

SEMICONDUCTORS

America's fastest growing industrial field needs

SCIENTISTS & ENGINEERS

Hoffman's strong position in this fast-moving industry is characterized by an aptitude for getting to the market first with advanced products. To do this requires creative engineering; we are continually on the lookout for idea men (both theoretical and practical men). We have openings now for:

- Physicists
- Chemists
- Electrical Engineers
- Electronic Engineers
- Mechanical Engineers
- Production Engineers

If you are interested in our company, please send resume or write to Dr. M. B. Prince, Director of Research and Development, for more information.



Hoffman Electronics
CORPORATION

SEMICONDUCTOR DIVISION

930 PITNER AVENUE, EVANSTON, ILLINOIS

UNIVERSITY 9-9850

"World's foremost producers of silicon semiconductor devices and solar cells."

MICROWAVE PHYSICS

... in which the microwave properties of plasmas and shock waves play a large part, is a central and growing activity at this Laboratory. Deeply involved in supporting research aspects of the anti-ICBM problem, our work in the radar "cross-section" field has opened new avenues of basic and applied research, both analytical and experimental.

We invite employment inquiries from Physicists, and others, with experience in microwaves and electromagnetic propagation.

*The Laboratory's professional prospectus,
"A Community of Science,"*

*is available upon request. Please address J. T. Ruch
and ask for booklet T-6.*

**CORNELL AERONAUTICAL
LABORATORY, INC.**

of Cornell University
BUFFALO 21, NEW YORK

They will also set up experiments and organize courses for the training of personnel. The Korean government, in turn, will send scientists and technicians to General Atomic's John Jay Hopkins Laboratory in San Diego where they will have an opportunity to work with the prototype TRIGA reactor which is in operation there. More than seventy Koreans have completed courses in nuclear training in other countries. Many received their training in the US, principally at the International School of Nuclear Sciences and Engineering at Argonne National Laboratory and at the Oak Ridge Institute for Nuclear Studies. Others studied in the United Kingdom, West Germany, Austria, France, and Denmark. The Institute at Paktai-ri will be under the authority of the Korean Office of Atomic Energy, which was created one year ago.

Pomona College, in ceremonies held in Claremont, Calif., on December 6, dedicated two new science buildings representing an investment of over \$3.2 million. One building, the Robert A. Millikan Laboratory, houses the Physics, Mathematics, and Astronomy Departments and has been completed and in use since last September. The building also contains laboratories for research in nuclear physics, atomic and molecular physics, and electronics, as well as a computer laboratory and a two-story Spitz planetarium. Other facilities include a library for common use by the three departments, a 150-seat demonstration auditorium, and an engineering drawing laboratory. Pomona's second building, currently under construction, is the Seaver Laboratory which will house the biology and geology departments.

A committee has been selected to evaluate requests for the use of computing machines at the Atomic Energy Commissions' Computing and Applied Mathematics Center located at New York University's Institute of Mathematical Sciences. Only proposals from nonprofit institutions can be considered. Mathematics and the physical sciences are the areas for which computing may be approved, subject to the availability of time on the Univac and IBM 704. At present, the Univac is more readily available. Interested persons should write for further information to Eugene Isaacson, AEC Computing and Applied Mathematics Center, New York University, 4 Washington Place, New York 3, N. Y.

Summer Programs

March 10 is the deadline for applications to attend the 1959 session of the Summer School for Theoretical Physics of the University of Grenoble, which will be held in Les Houches (Haute Savoie), France, from July 6 to August 28. This year's program will be devoted to the problems of many-body systems at finite temperature and is to be subdivided in the following manner:

1. *Mécanique statistique* (L. van Hove, Université d'Utrecht and E. Montroll, University of Maryland)



$$\dot{x}_{j+1}(t) = \dot{x}_j(t-h) \text{ if } x_j(t-h) - x_{j+1}(t-h) = \beta S_c$$

● Problem: what doctrine for a motorized military convoy will mean the highest over-the-road speed? Solving such a problem by experimental, trial-and-error methods is difficult, long, and costly . . . yet answers to such questions are vital to our modern, mobile U. S. Army. Scientists of *tech/ops* solved this one by devising and applying a mathematical model to describe a convoy, programming this model for a large digital computer. *Result*: another application of *tech/ops*' research techniques to solve a problem whose solution by conventional means would have been prohibitively expensive . . . and a typical example of *tech/ops*' pioneering work in *operations research and broad scientific research and development for industry, business and government*.

Two other formulas complete this model:

$$\dot{x}_{j+1}(t) = V_c \text{ if } \beta S_c < x_j(t-h) - x_{j+1}(t-h) \leq S_c \quad (2)$$

$$\dot{x}_{j+1}(t) = \frac{1}{T} [x_j(t-h) - x_{j+1}(t-h)] \text{ if } x_j(t-h) - x_{j+1}(t-h) > S_c \quad (3)$$

The symbols have these significances: $x_j(t)$ is the position of the j th vehicle at time t ; V_c is the assigned convoy speed; S_c is the assigned spacing between succeeding vehicles in the convoy; h is the driver reaction time; β is a constant. Boundary conditions: $\dot{x}_j(t) \geq 0$; $\dot{x}_1(t)$ is a given (known) function.

personnel requirements

at Fort Monroe, Virginia, or Burlington, Massachusetts: **Operations Analysts** experienced in industrial or military operations research, systems analysis, weapons systems evaluation, computer techniques, or related fields; training should be in mathematics or physical sciences, preferably on graduate level.
at Washington, D. C.: **Programmers** with substantial experience in the development of large digital computer programs; background should include experience with design and application of assembly programs, compilers, and advanced programming concepts.
at Monterey, California: **Communications engineer or physicist** thoroughly familiar with the principles of radio transmission and communications network analysis.

