

SCIENCE EDUCATION

Departmental Programs

A comprehensive two-year undergraduate research program to acquaint physics students with basic-research methods early in their college careers will be introduced this summer by the Physics Department of the Illinois Institute of Technology.

The program, under the direction of L. I. Grossweiner, will be financed by a \$20 265 grant from the National Science Foundation, and will create a total of 28 research openings for students over the next two years. Seven undergraduates will be selected to engage in full-time physics research during a ten-week period beginning this June, and another seven each are sought for the summer of 1963 and for the 1962-63 and 1963-64 academic years.

Applications will be considered by the Physics Department faculty and selections will be based on personal interviews and scholastic records. It is expected that most of those chosen will be students already enrolled at Illinois Tech, but a few highly qualified students may be accepted from other schools for the summer terms.

The University of Maryland Physics Department has received a grant of \$850 000 from the National Science Foundation for graduate research laboratory development which will provide facilities and buildings for expansion of the graduate student training program and graduate research. The grant will be used, together with appropriations totaling \$1.19 million already provided by the legislature of the State of Maryland, in a building program which will add a fourth floor to the University's existing physics building, as well as an extension of the Van de Graaff accelerator facility. It will also provide an addition to the north of the present physics building. According to these plans, provision can be made to construct a cyclotron facility adjacent to the east wing of the new annex. Much of the space will be used for expanded programs in high-energy and solid-state physics. The two-year construction program will almost triple the space available to the University for research in physics and astronomy.

The National Science Foundation has awarded grants totaling more than \$110 000 for student research at the Polytechnic Institute of Brooklyn. To be divided among the Physics, Mathematics, and Chemistry Departments, the grant will provide an opportunity for outstanding undergraduates to perform research under the direction of experienced faculty scientists. Under the Physics Department program, which will be administered by John J. D. Dropkin, \$37 760 will be available for the support of research by fourteen physics majors during the summers of 1962 and 1963

and for seven academic-year grants for each of the two years.

NSF Fellowships

More than four thousand awards for fellowships in the sciences, mathematics, and engineering were announced in March by the National Science Foundation. The awards, granted under four separate NSF fellowship programs, include 2125 in the physical sciences, 796 in mathematics, and the remainder in engineering and the life, social, and general sciences.

A total of 1760 graduate fellows were selected from among nearly 6000 applicants for the Foundation's regular graduate fellowship program. They may attend any appropriate nonprofit American or foreign institution during the academic year 1962-63. The regular graduate fellowships provide basic stipends (for 12 months) of \$1800 for the first-year level of graduate study, \$2000 for the intermediate years, and \$2200 for the terminal year. Additional funds for the support of dependents, tuition, and travel are also provided.

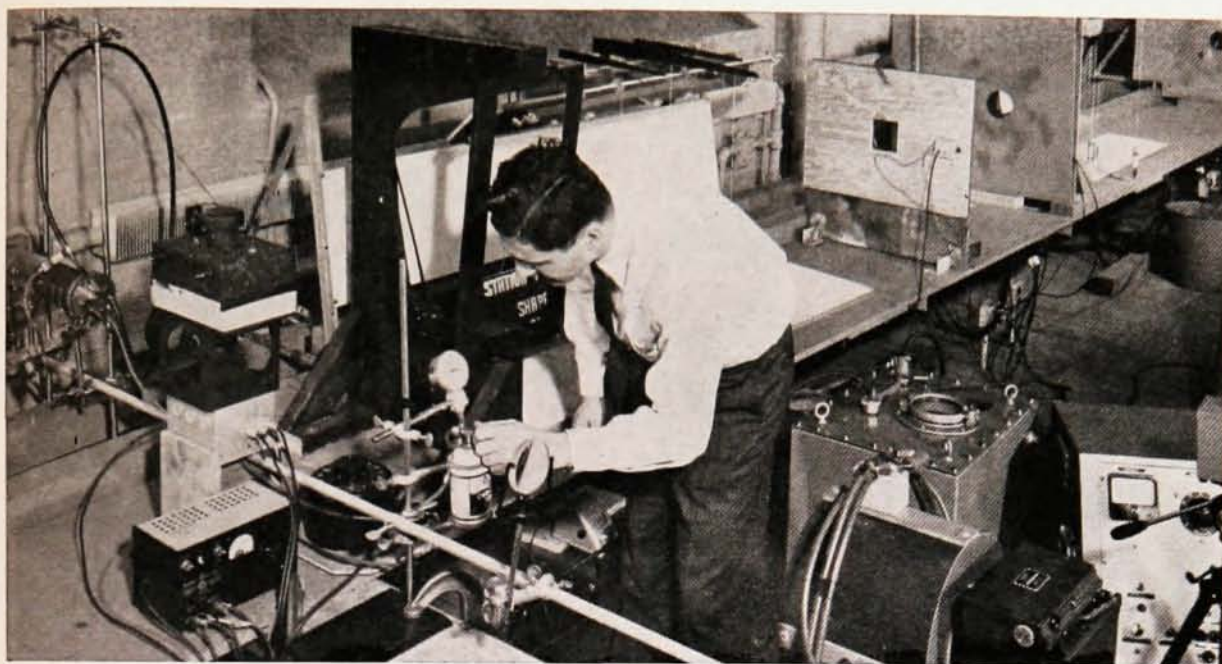
Under the Foundation's Cooperative Graduate Fellowship program, 1200 awards were granted for study at approximately 170 cooperating colleges and universities during the next academic year. Each of the fellows receives a basic stipend of \$2400, and a standardized cost-of-education allowance amounting to \$2000 will be given to the fellowship institution to cover tuition and fees.

