The Eighth Annual Institute for Theoretical Physics will take place at the University of Colorado in Boulder from June 14 to August 20. Embracing the area of nuclear structure and reactions, the Institute will also include symposia on solid-state physics during the period June 14-25, and on strong interactions and elementary particles from August 9 to 20. The University's Department of Physics and Astrophysics will offer one or two graduate courses, given during the session by visiting lecturers.

Attendance at the Institute is open to all qualified persons, with no fees or registration required, and several postdoctoral and predoctoral stipends are available. Applicants for stipends (deadline Feb. 15) are requested to send a transcript and curriculum vitae along with two letters of recommendation to Dr. Wesley Brittin, chairman, Department of Physics and Astrophysics, University of Colorado, Boulder, Colo.

The Pennsylvania State University, through its College of Engineering and Continuing Education Services, has scheduled thirteen seminars for the summer of 1965.

Those likely to be of interest to physicists include experimental study of surface topology (June 13-16), nonlinear vibrations (June 13-18), viscoelasticity and mechanical properties of polymers (June 20-25), wave propagation in solid media (June 20-25), vibration and vibration damping (June 27-July 2), laser machining and welding (June 28-29), underwater acoustics (July 4-9), fluid control systems (July 6-16), and acoustics and noise control in buildings (Aug. 15-20).

Further information on the above seminars can be obtained from the Continuing Education Conference Center, The Pennsylvania State University, University Park, Pa.

An electronics course for college teachers and laboratory scientists will be offered by Princeton University from June 27 to July 16. Headed by Prof. Christie G. Enke of Princeton's Chemistry Department, the program will stress a working understanding of electrical measurements and electronic circuitry, as well as practical knowledge of servo systems, operational amplifiers, and digital timing and counting circuits. Tuition and support for participants who are college and university teachers will be provided by the National Science Foundation.

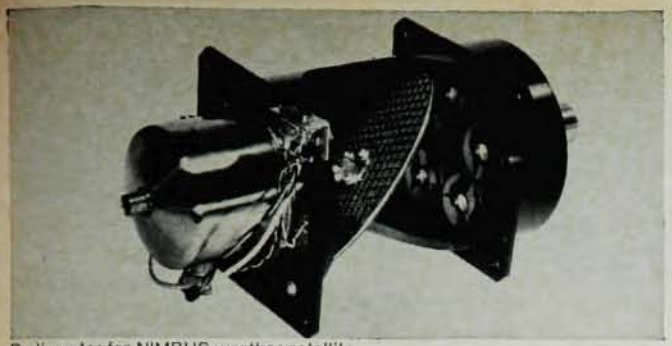
Further information and application forms (the deadline is February 8) can be obtained from Parker L. Coddington, Administrative Director of Summer Studies at Princeton University, Princeton, N.J.

Biophysics

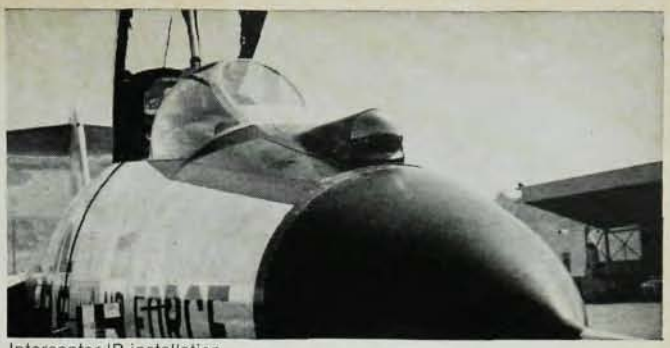
The ten-year old Committee on Biophysics at the University of Chicago has been raised to full status as the Department of Biophysics in the University's Division of the Biological Sciences. The formal teaching of biophysics began at the University of Chicago shortly after World War II, with a faculty drawn from various departments in the biological and physical sciences. In 1954, a Committee on Biophysics was created with three full-time faculty members and one part-time, who subsequently developed an academic program leading to the doctoral degree. The Department of Biophysics now has eight full-time faculty members. These include Raymond R. Zirkle, chairman, William Bloom, John R. Platt, Humberto Fernández-Morán, Robert B. Uretz, E. Peter Geiduschek, Edwin W. Taylor, and Robert Haselkorn. Part-time members include H. Stanley Bennett and Herbert Landahl.

