

NOTES FROM ABROAD

CERN looks ahead

The 27th session of the Council of the European Organization for Nuclear Research was held at Meyrin-Geneva on June 18 and 19 under the presidency of J. H. Bannier of the Netherlands. During the early part of the session, the Council heard a report on CERN activities in the first half of 1964, presented by V. F. Weisskopf, the Organization's director general. In his report, Professor Weisskopf laid especial stress on fundamental-particle research with the 28-BeV proton synchrotron, including the discovery of meson resonances, the search for "quarks", and the use of neutrinos to study the weak interaction.

The later part of the session was dominated by a discussion of CERN's future program. Three main proposals for development have been made, i.e., improvement of the present installations at CERN; the addition of particle storage rings, 300 meters in diameter, to the existing synchrotron at a cost of 300 million Swiss francs; and the construction of an accelerator with an energy of about 300 BeV. The new machine would be perhaps 2.4 km in diameter, and, together with its laboratory, would cost about 1600 million Swiss francs. In the course of the discussion, Professor Weisskopf urged that the three items be considered a single entity: "The triptych that European physicists wish to unfold comprises three panels that cannot be separated. . . ."

The task of carrying out the CERN program, along with necessary parallel developments that will be strictly national, is expected to triple European expenditures on particle physics over the next ten years. At present, according to a statement by C. F. Powell, about two parts per thousand of Europe's resources go into fundamental research, between two and three percent into research and development, and seven percent into armaments. It seemed to him that an increase in the amount spent on fun-

damental research was not at all out of place in a period of human history characterized by the doubling of scientific knowledge every twelve years.

At the end of the discussion, the president of the Council invited the delegates to make recommendations to their governments that would permit the Council to make a decision on the storage rings—if possible by December of this year. A decision on the 300-BeV accelerator, it was indicated, would be desirable by the end of 1966. Meanwhile, member states are invited to submit proposals for possible sites for the new machine.

Overseas Educational Service

A new organization, formed recently, has as its major objective the recruitment of American academic personnel for service in the colleges and universities of Africa, Asia, and Latin America. Known as the Overseas Educational Service, it is sponsored jointly by the National Academy of Sciences, the American Council on Education, and the organization Education and World Affairs. The Service operates under the authority of the Board of Trustees of the last-named institution.

In addition to its recruiting activities, the OES will be concerned with finding solutions for the personal, economic, and career problems involved in extended overseas service and providing information about educational systems and individual schools in the developing countries.

Europe and space research

The European Space Research Organization (ESRO) was formally inaugurated on March 24, with Belgium, Denmark, France, West Germany, the Netherlands, Spain, Sweden, Switzerland, and the United Kingdom as members. (Italy will become the tenth member upon ratification of the ESRO Convention.) Pierre Auger of

France is the organization's first director general.

The foundation for ESRO was established in December 1960 at a conference convened by the Swiss government at which the above-named ten nations plus Austria and Norway were represented. The conference authorized the establishment of the European Preparatory Commission for Space Research (COPERS), which began work in February 1961 under the chairmanship of Sir Harrie Massey. COPERS prepared the scientific and technical program for ESRO's first eight years and established a detailed launching program for the first year. The Preparatory Commission also prepared estimates of expenditure, drafted the structure of the Organization, and recruited a nucleus staff. The headquarters of the COPERS secretariat in Paris has become the headquarters of ESRO.

The Organization will maintain a number of technical facilities located in various member states. Its space technology center, located at Delft, will deal with the development of rocket payloads, space probes, and satellites. A laboratory will be established near that center to permit scientists from member states to work as fellows on particular projects. ESRO's data center, to be established in Darmstadt, will undertake the processing of data obtained from sounding rockets and spacecraft, as well as a limited program of research associated with its computer facilities.

The European Space Research Institute will be located in Italy. Its function will be to carry out laboratory work to complement rocket and space-probe experiments, mainly in the areas of particle reactions, electromagnetic radiation, and low-density plasma physics.

ESRO will have its own launching range at Kiruna in northern Sweden, where operations are expected to begin at the end of 1965 or the beginning of 1966. Meanwhile, the Organization will use the launching pads of member nations. Some of the 1964 launchings may take place from Salto di Quirra in Sardinia or from the French Ile du Levant.

