dec. 1966*

19-23 **Phase Transitions of the Second Kind** (Cleveland) *PT Jan. 1967*

19-23 **Carbon** (Buffalo) *PT Jan. 1967*

19-23 • **Electronics** (Rome, Italy) *PT Apr. 1967*

The 14th International Scientific Congress on Electronics will be held in conjunction with the International Electronics, Nuclear and Teleradiocinematographic Exhibition.

Contact: Rassegna Elettronica, Nucleare e Teleradiocinematografia, Via Crescenzo 9, Rome, Italy

19-28 **Physics of the Magnetosphere** (Boston College, Massachusetts) *PT Dec. 1966*

19-2 • **Cosmic Rays** (Alberta, Canada) *PT Apr. 1967*

Contact: National Research Council, Sussex Drive, Ottawa 7, Canada

19 • (through 28 July) **Topics in Scattering Theory** (Waltham, Mass.) *PT Apr. 1967*

The 10th Brandeis University summer institute in theoretical physics, supported by NSF and NATO, will include lectures on the three-body problem (R. D. Amado), scattering theory (K. Gottfried), coherence, correlations and quantum field theory (J. R. Klauder), high-energy behavior of scattering amplitudes (F. E. Low), S-matrix theory (C. A. Lovelace), analyticity properties of scattering amplitudes (A. Martin), and particles and sources (J. Schwinger). The institute is tuition-free, and predoctoral and postdoctoral fellowships will be awarded.

Contact: The Secretary, Physics Summer Institute, Brandeis University, Waltham, Mass. 02154

20 (through July 18) **Fundamental Problems in Statistical Mechanics**

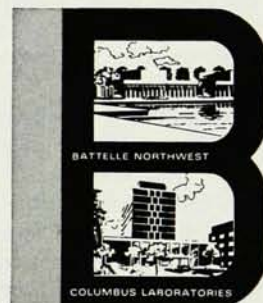
Are you ready to crack the growth barrier?

Does your job have a natural (or artificial) barrier to growth? Is it clear that you will probably go no further when it is reached? Maybe you should break through, into a research position where growth can be unlimited.

Battelle Columbus and Battelle Northwest, as largest and most comprehensive in the contract research field, provide challenges and opportunities with no mental boundaries.

Whatever your field — in engineering or science, including life and social sciences — chances are good you'll find Battelle laboratories active in it.

If you are one of the superior ones and can prove it, we'd like to tell you more about your potential with us. Write to Mr. E. P. Galbraith, Battelle Northwest, 3000 Stevens Drive, Richland, Washington 99352; or Mr. L. G. Hill, Battelle Columbus, 505 King Avenue, Columbus, Ohio 43201.



Battelle

MEMORIAL INSTITUTE
Equal Opportunity Employers

IS YOUR TYPIST STILL DRAWING SYMBOLS?



LET HER
typit
IN 4 SECONDS

Quicker—more accurate—more professional
... Attaches to your present typewriter ...
Over 1500 symbols in stock—any symbol
made to order ... Easy—economical—pre-
cision perfect. **Write for free catalog:**

typit

manufactured by
mechanical enterprises, inc.

3127 Colvin St., Alexandria, Va., Dept. 3304B

- ☐ Please send free catalog.
☐ Give me a demonstration soon
at no obligation.

Name _____ Title _____

Company _____

Address _____

City _____ State _____

Academic Position Open

Thiel College, a Lutheran affiliated, liberal arts college with a full fledged program in physics seeks a person with Ph.D. in theoretical physics. Person must be qualified to teach quantum mechanics. Salary and rank commensurate with qualifications. Excellent fringe benefits. Contact: Dr. B. G. Kolosvary, Chairman, Department of Physics, Thiel College, Greenville, Pennsylvania 16125. Telephone 412-588-7700 Ext. 270 or 273.

June 1967

(Noordwijk aan Bee, Netherlands) *PT March 1967*

21-23 American Physical Society (Toronto) *PT Dec. 1966*

27-2 Thin Films (Budapest) *PT Dec. 1966*

July 1967

3-5 Electron Diffraction (London) *PT Jan. 1967*

4 (through 25 Aug.) Many-Body Physics (Les Houches, France) *PT Dec. 1966*

4-7 High-Energy Molecular Beams (Cannes) *PT Jan. 1967*

16 (through 31 Aug.) Battelle Seattle Rencontres in Mathematics and Physics (Seattle) *PT Jan. 1967*

17-21 Neutron Thermalization and Reactor Spectra (U. of Michigan) *PT Dec. 1966*

17-23 Physics of Electronic and Atomic Collisions (Leningrad) *PT Dec. 1966*

17-28 • Applied Optics (London, England) *PT Apr. 1967*

This summer school for non-specialists in optics will cover Gaussian optics and aberrations, optical designing, diffraction gratings, interferometry, detectors, thin films, polarization and physical optics.