The Foundation also awarded summer fellowships for study and research to 868 graduate teaching assistants and to 300 secondary-school teachers of science and mathematics. Under the graduate teaching assistants program, the Foundation pays tuition and fees incurred by fellows and, in addition, stipends of \$50 to \$75 per week, depending on local conditions. The second program will enable high-school teachers of unusual ability to undertake individually planned six- to twelve-week programs of graduate study and research designed to improve their competence in science and mathematics. Of the 300 awards to high-school teachers, 261 will provide for two or three successive summers of training. The remaining 39 will be for one summer only. NSF provides tuition, fees, stipends computed at a rate of \$75 for each week of tenure, and travel and dependent allowances.

Summer Programs

The Latin American School of Physics will hold its fourth annual session at the University of Mexico from July 2 to August 10. Initiated in Mexico in 1959

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with the purpose of stimulating physical research in Latin America by means of short courses in advanced fields of physics, the school met at Rio de Janeiro in 1960 and at Buenos Aires in 1961. This year's session will be sponsored by Mexico's Comisión Nacional de Energía Nuclear and Instituto Nacional de la Investigación Científica, together with the Pan American Union and other organizations.

The 1962 program has been organized around the general topics of solid state, group theory and nuclear structure, and dispersion relations. The members of the faculty and the courses they will offer include the following: J. P. Elliott of the University of Southampton (group theory and the nuclear shell model), S. Flodmark of the University of Stockholm (group theory and solid state), P. O. Löwdin of the Universities of Uppsala and Florida (quantum mechanical basis of solid-state theory), M. Moshinsky of the University of Mexico (group theory and collective motions), H. M. Nussenzveig of the Centro de Pesquisas Fisicas, Brazil (analytic properties of nonrelativistic scattering amplitudes), and F. E. Prieto of the University of Mexico (equation of state of metals at high pressures).

Requests for further information concerning the session should be addressed to Prof. M. Moshinsky, Chairman of the Mexican Section, Latin American School of Physics, Instituto de Física, Apartado Postal #31364, México 20, D. F., Mexico.

Yale University and the National Science Foundation will jointly sponsor the fourth Summer Institute in Dynamical Astronomy, to be held at the University's Observatory from June 25 to August 3. The first two weeks of the program, which is intended as an intensive introduction to the field of celestial mechanics, will be devoted to practical astronomy, including orbit determination, and to elliptic motion and related topics. The third and fourth weeks will cover the development of Lagrange-Hamilton-Jacobi mechanics, dynamics of star systems, general planetary theory, and complex variables and analytic continuation. A course in programming high-speed digital computers will also be available during the first four weeks. The mathematical aspects of celestial mechanics will be emphasized during the fifth and sixth weeks, when lectures will be given on the restricted problem, Sundman's theory of the three-body problem, nonlinear differential equations with applications to celestial mechanics, and astronomical applications of general relativity.

In addition to the main program, there will be extra-curricular speakers on topics of current interest. Applications (deadline: June 1) should be sent to Dirk Brouwer, Yale University Observatory, Box 2023, Yale Station, New Haven, Conn.

This summer, the Italian Physical Society's "International School of Physics 'Enrico Fermi'" will again hold a series of courses at the Villa Monastero in



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Varenna on Lake Como. Five consecutive thirteen-day sessions are planned.

The first course will be on space exploration and the solar system (June 4-16). Although the closing date for applications is already past, attendance in the status of "observer" may possibly be arranged through Prof. S. Olbert, Massachusetts Institute of Technology, Rm. 26-443, Cambridge 39, Mass.

The second course, on advanced plasma theory (July 9-21), will be directed by Marshall N. Rosenbluth. Applications (closing date: May 25) and correspondence should be directed to Prof. Rosenbluth at General Atomic Division, General Dynamics Corp., P.O. Box 608, San Diego 12, Calif.

