# **These Sylvania Electronic Systems Activities** may fit into your future...

APPLIED RESEARCH LABORATORY (Suburban Boston)

Basic and Applied Research of Communications • Information Processing and Display • Radio Physics • Space and Atmospheric Physics • Space Techniques • Operations Research · Human Factors Analysis · Advanced System Concepts.

MICROWAVE COMMUNICATIONS SYSTEMS (Suburban Buffalo)

Space Communications Systems · Aerospace Antenna Systems · Communications Satellite Systems.

EQUIPMENT ENGINEERING LABORATORIES (Suburban San Francisco)
State of the Art Studies and Advanced Equipment Engineering Programs for Electronic Warfare/Electronic Countermeasures and Reconnaissance Broadband Compact Antennas, Receivers, Transmitters, Servo Systems • Infra Red and Laser Projects and Microwave Component Development and Application to Systems.

# Or these...

DATA MANAGEMENT SYSTEMS (Suburban Boston)

Data Processing Systems — Special and General Purpose Computers, and, Circuit and Message Switching Systems • Data Display Systems — Electroluminescence and Integrated Display Techniques of Multi Source Information.

SYSTEMS LABORATORIES (Suburban San Francisco)

Analysis and Definition of Systems Concepts and Requirements for Electronic Warfare and Arms Control Inspection Systems • Operational Analysis by Computer and Gaming Methods • Analysis of Data Handling Links, Including Telemetry of all Types, Multichannel Digital, Voice and Coherent Signal Systems . Arms Control Studies.

RADIO FREQUENCY SYSTEMS (Suburban Boston)

Detection, Tracking, Surveillance Radar Systems • Transmitter, Receiver and Microwave Subsystems. Satellite Tracking Antennas and Hardened Antennas.

HIGH FREQUENCY COMMUNICATIONS SYSTEMS (Suburban Buffalo)

Strategic Long Haul Communications Systems . High Frequency Adaptive Communications Systems . Digital Communications Systems.

MICROELECTRONICS (Suburban Boston)

Research and Development of Hybrid Thin Film Microelectronic Materials, Circuits, Modules and Equipments.

In addition, specialized groups such as Advanced Systems Planning are engaged in defining opportunities and preparing plans for business in new markets and product areas; our Product Support Organization provides complete field project management from installation to training.

If your background qualifies you to join this organization of advanced electronic capabilities, please forward your resume (indicating location and specialty area of your choice) to: Manager of Professional Staffing, Dept. 17M, Sylvania Electronic Systems, Division of Sylvania Electric Products Inc., 40 Sylvan Road, Waltham, Mass. 02154.



## SYLVANIA ELECTRONIC SYSTEMS

An Equal Opportunity Employer

lated. It is very difficult to build strong physics groups in those parts of the country where hundreds of miles separate one physics center from another, and I myself have seen several departments collapse because of their isolation. I used to plead with my colleagues to come and accept appointments but they would not come. They will come to Stony Brook because here they can find colleagues not only on this campus but at Brookhaven, Columbia, and a half dozen other nearby schools".

"We also want to remain in contact with other rapidly moving fields than our own," said theoretical physicist Peter Kahn, "and the environment here is excellent for this purpose".

For the future, Pond is thinking of a "canonical" department, with the diversity of research interests that characterizes existing centers of excellence. Paralleling the development of experimental particle physics will be further growth in atomic, solidstate, and nuclear physics. Interdisciplinary programs are also contemplated with the new Earth and Space Sciences Department, headed by Oliver A. Schaefer, formerly of Brookhaven, and also with the Chemistry Department.

#### Les Houches summer school

High-energy astrophysics will be the subject of the 1966 session of the Ecole d'Eté de Physique Théorique, an institute of the University of Grenoble which is supported in part by the NATO Advanced Study Institute Programme. The session will be held at Les Houches (Haute Savoie), France, from July 4 through August 27. An effort will be made to present those aspects of high energy physics and statistical mechanics which are necessary for a careful discussion of astrophysical theories.

The program will include elementary particles in astrophysics by H. Y. Chiu; elementary processes by H. Reeves and probably V. L. Ginzburg; general relativity by S. Chandrasekhar; properties of matter at high density by A. G. W. Cameron; accelerating mechanisms by E. Schatzman; origin of cosmic rays probably

by V. L. Ginzburg; observations of supernovae by E. M. Burbidge; observations of Q. S. S. and radiogalaxies (lecturer to be announced); theories of supernovae, Q. S. S., and radiogalaxies by G. R. Burbidge; and cosmology by E. L. Schücking. The directors of study will be E. Schatzman and P. Veron. Both French and English will be used in class.

A solid background in quantum mechanics and statistical mechanics is a prerequisite and admission will be limited to 35 participants. It is hoped that a number of National Science Foundation travel grants will be available for United States citizens. Further information and application blanks can be obtained from the secretariat of the school, Ecole d'Eté de Physique Théorique, 46 Avenue Viallet, Grenoble (Isère), France, or from Professor Cécile De-Witt, Department of Physics, University of North Carolina, Chapel Hill, N. C. Completed blanks must be received in Grenoble no later than March 1.

#### New lab at Penn State

A Space Sciences and Engineering Laboratory for graduate education and research has been established at Pennsylvania State University with a \$600 000 grant from the National Aeronautics and Space Administration. The new lab will also serve as a collecting point for information on space research at Penn State and will provide scientists with administrative and technical help. Heading the facility is Paul Ebaugh, assistant dean for research in the College of Engineering. Technical and scientific direction will come from an interdisciplinary committee of University scientists and engineers.

#### Fellowships

The Joint Institute for Laboratory Astrophysics is offering some ten visiting fellowships for 1966-67. Awards are based on applicants' fields of scientific interest and achievements with no citizenship or national-origin restriction. Recipients may engage in research of their own choosing in laboratory astrophysics, and there are

### **TENNELEC TC 200**

A different linear pulse amplifier for nuclear spectrometry

This series is intended to explain the superiority of the TC 200 as a nuclear pulse amplifier A complete technical description of this Fairstein-designed instrument is available on request

PULSE SHAPING — influences resolving time, signal-to-noise ratio (snr), and overload performance 

Define aspect ratio as pulse width at 90% height to width at 10% height. High aspect ratio, accurate pulse-height analysis 

Delay-line shaping has the best aspect ratio but the poorest snr (by 2X to 4X), Recovery to 1% from 500X overload is frequently greater than 100 nonoverloaded pulse widths. 
Conventional RC shaping has good snr but poor aspect ratio and very poor overload recovery The "active element" shaping in the TC 200 is unique. RC feedback around fast operational amplifiers synthesizes RLC response. Shape is nearly Gaussian for best possible snr, aspect ratio is good, and overload recovery is spectacular - recovery to 1% from 500X overload in 2 nonoverloaded pulse widths 
As it applies to your experiments: for a given resolving time, energy resolution with the TC 200 is better than with any other amplifier; conversely, for a given resolution, permissible count rate is higher — especially when overload pulses are present TENNELEC INSTRUMENT CO., INC.

P. O. Box D . Oak Ridge, Tennessee

