

SCIENCE EDUCATION

Graduate Programs

Beginning in September of this year, the University of Hawaii will offer a PhD program in physics with special emphasis given to two general areas: high-energy nuclear physics and astrophysics. The high-energy program will enjoy a cooperative arrangement with the Lawrence Radiation Laboratory whereby bubble-chamber and spark-chamber experiments will be done at LRL and the results analyzed in Hawaii. The astrophysics program will consist of various experimental and theoretical studies in the physics of the upper atmosphere, including laboratory studies of photoexcitation and ionization processes and astrophysics. The laboratories and high-altitude observatory of the Hawaii Institute of Geophysics will be available for these programs. Applications for admission in the coming academic year are now being accepted. Interested students should write to the Graduate School, University of Hawaii, Honolulu 14, Hawaii.

Columbia University has introduced a graduate program in space physics which will be offered as a cooperative effort of the University's Departments of Astronomy, Geology, and Physics. It provides for training and research in the field of space physics leading to the PhD degree in any of the three sponsoring departments. A student interested in this program must apply for entrance to one of the three departments in accordance with his principal field of interest, and must meet the PhD requirements set by the department in which he is registered. Research in the following areas will be stressed: physics of the lower and upper atmosphere, application of plasma physics to problems in geophysics and astrophysics, origin and history of planetary bodies, stellar evolution, and stellar and galactic dynamics.

The program is directed by a committee under the chairmanship of Robert Jastrow, adjunct professor of geology and director of the Goddard Institute for Space Studies. Other members are Wallace S. Broecker, associate professor of geology; Samuel Devons, professor of physics; Isadore Epstein, associate professor of astronomy; Henry M. Foley, professor of physics; and John E. Nafe, professor of geology. The program is conducted in association with the Goddard Institute for Space Studies, an office of the National Aeronautics and Space Administration located in New York City. During the research phase of their studies, students will engage in research under the direction of a member of the Institute for Space Studies or a member of the University staff active in one of the areas of the space sciences.

Students entering the program are eligible for special training grants which provide for the support of

graduate work at Columbia in fields related to the space program. These grants, offered for the first time this year as the result of a grant to Columbia from the National Aeronautics and Space Administration, carry stipends ranging from \$2400 to \$3400, plus remission of all costs of tuition and fees. Students in the program will also be eligible for assistantships and fellowships offered by the University.

Inquiries regarding the space-physics program, the NASA training grants, and the research assistantships should be addressed to Professor Robert Jastrow, Department of Geology, Columbia University, New York 27, N. Y.

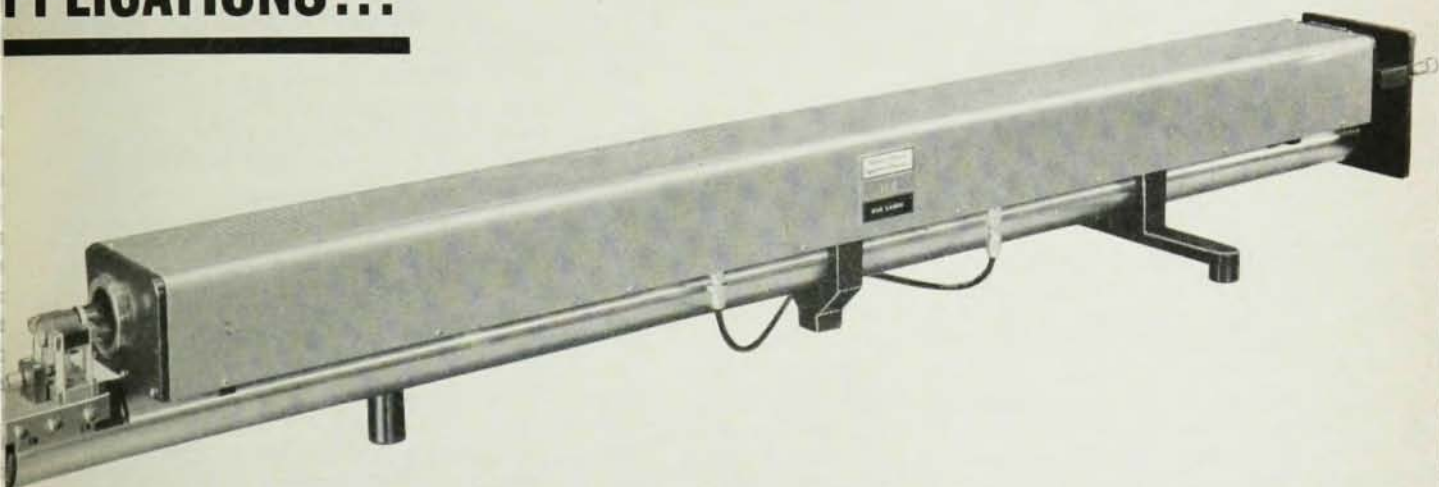
Rice University has announced the establishment of a new Department of Space Sciences, the first such department, according to Kenneth S. Pitzer, president of Rice, to be formally established in any college or university in America. Alexander J. Dessler, formerly of the Graduate Research Center of the Southwest, has been named professor of space science and chairman of the new department, which will offer courses and thesis research leading to both the master's and doctor's degrees in space science. Graduate study and research will be undertaken in the fields of geomagnetism, dynamic characteristics of the interplanetary medium, Van Allen radiation, aurora, atmospheric structure and dynamics, planetary structure, and meteoritics. Initially, it is expected that only a small number of graduate students (whose undergraduate degrees may be in physics, chemistry, geology, or engineering) will be enrolled and that postdoctoral appointments will be immediately available.