Elementary particles is the subject of the third session, which will be held from July 23 to August 4. It will be directed by Marcello Conversi of the University of Rome. Applications (due by June 8) and requests for additional information should be addressed to Prof. Conversi at N. P. Division, CERN, Geneva 23, Switzerland.

August 6 to 18 are the dates of the fourth course (on dispersion and absorption of sound by molecular processes), whose director will be Daniele Sette of the University of Rome. Applications are due by June 22. Correspondence should be sent to Prof. Sette at the Cattedra di Fisica, Facoltà di Ingegneria, Via Eudossiana 18, Rome, Italy.

The final course, on star evolution, will take place between August 20 and September 1 under the direction of Livio Gratton, also of the University of Rome. Applications (before July 6) and correspondence should be sent to Prof. Gratton at the Laboratorio Gas Ionizzati, Laboratori Nazionali di Frascati, Casella Postale N. 65, Frascati, Rome, Italy.

Each course will be limited to about 40 or 45 students. Accommodations will be provided at the Villa Monastero or in other hotels in Varenna. Total fees, which include tuition, room, and board, are 32 500 lire for single room or 26 000 lire for double room accommodations. In general, the lectures, conferences, seminars, etc., will be held in French or in English. A leaflet describing all five courses and including an application form can be obtained by writing to the Società Italiana di Fisica, Via Irnerio 46, Bologna, Italy, or to the individual directors.

The Summer Institute in Theoretical Physics at Brandeis University will be held during the six-week period from June 25 through August 3. The Institute, which is being supported by the National Science Foundation, is open to graduate and post-doctoral students, and a limited number of fellowships will be available.

The first three weeks, which will be devoted to astrophysics, statistical physics, and the many-body problem, will include lectures by V. Ambegaokar (Green's Functions in Many-Body Problems), A. A. Maradudin (Dynamical Theory of Imperfect Crystals), E. N. Parker (Plasma Dynamics in Astrophysics and

Geophysics), N. Rosenzweig (Statistical Mechanics of Equally Likely Quantum Systems), A. F. Siegert (Functional Integrals in Statistical Mechanics), and G. E. Uhlenbeck (Special Topics in Statistical Mechanics).

Lecturers during the second three weeks will be C. Fronsdal (Group Theory and Applications to Particle Physics), T. Fulton (Resonances in Strong Interaction Physics), J. D. Jackson (Weak Interactions), and G. Kallen (Topics in Quantum Electrodynamics).

For additional information, write to Institute in Theoretical Physics, Brandeis University, Waltham 54, Mass.

The Holloman Summer Scientific Seminars, devoted this year to topics in geophysics, will be held June 11-22 in Cloudcroft, N. M. The seminar is sponsored by the Air Force Office of Scientific Research under a contract with the University of New Mexico. Speakers will include A. R. Sandage, Frank Press, W. F. Libby, S. F. Singer, W. H. Munk, Jerome Namias, R. H. Fleming, W. N. Bascom, R. H. Dicke, H. E. Hinteregger, E. H. Vestine, and J. A. Simpson.

Arrangements to attend the lectures can be made by writing to J. R. Foote, P. O. Box 1053, Holloman AFB, N. M.

Courses for industrial scientists in the use of specialized tools in chemistry and physics will again be offered next month by the Polytechnic Institute of Brooklyn under an annual summer program which is now in its eighteenth year.

The first, a course on the industrial application of x-ray diffraction (June 4-15), will cover the equivalent lectures and laboratory work of a six-credit graduate course. Studies will be made at both high and low temperatures, using either photographic or direct-recording methods. Advanced techniques can be included by prior arrangement.

The course on the chemistry of high polymers (June 25-29) will concentrate on a variety of procedures and techniques relating to polymerization and properties of polymers, with special attention given to stereoregulation of polyolefins and polycarbonyles. Laboratory evaluations of polymers will center on viscometry, osmometry, light scattering, and ultracentrifuge methods. There will also be three two-day "clinics" on the chemistry, physics, and technology of ion-exchange membranes (June 18 through 23).

Inquiries should be addressed to Mrs. Doris Cattell, Polytechnic Institute of Brooklyn, 333 Jay Street, Brooklyn 1, N. Y.

The summer session of the Norelco X-Ray Analytical School, which will be held June 4-8 at the La Salle Hotel in Chicago, will include classroom and laboratory work in the applications of x-ray diffraction, diffractometry, and spectrographic techniques.

For further information, write to Philips Electronic Instruments, 750 South Ave., Mount Vernon, N. Y.

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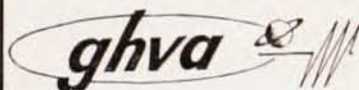
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