Departmental programs

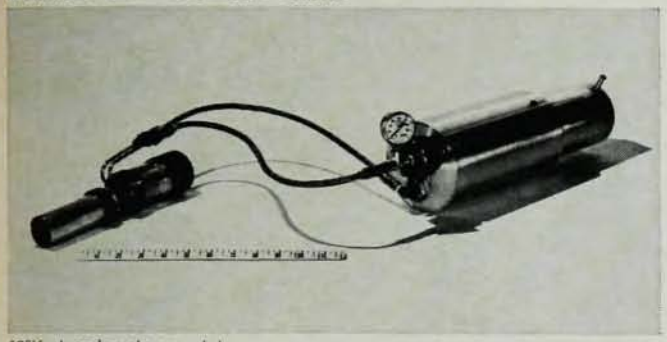
Plans to establish a graduate program in health physics have been announced by Texas A & M University in College Station, Tex. Initially, the program will be directed toward MS and PhD degrees in nuclear engineering with emphasis on health physics. Much of the curriculum that is required of nuclear engineering students will also be required of the health physics students. Areas of research will include dosimetry, radiation effects, radiation biophysics, environmental evaluations, reactor shielding, and hazards analysis. Exist-



Radiometer for NIMBUS weather satellite



Interceptor IR installation

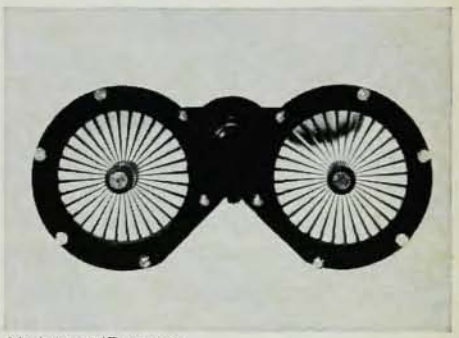


12°K closed-cycle cryostat

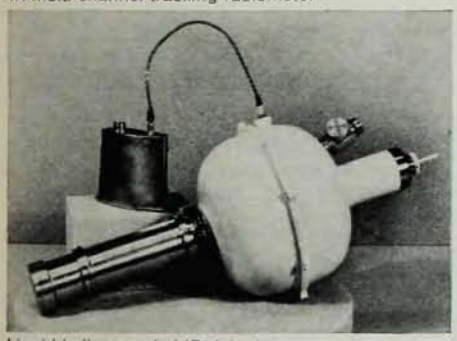
90C IR search/track set

IR multi-channel tracking radiometer

Star tracker for SURVEYOR spacecraft



Modulated IR source



Liquid-helium-cooled IR detector

IR anti-tank missile controller

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ing facilities at Texas A & M which will help implement the program include a 5-megawatt reactor, a high-level gamma irradiation apparatus, several subcritical units, and a data-processing center. In addition, the University plans to have its 88-inch cyclotron in operation by 1967. Heading the academic committee for the new program is Vernon S. Bishop of the Department of Nuclear Engineering, who will be assisted by Robert G. Cochran, chairman of the Nuclear Engineering Department, and George M. Krise of the Biology Department.

The Department of Materials Science at the University of Virginia is now offering a complete graduate program leading to both MS and PhD degrees. The graduate curriculum is built on the quantum mechanics of solids, the crystal structure of materials, and the theory of lattice defects. Experimental research concentrates mainly on the mechanical, electrical, and surface properties of solids, and is largely conducted with electron microscopes, x-ray diffractometers, and high- and low-energy electron-diffraction apparatus. The chairman of Virginia's Materials Science Department is H. G. F. Wilsdorf.