Relativity Research Center

The University of Texas in Austin has established a Center for Research in Relativity Theory as a joint project of the University's Departments of Physics and Mathematics. The center has four permanent senior faculty positions, a visiting professorship for the coming academic year, and (contingent upon the availability of government support) four positions for postdoctoral research associates. Two faculty members, A. Schild, professor of mathematics, and E. L. Schucking, associate professor of physics and mathematics, are now on the staff; they will be joined in September by R. Penrose and R. K. Sachs, associate professors of physics and mathematics. For the present, the two open positions are occupied by R. P. Kerr of the US Air Force Aeronautical Research Laboratory and L. Bel from the Collège de France in Paris, who are serving as visiting lecturers at the center. In addition, J. Kristian from Yerkes Observatory, I. Ozsvath from the Hamburg Ob-

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SPECTRA PHYSICS

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servatory, and A. H. Thompson from the University of London's King's College are doing postdoctoral research work at the center during the present year.

Closing Date for NSF Program

The National Science Foundation has announced that April 1 has been set as the closing date for the receipt of proposals for the renovation and construction of graduate-level research facilities. Departments of educational institutions are eligible to apply for assistance under the Foundation's facilities program if they offer at least the master's degree in the life, social, or physical sciences, including mathematics and engineering. Proposals received prior to April 1 will be reviewed and notification of the Foundation's action will be made within four months of that date. Proposals received after the deadline will be reviewed after the next closing date, which is August 1.

Graduate Research and the Income Tax

Twice in recent years the United States Tax Court has ruled that a candidate for a higher degree receiving compensation for work performed under a federal research grant could consider his stipend as being exempt from federal income taxation.* In each case, the Court held that research of the type carried out by the graduate student was required by the university of all candidates for that degree. Although the federal withholding tax on wages is generally applied to stipends received in such circumstances, it is understood that the graduate student thus affected can assert on his income tax return that his stipend is exempt from taxation under IRC Section 117, or he may file a formal claim with his District Director of Internal Revenue for the refund of overpayment of his federal income tax.

Summer Programs

A special program in experimental solid-state physics will be offered from June 24 through July 26 by the Electrical Engineering and Metallurgy Departments of Massachusetts Institute of Technology. Intended primarily for faculty members in the materials-science area who wish to obtain first-hand experimental experience, the course will deal with x-ray diffraction, infrared spectroscopy, magnetic resonance, galvanomagnetic effects, excess carriers in semiconductors, crystal growth, ferroelectricity, thermal properties, superconductivity, and the Mössbauer effect. In addition to laboratory work, the program will include background lectures, references to selected literature, and tours of solid-state laboratories at MIT. Further information and application blanks can be obtained from Professor Arthur C. Smith, Experimental Solid State Program, Room 10-079, Massachusetts Institute of Technology,

Cambridge 39, Mass. Applications should be returned by April 15.

Several seminars which may be of interest to physicists will be held during June and July at Pennsylvania State University. Four of these are short courses on applied mechanics and materials science to be given under the general direction of Joseph Marin, professor and head of the Department of Engineering Mechanics. They include an introduction to continuum mechanics (June 9-14), followed by a course on nonlinear theories of continuum mechanics (June 16-21). Paralleling these seminars will be a week's study of viscoelastic behavior of plastics (June 9-14) and a course on dislocations and mechanical properties (June 16-21).

Another offering at Penn State, this one under the chairmanship of Vernon M. Albers, chief scientist of Penn State's Ordnance Laboratory, will be a seminar on underwater acoustics which will meet in two groups, the first from July 21 to 26 and the second from July 28 to August 2. The course will deal with problems of sound transmission in the sea, generation and detection of underwater sound, and the design of transducers.

Further information on the seminars can be obtained by writing to the Continuing Education Information Office, Pennsylvania State Univ., University Park, Pa.

This year's Scottish Universities Summer School in Physics (which is part of the NATO program of Advanced Study Institutes) will be held at Newbattle Abbey near Edinburgh from July 28 to August 17 and will consider strong interactions and high-energy phenomena. The course will consist of about three lectures a day plus occasional seminars. The provisional panel of lecturers includes R. Blankenbecler of Princeton, S. Fubini of Turin and CERN, M. Gell-Mann and F. Zachariasen of the California Institute of Technology, J. Hamilton and A. C. Lovelace of London, A. Martin of CERN, R. Omnes of Saclay, and T. Regge of Turin. The fee for the course is £20 and includes full board and lodging. Further information and application forms can be obtained from Dr. B. H. Bransden, Department of Natural Philosophy, University of Glasgow, Glasgow, W.2, Scotland. The closing date for applications is April 10.

The Catholic University of America will offer an institute on analog computation, which will take place from June 10 to June 21. Inquiries should be addressed to B. P. Shah, Department of Mechanical Engineering, Catholic University of America, Washington 17, D. C.

Three special institutes will be presented by the Oak Ridge Institute of Nuclear Studies this summer. They will be sponsored by the National Science Foundation in cooperation with the US Atomic Energy Commission, and will take place at the ORINS Special Training Division.

The longest course (June 17 through August 9) is designed to provide an opportunity for physics teach-

* The cases of *Bhalla vs Commissioner* (35 USTC —, No. 3, CCH Dec. 24309), October 7, 1960, and of *Spruch vs Commissioner* (USTC Memo. Op., CCH Dec. 24699 (M)) March 6, 1961.