

Solids, which meets July 16 and 17 in Paris, will discuss the propagation of electromagnetic waves in solids, instabilities, amplification of waves, pinch effects, and related phenomena. Further information and application forms can be obtained from Prof. J. Bok, Laboratoires de Physique, Ecole Normale Supérieure, 24, rue Lhomond, Paris 5, France.

From July 16 through 18, a symposium on Radiation Damage in Semiconductors will be held near Paris under the sponsorship of UNESCO and IUPAP. The subjects discussed will be thresholds and creation rates of defects, structure and properties of defects in simple and compound semiconductors, and interaction between defects. Radiation effects on electronic devices, and problems relating to organic and ionic crystals and to ceramics will, in principle, be excluded from the program. Further information and application forms can be obtained from Prof. P. Baruch, Laboratoires de Physique, Ecole Normale Supérieure.

Radiative Recombination in Semiconductors will meet July 27 and 28 in Paris. This meeting will discuss injection luminescence and photoluminescence in semiconductors, application to the determination of energy levels in semiconductors, and injection lasers and related experiments. The technology and applications of injection lasers will be excluded. Further information and application forms can be obtained from Dr. C. Benoit à la Guillaume, Laboratoires de Physique, Ecole Normale Supérieure.

### Luminescence

The Institute of Physics and the Physical Society has announced that it will hold a conference on luminescence, to be held September 15-17 at the University of Hull. A provisional program includes sessions on theoretical aspects of luminescence, electroluminescence, cathodoluminescence, etc.; phosphor preparation, single-crystal growth, organic phosphor systems, luminescent materials for lasers, and others.

Triplicate copies of 100-200-word abstracts should be sent as soon as possible, and not later than June 1, to Prof. G. F. J. Garlick, Physics Depart-

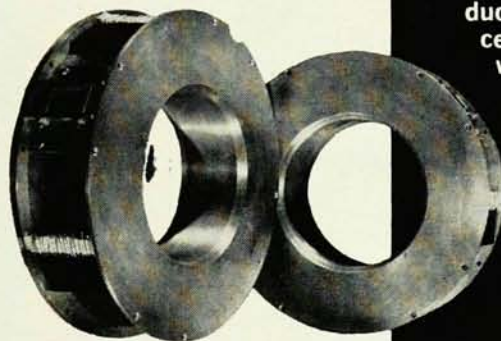
# AVCO SUPER- CONDUCTING MAGNETS

## AXIAL ACCESS



The SC200-30 produces 30,000 gauss in the center of a 2 in. bore. The magnet is capable of operating over long time periods with negligible power consumption.

## RADIAL ACCESS



Designed to produce high magnetic fields in a 6 in. diameter, the SC600 magnet is capable of operating over long time periods with negligible power consumption. Two SC600 coils have produced 19,000 gauss at the center of a Helmholtz pair with a 2 in. separation.

Avco offers a complete line of Superconducting Magnets for either axial or transverse field applications. Our unique modular design gives the user an option of mounting his magnets in solenoid or split-coil form to yield either high axial or transverse fields.

FOR TECHNICAL DETAILS OF AVCO'S SUPERCONDUCTING MAGNETS AND SYSTEM, AND/OR A BOOKLET DESCRIBING THE THEORY AND STORY OF SUPERCONDUCTIVITY RESEARCH AT AVCO-EVERETT, PLEASE ADDRESS YOUR INQUIRY TO SECTION A. ALL CORRESPONDENCE RECEIVES THE ATTENTION OF TECHNICAL PERSONNEL.

**Avco**  
EVERETT  
RESEARCH  
LABORATORY

A division of AVCO CORP.  
2385 Revere Beach Parkway  
Everett 49, Massachusetts

Engineers and Scientists. Excellent opportunities exist in Superconductivity at Avco-Everett.

# NOW AVAILABLE!

FROM THE WORLD'S  
LARGEST SUPPLY OF

## SINGLE CRYSTALS

### ■ TRANSITION ELEMENTS

#### SINGLE CRYSTALS

MnF<sub>2</sub> • KMnF<sub>3</sub> • RbMnF<sub>3</sub>  
NaMnF<sub>2</sub> • KMnF<sub>3</sub> • RbMnF<sub>3</sub>  
many others

### ■ LARGE METAL

#### SINGLE CRYSTALS

Iridium • Rhodium • Gold  
Zirconium • Antimony • Tin  
Titanium • Silver • Rhenium  
Lead • Copper • Cobalt • Iron  
and many others

### ■ MIXED ALLOY

#### SINGLE CRYSTALS

Cobalt Iron • Copper Gold  
Copper Nickel and others

### ■ SECOND HARMONIC

#### SINGLE CRYSTALS

Ammonium Dihydrogen Phosphate  
Potassium Dihydrogen Phosphate  
Quartz • Sodium Chlorate  
Triglycine Sulphate  
Rochelle Salt

*Write or call for Literature*



**semi-elements, inc.**

Saxonburg Boulevard, Saxonburg, Pa.  
Phone: 412-352-1548

## Positions Open

### PhD

#### Preferably in Physics

to study the microscopic structure of irradiation produced defects in semiconductors and their interaction with impurities using electron paramagnetic resonance techniques. Position offers individual research opportunities in a group investigating related problems with other techniques. Publication of experimental results in the open literature is expected. Equipment presently available includes X band and K band spectrometers and associated cryogenic equipment.