The University of Sao Paulo at Sao Carlos in Brazil has set up a graduate program leading to the doctoral degree in physics. The program is being offered through the Department of Physics of the School of Engineering and includes courses in the mathematical techniques of physics, solid-state physics, quantum mechanics, statistical mechanics, and the magnetic properties of matter. Advanced courses are given in English. Research opportunities in theoretical and experimental solid-state physics and crystallography, with special emphasis on the properties of ionic crystals, are also offered. One Fulbright-Hays professorship beginning March 1, 1965, and one or two, beginning August 1, 1965, are available. Two twelve-month appointments under the F-H program for graduates who may wish to work toward the doctorate are also available. Further information concerning the F-H appointments can be obtained from the Committee on In-

ternational Exchange of Persons, 2101 Constitution Ave., Washington, D.C. 20418. Applications for graduate awards should be addressed to the Institute of International Education, 809 United Nations Plaza, New York, N.Y.

Nuclear energy education

A new edition of a handbook of educational programs in nuclear energy and related fields at 268 American Institutions has been prepared by the University Relations Division of the Oak Ridge Institute of Nuclear Studies. *Educational Programs and Facilities in Nuclear Science and Engineering* (3rd ed.) provides information on degrees attainable, courses offered, facilities and special programs, and financial assistance; it also lists the names of persons to whom inquiries should be made. Information is included on those special fellowships in nuclear science and engineering and in health physics which are administered by the Institute and offered by the Atomic Energy Commission.

Free copies of the handbook can be obtained from the University Relations Division, ORINS, PO Box 117, Oak Ridge, Tenn. 37831.

Graduate fellowships

Nine or more Daniel and Florence Guggenheim Fellowships will be awarded for graduate study during 1965-66 at three major centers for research on rockets, space flight, and flight structures. Four or more jet propulsion fellowships will be awarded for study at the Guggenheim Laboratories for Aerospace Propulsion Sciences, Princeton University, two or more jet propulsion fellowships for study at the Guggenheim Jet Propulsion Center, California Institute of Technology, and three or more flight structures fellowships for study at the Guggenheim Institute of Flight Structures, Columbia University.

Each fellowship provides full tuition and stipends of up to $2400. Candidates should apply directly to the University they wish to attend, and must file credentials by March 1. More detailed information can be obtained from the Dean of Graduate Studies at Princeton and Caltech, from the Dean of the School of Engineering at Columbia, or from the Daniel and Florence Guggenheim Foundation, 120 Broadway, New York, N. Y. 10005.

The Smithsonian Astrophysical Observatory at Cambridge, Mass., in cooperation with the National Academy of Sciences, is establishing a postdoctoral fellowship program for research associates. Open to US citizens and to scientists from other countries as well, the associateships will be offered to individuals pursuing postdoctoral studies in the general fields of applied and theoretical space sciences, astronomy, astrophysics, and celestial mechanics.

Beginning this month, the program will offer two appointments, with two additional appointments available in July. The appointments are of two kinds; regular associateships for scientists at the immediate postdoctoral level, and senior associateships for those five years past their doctorates and who are already engaged in research resulting in publication or recognition in their fields. The stipend for the regular postdoctoral research associateship is $10 000 per year, with appointments normally made for one year.

The National Academy of Sciences—National Research Council will administer the program, and all associates will be selected by a board of review named by the Academy. Further information and applications can be obtained from the NAS-NRC, 2101 Constitution Ave., NW, Washington, D. C. 20560.

College loans

Effective December 9th, the nation's 2000 federal savings and loan associations, which were previously largely restricted to making construction loans, have been permitted to loan up to $10 000 to individuals for college and university education expenses. Under new Federal Home Loan Bank regulations, up to five percent of the assets of an association, an estimated $3 billion for the nation as a whole, may be offered for