Contact: Registrar, Imperial College, London SW 7, England

18-23 • Laser Applications (Paris, France) *PT Apr. 1967*

This international conference will include an exhibition of instruments and laser techniques.

Contact: M. Marcel Locquin, President of the Organizing Committee, International Conference on Laser Applications, 38 av. George V, Paris 8, France

24-4 • Scattering and Collision Processes (Istanbul, Turkey) *PT Apr. 1967*

This NATO advanced study institute will include discussion of semiclassical approach, variable-phase approach, distorted-wave approximations, many-channel theory, angular correlations, spin and polarization analysis, S-matrix and dispersion relations, Regge-pole theory, symmetry considerations and algebraic theory of scattering, and electron-atom, atom-atom, nuclear and fundamental-particle scattering.

Contact: A. O. Barut, Physics Department, University of Colorado, Boulder, Colo. 80302

31-11 Earth's Particles and Fields (Stadt Freising, Germany) *PT March 1967*

31 • (through 19 Aug.) Solid State and Superfluid Theory (St. Andrews, Scotland) *PT Apr. 1967*

The 8th Scottish universities' summer school in physics, supported by NATO, will deal with mathematical methods on the above themes and include as lecturers G. Baym (Illinois), K. A. Brueckner (La Jolla), C. de Dominicis (Saclay), E. P. Gross (Brandeis), C. Lanczos (Dublin), E. H. Lieb (Northwestern), J. M. Luttinger (Columbia) and J. G. Valatin (London).

Contact: C. G. Kuper, School of Physical Sciences, The University, St. Andrews, Scotland

August 1967

1 • (through 2 Sept.), Quantum Chemistry, Solid-State Physics and Quantum Biology (Uppsala, Sweden) *PT Apr. 1967*

Arranged by Uppsala University and the University of Florida, the summer institute will include lectures in quantum mechanics, many-electron systems, symmetry properties of wave functions, valence theory, solid-state physics, large molecules and quantum biology.

Contact: The Director, Summer Institute, Quantum Chemistry Group, Rundelsgränd 2A, Uppsala, Sweden

7-2 Continuum Mechanics (Virginia Polytechnic Institute) *PT March 1967*

9-11 Applications of X-Ray Analysis (Denver) *PT March 1967*

20-25 American Crystallographic Association (Minneapolis) *PT March 1967*

21-1 Electrons in Metals (Alta Lake, British Columbia) *PT March 1967*

27-2 Phenomena in Ionized Gases (Vienna) *PT Dec. 1966*

27-3 International Union of Pure and Applied Chemistry (Prague) *PT Dec. 1966*

28-1 Atomic Masses (U. of Manitoba) *PT Jan. 1967*

28-1 Particles and Fields (University of Rochester) *PT March 1967*

31-6 Low Temperatures (Madrid) *PT March 1967*

31-2 American Physical Society (Seattle) *PT Dec. 1966*

September 1967

- 4-8 The Strength of Metals and Alloys (Tokyo) *PT March 1967*
- 4-10 International Congress of Pure and Applied Chemistry (Prague) *PT Dec. 1966*
- 5-7 • Quasars (Manchester, England) *PT Apr. 1967*
Contact: The Meetings Officer, The Institute of Physics and The Physical Society, 47 Belgrave Square, London SW 1, England
- 5-8 Solid-State Devices (University of Manchester) *PT March 1967*
- 5-9 Molecular Structure and Spectroscopy (Ohio State U.) *PT Jan. 1967*
- 5-9 Electron and Photon Interactions at High Energies (Stanford Linear Accelerator Center) *PT March 1967*
- 6-8 II-IV Semiconducting Compounds (Providence, R.I.) *PT Jan. 1967*
- 7-13 Nuclear Structure (Tokyo) *PT Dec. 1966*
- 11-13 Atomic Spectroscopy, *by invitation* (National Bureau of Standards, Gaithersburg) *PT March 1967*
- 11-15 High-Energy Accelerators (Cambridge) *PT Dec. 1966*
- 11-16 ♦ Magnetism (Boston) *PT March 1967*

Questions relating to the technical program should be sent to G. T. Rado, Code 6450, Naval Research Laboratory, Washington, D.C. 20390 or F. E. Luborsky, General Electric R&D Center, Building K-1, Room 3B26, PO Box 8, Schenectady, N.Y. 12301