The Organization's initial program calls for the launching of about

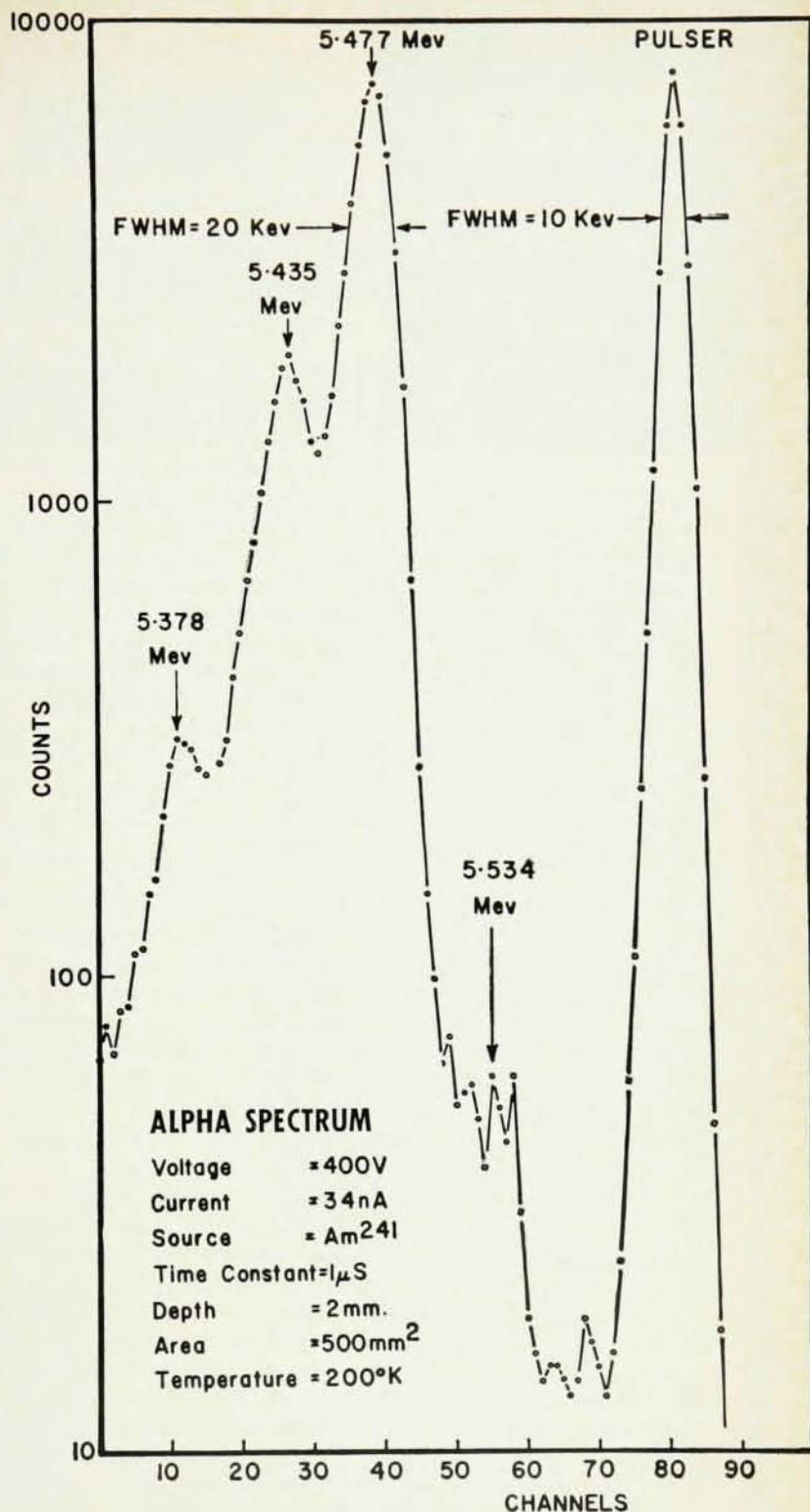
SILICON LITHIUM DRIFT DETECTORS

(with touchproof windows)

for optimum
resolution
choose a
deep enough
detector

select one
with a
thin (0.2μ)
uniform
window
for results
like this.....

for more information
telephone 728-4527
area code 514
or write to:



simtec ltd.

3400 Metropolitan Blvd East
Montreal 38, Canada

SELF-POWERED
IN-CORE

Neutron Detector

- Sub-miniature—0.063"
- High temperature
- High flux
- Low burn-up

MODEL RSN-202S is ideal for simultaneous flux mapping and temperature measurements over the range 10^{12} to 10^{15} n/cm²-sec. The signal depends only on thermal neutron flux; there are no saturation problems, bias drifts or sensitivity changes.