Sandia Corporation, located in Albuquerque, New Mexico, is engaged in research and development of nuclear weapons design and other special projects for the AEC. Liberal employee benefits. Paid relocation allowance. An Equal Opportunity Employer. U.S. Citizenship Required. Send résumé to:

Professional Employment Section 559



ALBUQUERQUE, NEW MEXICO

## DUBLIN INSTITUTE FOR ADVANCED STUDIES

### SCHOOL OF THEORETICAL PHYSICS

The Governing Board of the School of Theoretical Physics invites applications for research Scholarships tenable in the School during the academic year 1964-65. A limited number of stipends is available up to a maximum value of £700 per annum according to qualifications, plus a marriage allowance of £100 per annum.

For further particulars and Forms of Application candidates should apply immediately to **The Registrar, Dublin Institute for Advanced Studies, 9-10, Burlington Road, Dublin 4.** Completed applications should reach the Registrar on or before the 1st March 1964.

**Research staff position** in physics of materials is open at Research and Engineering Center in Pittsburgh, Penna. area. Nature of program is such that a Ph.D. is preferred. Include résumé with inquiry to, **Director of Research, Pittsburgh Corning Corporation, 800 Presque Isle Drive, Pittsburgh, Pa. 15239.**

Applications are invited from Ph.D. physicists for the position of Lecturer or Assistant Professor in the Department of Physics. Duties will involve undergraduate teaching and research. Ability to initiate research desirable. New Building with research facilities in construction. Initial salary dependent upon experience but competitive. Inquiries and applications, together with a curriculum vitae, a recent photograph or snapshot, and the names of three referees should be addressed to:

**The Chairman, Department of Physics,  
Sir George Williams University,  
Montreal, Quebec, Canada.**

ment, The University, Hull, Yorkshire.

Further information and application forms will be available in June from the Administration Assistant, The Institute of Physics and the Physical Society, 47 Belgrave Square, London, S. W. 1, England.

### Antennas

The Institute of Electrical and Electronics Engineers' Professional Technical Group on Antennas and Propagation will hold its 1964 international symposium at the International Hotel at New York City's Idlewild Airport. The meeting will take place from September 22 to 24, and papers on any phase of antenna and propagation research are solicited. Topics of particular interest are electronically steerable arrays, signal-processing antennas, synthetic apertures, frequency-independent antennas, satellite antennas, radio-astronomy and low-noise antennas, re-entry problems, propagation, antenna theory, radar and tracking antennas, and new antenna applications and techniques.

Triplicate 1000-word summaries, in English, and including all figures (up to six), must be sent by March 2 to Dr. Henry Jasik, c/o Jasik Laboratories, 100 Shames Drive, Westbury, Long Island, N. Y. Other information regarding the symposium can be obtained from the IEEE, Box A, Lenox Hill Station, New York 21, N. Y.

### ISA

The 1964 annual meeting of the Instrument Society of America, and its concurrent product exhibit, will take place October 12 to 15 in New York City. Approximately 70 technical sessions will present papers on measurement, information processing, automatic control and all other major areas of instrumentation.

Abstracts should be sent by March 31 to H. Tyler Marcy, Vice President—Development, General Products Division, International Business Machines Corporation, White Plains, N.Y. Other inquiries regarding the meeting can be obtained from the Instrument Society of America, Penn-Sheraton Hotel, 530 Wm. Penn Place, Pittsburgh.

## How high is your goal?

Ours are out of sight—in the labyrinth of space. But your opportunities are a tangible reality, here and now at North American's Space and Information Systems Division.

### ELECTRO-OPTICAL LABORATORY

The electro-optical laboratory is concerned with discovery of new applications of laser techniques and design of electro-optical devices for space communications, and detection and tracking.

This relatively small group is expected to double in size within a year's time. This growth will provide exceptional opportunity for supervisory and creative research and engineering positions. Typical areas now staffing include:

### APPLICATIONS AND PROPOSALS

For electro-optical and laser based systems. Preparation of proposals. Electro-optics laser techniques experience is helpful but not mandatory. (MS in Physics or EE required.)

### CIRCUIT DESIGN

To perform circuit design and analysis in the field of closed circuit T.V. and electronic control systems. With a strong background and personality, the successful candidate will be considered for project management positions. Should be thoroughly familiar with solid state components. (A knowledge of Orthicon tubes helpful.)

### RESEARCH SPECIALISTS

To perform independent applied research on advanced concepts in electro-optical phenomena, to make proposals and provide consultation on research and development. A heavy laser techniques background is required. (Masters degree is mandatory with a Ph.D. desirable.)

Interested? Please contact:

MR. K. A. GREELEY  
ENGINEERING AND SCIENTIFIC EMPLOYMENT  
12214 LAKEWOOD BLVD.  
DOWNEY, CALIFORNIA

All qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

**SPACE AND INFORMATION SYSTEMS DIVISION**  
NORTH AMERICAN AVIATION