Technical Operations, Incorporated

Central Research Laboratories / Burlington, Massachusetts

• WASHINGTON, D. C. • MONTEREY, CALIFORNIA • FORT MONROE, VIRGINIA



The core of your library • complete and systematic

ENCYCLOPEDIA OF PHYSICS

IN 54 VOLUMES.

S. Flügge, Editor

A publication of SPRINGER-VERLAG, Germany

Roughly two-thirds of the contributions are in the English language, the remainder in German or French.

Any volume can be bought individually at the list price stated below. Subscription to the set reduces the cost by 20 per cent.

Published so far, December 1955 through January 1959:

- I. **Mathematical Methods (Volumes 1-2)**
 - 1 Mathematical Methods I \$17.22
 - 2 Mathematical Methods II \$21.05
- II. **Principles of Theoretical Physics (Volumes 3-5)**
 - 5₁ Principles of Quantum Theory I \$21.45
- III. **Mechanical and Thermal Behavior of Matter (Volumes 6-15)**
 - 6 Elasticity and Plasticity \$34.52
 - 7₁ Crystal Physics I \$29.31
 - 7₂ Crystal Physics II \$18.10
 - 12 Thermodynamics of Gases \$36.66
 - 14 Low Temperature Physics I \$17.22
 - 15 Low Temperature Physics II \$26.79
- IV. **Electric and Magnetic Behavior of Matter (Volumes 16-23)**
 - 16 Electric Fields and Waves \$37.62
 - 17 Dielectrics \$22.38
 - 19 Electrical Conductivity I \$19.62
 - 20 Electrical Conductivity II \$26.79
 - 21 Electron-Emission. Gas Discharges I \$31.58
 - 22 Gas Discharges II \$30.62
- V. **Optics (Volumes 24-29)**
 - 24 Fundamentals of Optics \$31.58
 - 26 Light and Matter II \$40.00
 - 28 Spectroscopy II \$23.35
- VI. **X-rays and Corpuscular Rays (Volumes 30-34)**
 - 30 X-rays \$21.05
 - 32 Structural Research \$34.45
 - 33 Optics of Corpuscles \$29.31
 - 34 Corpuscles and Radiation in Matter II \$18.48
- VII. **Atomic and Molecular Physics (Volumes 35-37)**
 - 35 Atoms I \$23.80
 - 36 Atoms II \$21.05
 - 37₁ Atoms III \$28.57
- VIII. **Nuclear Physics (Volumes 38-45)**
 - 38₁ External Properties of Atomic Nuclei \$28.10
 - 39 Structure of Atomic Nuclei \$29.76
 - 40 Nuclear Reactions I \$30.62
 - 42 Nuclear Reactions III \$32.14
 - 44 Nuclear Instrumentation I \$29.76
 - 45 Nuclear Instrumentation II \$30.48
- IX. **Cosmic Rays (Volume 46)**
- X. **Geophysics (Volumes 47-49)**
 - 47 Geophysics I \$28.23
 - 48 Geophysics II \$47.37
- XI. **Astrophysics (Volumes 50-54)**
 - 50 Stellar Surfaces. Binaries I \$23.33
 - 51 Stellar Structure \$41.67

All books are shipped postage free. Order now.

In the United States and Canada through



SPRINGER

Publishing Company, Dept. PT-2

44 East 23rd Street, New York 10, N. Y.

2. *Théorie microscopique des plasmas* (J. L. Delcroix, Université de Paris)
3. *Propagation des ondes dans un plasma* (J. F. Denisse, Observatoire de Paris)
4. *Transport phenomena in ionized gases, magnetohydrodynamics stability theory* (Edward Teller and A. N. Kaufman, University of California, Livermore; M. Kruskal, Forrestal Center, Princeton University; and K. M. Watson, University of California, Berkeley)
5. *Application de la théorie des plasmas aux problèmes d'astrophysique* (E. Schatzman, Institut d'Astrophysique, Paris)
6. *Methods of magnetic resonance for the investigation of gases* (H. G. Dehmelt, University of Washington, Seattle)

Classes are given in French or English and the number of participants is limited to 30. Further information and admission forms may be obtained by writing immediately to Mr. J. F. Detoeuf, 76bis, rue de Rennes, Paris 6, France.

The Massachusetts Institute of Technology will hold its 10th summer program on "Technique and Applications of Infrared Spectroscopy" from June 22 to July 3. The program will be offered jointly by MIT's Spectroscopy Laboratory and Department of Chemistry and will be under the direction of Richard C. Lord, director of the Spectroscopy Laboratory, in collaboration with Foil A. Miller of Mellon Institute and Ellis R. Lippincott of the University of Maryland. Visiting lecturers will include R. N. Jones (National Research Council of Canada), Norman Sheppard (Cambridge University), Norman Wright (Dow Chemical Company), and N. B. Colthup (American Cyanamid Company). Application forms and further information may be obtained from Dr. James M. Austin, Director of the Summer Session, Room 7-103, Massachusetts Institute of Technology, Cambridge 38, Mass.

Educational Testing Service will offer two visiting associateships in test development for the summer of 1959. The associates (one in science and one in mathematics) will make critical analyses of existing test specifications and test questions, suggest improvements, and work on the preparation of new tests at the college-entrance and higher levels. Qualifications for the visiting associate in science are a strong background in physics, chemistry, or biology and four or more years of teaching experience in college and/or secondary school. The visiting associate in mathematics should have a strong background in modern mathematics and four or more years of college teaching experience. Application forms and transcripts of all graduate and undergraduate studies should be submitted by February 27 to Mrs. W. Stanley Brown, Test Development Division, Educational Testing Service, 20 Nassau Street, Princeton, N. J., from whom the forms and further information are available.