

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-