- 13,14 High-Voltage Insulation in Vacuum (London) *PT Jan. 1967*
- 18-22 Localized Excitations in Solids (Irvine, Calif.) *PT Jan. 1967*
- 25-28 Solid-State Physics Research with Accelerators (Brookhaven National Laboratory) *PT March 1967*
- 25-29 Mass Spectrometry (Berlin) *PT Jan. 1967*
- 25 • (through 7 Oct.) Geodesy and Geophysics (Switzerland) *PT Apr. 1967*

The 14th general assembly of the International Union of Geodesy and Geophysics will be held in the cities of Zurich, St. Gall, Lucerne and Berne.

Contact: Prof. G. D. Garland, Secretary, IUGG, c/o Geophysics

- Laboratory, University of Toronto, Toronto 5, Ontario, Canada
- 26-28 • Reactor Shielding Design (Harwell, England) *PT Apr. 1967*
Contact: P. B. E. Thompson, Assistant Secretary, British Nuclear Energy Society, 1-7 Great George St., Westminster, London, SW 1, England
- 26-28 Magnetic Materials and Their Applications (London) *PT Dec. 1966*

October 1967

- 2-7 • German Physical Society (Berlin, Germany) *PT Apr. 1967*
Contact: Prof. E. Boersch, c/o Physics Institute, Technische Universität Berlin, Hardenbergstr. 34, Berlin 12, Germany
- 11-13 Optical Society of America (Detroit) *PT Dec. 1966*
- 18-20 Gaseous Electronics (San Francisco) *PT Jan. 1967*
- 23-25 • APS Nuclear Physics Division (Madison, Wis.) *PT Apr. 1967*
The first meeting of the new division will include topics on polarized ion sources, medium-energy nuclear physics, nuclear theory, weak interactions and neutron physics. Abstracts deadline 22 Sept.
Contact: J. A. Harvey, Secretary treasurer, Div. of Nuclear Phys., Oak Ridge National Laboratory, PO Box X, Oak Ridge, Tenn. 37830
- 25-27 American Vacuum Society (Kansas City, Mo.) *PT March 1967*

November 1967

- 14-17 ♦ Acoustical Society of America (Miami) *PT Dec. 1966*
- 16-18 American Physical Society (New York City) *PT Dec. 1966*

December 1967

- 5-7 American Astronomical Society (Philadelphia) *PT Jan. 1967*
- 18-20 American Physical Society (Pasadena) *PT Dec. 1966*

January 1968

- 29-1 American Physical Society (Chicago) *PT Dec. 1966*
- 29-1 American Association of Physics Teachers (Chicago) *PT Feb. 1967*

February 1968

- 26-28 American Physical Society (Boston) *PT Dec. 1966* □

SECOND QUANTIZATION AND ATOMIC SPECTROSCOPY

Brian R. Judd

The use of annihilation and creation operators in atomic spectroscopy is the central theme of this study. The author attempts to assemble and develop the most important methods for treating the angular, as distinct from the radial, properties of atoms. He demonstrates how the atomic shell, rather than the configuration, becomes the space spanned by the basic operators, and this strikingly exposes the mathematical structure of the theory of atomic spectra. Among the original contributions made by this work are the study of configuration interaction with the aid of the Feynman Graphs, the concept of the annihilation and creation operators as the components of a triple tensor, and the general development of the theory of quasispin. \$5.95

THE JOHNS HOPKINS PRESS
Baltimore, Maryland 21218

Available from the N.E.O. Press is the translation from the Russian of A.S. Davydov's **QUANTUM MECHANICS** (670 pages, paper bound).

Topics included are:

the fundamentals of quantum mechanics
group theory
transformation theory
approximation methods
theory of quantum transitions
scattering theory
atomic and nuclear structure
theory of molecules
solid state
relativistic wave equations
the quantization of fermion and boson fields
the theory of quasi-particles

A large portion of the book is devoted to the discussion of the practical application of the theory to a wide range of problems.

The list price of the book is \$6. If the book is ordered directly from us before July 1, 1967, and if payment is included with the order, the price will be only \$5. These are unusual prices for a recent advanced text of this quality and magnitude.

Also available is **A SHORT COURSE ON THE APPLICATION OF GROUP THEORY TO QUANTUM MECHANICS** by A.S. Davydov, 76pp, paper bound, 75¢.

Orders should be sent to:

N.E.O. Press
Dept. T
Box 525
Ann Arbor, Mich. 48107