Detection depends upon neutron activation of an insulated wire such as rhodium and silver. The subsequent beta decay of the wire creates a difference of potential between wire and ground. The resultant current flow through external circuitry is then proportional to neutron flux. Specifications for the RSN-202S are:

• MECHANICAL

Maximum diameter 0.0625 inch
Coaxial Cable diameter... 0.040 inch
Coaxial Cable length 24 feet
Sensitive length of detector:

Short Emitter Any length up to
77% maximum
Long Emitter... Entire in-core length
of detector

• MATERIAL

Emitter Wire:
Short Emitter Rhodium*
Long Emitter Silver*
* Others available
Insulator (Detector)... Aluminum Oxide
Collector Cap Inconel

• ELECTRICAL

Capacitance of Cable 3000 picofarads

• MAXIMUM RATINGS

Temperature 400° C.
Pressure 2000 psi
Neutron flux range
 10^{12} to 10^{15} n/cm²-sec.

• OPERATING DATA

Thermal neutron sensitivity:
Rhodium 1.3×10^{-21} Amp/nv
per cm. length of emitter
Silver 0.8×10^{-21} Amp/nv
per cm. length of emitter

Gamma background:
Short Emitter Typically 1%-5%
of neutron signal
Long Emitter... 1% of neutron signal

Response time:
Rhodium Half life of emitter—
42 seconds
Silver Half life of emitter—
24 seconds

Details are available on Data Sheet RSN-202S. Request your free copy of John W. Hilborn's Paper detailing this detector and its application.



**REUTER-
STOKES**

Electronic Components, Inc.

18530 South Miles Parkway
CLEVELAND 28, OHIO

Nuclear Detectors • Special Electronic Tubes • Components

twelve sounding rockets in the first year and about forty in the second. Two small satellites are being developed and will probably be launched from the United States (the first in 1967) in cooperation with NASA. Medium stabilized satellites and a large astronomical satellite are also part of the initial plans. Long-range plans include more probes and satellites, as well as proposals for a lunar mission and a fly-by mission to a planet or comet. ESRO will neither design nor develop sounding rockets and launching vehicles but will purchase them as needed.

The costs of the Organization will be met by contributions from the member states, with percentages prorated according to national income. The members have set the maximum amounts which ESRO may spend at \$78 million for the first three years, \$122 million for the second three years, and \$305 million for the first eight years together.

Noctilucent clouds

According to an agreement announced on June 5, the National Aeronautics and Space Administration and the Swedish Space Committee will extend for another year cooperative sounding-rocket studies of the upper atmosphere and of the faintly luminous noctilucent clouds which are usually visible only during summer twilight in the auroral regions.

The program began in 1961 and involves the firing of rockets from Kronogard in Sweden to measure wind and temperature in the upper atmosphere at altitudes ranging from thirty to sixty miles and to collect particles of the noctilucent clouds found at such altitudes. In past experiments, extreme temperatures (-143°C) and wind velocities (450 mph) have been recorded, and particles measuring between 0.05 and 0.5 microns in diameter have been collected. The presence of iron and nickel in the particles has been determined, and the possibility that they may be of extraterrestrial origin is under study.

This year's experimental program includes four payloads to collect particles and four rocket-grenade pay-

loads to measure winds and temperatures. Two of each type will be launched about 15 minutes apart in the presence of noctilucent clouds, and the other two pairs when no such clouds are present.

Soviet-American exchanges

On May 20, the National Academy of Sciences and the Academy of Sciences of the USSR jointly announced the signing of a new two-year agreement for the exchange of visits by United States and Soviet scientists. An annex to the general agreement on cultural exchanges between the two countries, the new agreement on scientific exchanges is the third since 1959 between the US and Soviet academies. It was signed by their presidents, Frederick Seitz and M. V. Keldysh.

The new agreement provides greater flexibility in arrangements by eliminating the previous two-step procedure of gaining approval first for the field in which an exchange is proposed and then for the scientist who will take part. Another change permits visits to be announced whenever desired, instead of on a fixed date for the entire year to come.

Each academy will be able to send 55 scientists on individual visits for a total of 180 months during 1964 and 1965, the same number and duration as before. There is specific provision for the exchange of: twenty prominent scientists from each country (half of them members of the respective academies) for a period up to one month each to deliver lectures in the other country; ten scientists to make one-month visits to familiarize themselves with some aspects of scientific work in the other country; 25 scientists to conduct research in the other country for periods from three to ten months.

In its announcement the NAS stated that "exchanges under the agreement supplement other such scientific exchanges taking place between the US and the Soviet Union, arranged by individual scientists and universities of each nation. There is no intention that the inter-Academy agreements be considered exclusive instruments for the arrangement of such exchanges."