

NCR

PHYSICAL RESEARCH

Magnetic thin films

A position currently exists for an individual with a MS degree in chemistry or physical chemistry. Regarding experience, this man should have 1 to 3 years' experimental application involving magnetism and electrochemistry. This position involves the study and application of chemical and electrical techniques in magnetic film deposition.

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San Francisco Opening for NUCLEAR PHYSICIST

... to conduct and direct a nuclear radiation physics program involving theoretical and experimental investigations of the characteristics & transport phenomena associated with radiation from nuclear detonations and controlled processes. Also, to study shielding properties of materials, and conduct a shielding and radiation transport research program.

Salary range from \$12,075 to \$15,855 with full Career Civil Service benefits. If you have your Ph.D. in nuclear physics, or equivalent progressive research experience, contact: **Dr. William E. Kreger, Nuclear Physics Division Director (Code 150-P), Naval Radiological Defense Laboratory, San Francisco, California.**

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winter and later by Professors Julian Schwinger of Harvard University, Robert Oppenheimer of the Institute for Advanced Study, and others.

Although initially all memberships at the center will be temporary, it is hoped that permanent chairs, designated as Distinguished University Professorships, will be made available in a few years. These permanent members will not be attached to any department and will be accorded the full privileges of tenured faculty.

The center will be governed by a scientific council of five members from the University of Miami and five scholars from outside the institution. The latter group is currently composed of members of the committee of the Coral Gables Conference on Symmetry Principles at High Energy. Behram Kursunoglu and Arnold Perlmutter, professors of physics at Miami, are director and secretary of the Center, respectively.

Graduate acoustics

Acoustics will become a full-fledged graduate degree program at Pennsylvania State University this fall. By action of its Board of Trustees, Penn State will offer both MS and PhD degrees in engineering acoustics through the University's Graduate School. The program is expected to make an important contribution to graduate acoustics education in the US, where opportunity for such training has long been severely limited largely because of the diverse nature of modern acoustics.

Acoustics, originally one of the classical areas of physics, has evolved into a large number of varied disciplines represented by many departments, usually in several different colleges of a university. Interrelation of these areas makes it necessary for a student wishing to specialize in any one of them to acquire a background in the entire field.

Architectural acoustics, for example, involves problems in audio engineering, noise, shock and vibration; bioacoustics involves radiation, signal processing, and air acoustics; underwater acoustics requires a study of sonic and ultrasonic engineering, and sound propagation in layered media.

For this reason, many acoustics educators have come to believe that it is not feasible to prepare for a career in acoustics by simply treating the field as one of the specializations of physics. A graduate student in physics usually must satisfy the many requirements of the physics department in other branches of physics which consequently leaves him little time for his work in acoustics. Yet, the breadth of education required for graduate study in acoustics should be just as great as that demanded for a graduate degree in physics, biology, or medicine.

That there is very little opportunity today for a student to pursue a graduate program in acoustics at universities in the United States has long been recognized by the Acoustical Society of America. Graduate training in acoustics was discussed on several past occasions by the ASA Technical Committee on Underwater Acoustics, and it was one of the significant themes at the Society's conference on acoustics education last March. One of the recommendations arising from the latter meeting urged that the organization's Education Committee "explore thoroughly the possibilities provided by interdisciplinary programs in acoustics... as well as establishing acoustics as a major field of graduate study".

The new program at Penn State constitutes a beginning in this direction. One of the main reasons for the University's decision to organize the program is that Penn State already possesses one of the largest academic groups of acousticians in the country, and in its Ordnance Research Laboratory, employs a staff of some 65 scientists who concentrate their efforts in acoustics.

The new program will be administered by an interdisciplinary committee headed by Dr. Vernon Albers, chief scientist and professor of engineering research in the Ordnance Laboratory, and made up of members from the various departments having interest in acoustics. Six areas of specialization will be covered: physical acoustics, architectural acoustics, bioacoustics, underwater acoustics, shock and vibration, and speech and hearing.