



1978

Hewlett-Packard Europhysics Prize

The Hewlett-Packard Europhysics Prize, awarded annually for outstanding achievement in Solid State Physics leading to advances in the fields of electronic, electrical or materials engineering, has been won this year by Professor Zhores Ivanovich Alferov of the A.F. Ioffe Physico-Technical Institute in Leningrad.

The award is made for his contributions to our understanding and the practical realisation of heterojunctions — semi-conductors comprising two dissimilar compounds with capabilities that can be far greater than those obtainable with "conventional" semi-conductor materials.

Alferov and others were able to demonstrate theoretically, some 15 years ago, the principle that it should be possible to match crystal zones formed within mixed compounds, in order to produce very large fluxes of electrons or light energy. This opened the way to making semi-conductors that as detectors, were much more sensitive and covered a greater range than before, and when used as emitters or convertors had a very much greater power per unit volume than had previously been achieved.

The major problem was to produce an effective realisation of the system. For a number of years, it seemed that the practical application of the discovery would be severely limited as with all the known combinations of semi-conductor materials, even the most minute traces of impurities destroyed the property. This remained the position until Alferov and his group discovered an ideal partner for the semi-conductor gallium arsenide, viz. aluminium arsenide. These two substances form a solid solution together, with properties that can be readily controlled.

Alferov had already made a con-

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Central Bureau for Nuclear Measurements, Geel

W. Bambynek, I. V. Mitchell, H. Weigmann

The Treaty of Rome (1957) setting up the European Atomic Energy Community (Euratom) provided for the foundation of a Joint Research Centre (JRC) which currently comprises four establishments of which the Central Bureau for Nuclear Measurements (CBNM) is one. It is located at Geel in Belgium (5 km from the Belgian Nuclear Studies Centre, SCK/CEN at Mol) where site work began in 1960. The other establishments of the JRC are at Karlsruhe (German Federal Republic), Petten (The Netherlands) and Ispra (Italy).

In the initial Euratom research programme, the CBNM's task was defined as that of a bureau of standards specializing in nuclear measurements. For this the preparation and definition of the basic necessary standards are required and they in turn, demand continuous efforts to improve measuring instruments and methods. Additional fields of activity pertain to radioactivity, isotopic composition and the preparation of well-defined samples. Specialized laboratories for chemistry, classical metrology and electronics support the nuclear activities.

To date, the main objective has been to measure nuclear properties for the development, running and safeguarding of nuclear energy installations and to advance the knowledge of the underlying physics. The fabrication and characterization of samples and targets for use in nuclear measurements and the preparation of nuclear reference material is a further task of the CBNM.

At the present time, the CBNM has a total of 200 staff members, 22 %

of whom are university trained graduates; 45 % are scientific-technical staff and the others belong to the workshop, administration and infrastructure. The personnel are drawn from all nine member states of the European Communities to form a truly multinational scientific community.

The technical proposals and the execution of the scientific programme are examined regularly by international advisory committees whose members are made up of specialists provided by the national governments of the Communities.

Neutron Data Measurements

The programme of the Neutron Data Group of CBNM is mainly concerned with the measurement of differential neutron data for applied purposes. Neutron data are needed for reactor design and reactor safety calculations for waste management and dosimetry. Requests for such data are collected on a worldwide basis by the International Atomic Energy Agency into a list called WRENDA (World Request List for Neutron Data Measurements). Another important need is

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siderable contribution to our knowledge of the radiation spectrum of gallium arsenide and the influence of strong electric fields upon luminescence and photoelectron phenomena. From this basis he was well placed, with the discovery of practical heterojunctions, to initiate the creation of a new range of optoelectronic devices, including continuous wave lasers and highly efficient solar cells, as well as converters from one light wave length to another. Starting from an essentially theoretical approach, he has been able to move to experimental confirmation and practical exploitation.

The prize will be presented during the General Assembly of EPS members on September 26 at the 4th General Conference. Donated by the Hewlett-Packard company, the well known semi-conductor and computer company, the prize is worth Sw. Fr. 20.000.

EPS Address

Members of the European Physical Society are asked to take note of the change in our Post Office Box number.

Essential information that needs to be included on envelopes addressed to the Secretariat is :

European Physical Society
P.O. Box 69
CH-1213 Petit-Lancy 2

Please note that all the numbers cited above should be quoted.

I.O.M. Rebate

The Institute of Physics of the U.K. wishes it to be known that its offers to EPS members for reduced subscription rates on I.O.P. journals (*EN*, 8, 10, p. 12) in future covers three professional magazines, as well as *Reports on Progress in Physics* and one research journal.

European Summer Schools in Computational Physics

The second main activity of the Group is to organise postgraduate summer schools. In June 1975, a highly successful School was held in Smolenice Castle in Slovakia, not far from Bratislava. Lectures were given on numerical mathematics, computational science and hardware, and their applications to physics. In all, 109 students attended the School, 54 from the host country, Czechoslovakia, 28 from other eastern European countries and 27 from the West.

The second School took place during August 1977, in Liblice Castle, Bohemia, near Prague. Its theme was "On-line and Real-time Computing in Physics". There were 114 students and lecturers participating at the School, 53 from Czechoslovakia, 35 from other countries in eastern Europe and 26 from western countries.

The success of the first and second Schools is due largely to the hard work of the local organisers, in particular J. Nadrchal, a member of the Computational Physics Board. Arrangements are already being made to continue the pattern, now firmly established, of holding these Schools in various regions of Czechoslovakia biennially. It is thus intended that the third School will take place in September 1979 in the Beskydy Mountains of North-East Moravia.

Membership

In the five years since the conference at CERN the membership of the Computational Physics Group has risen steadily to over 300, from some 30 countries, indicating the growth and importance of this field of research. Members of the EPS who wish to join the Group should do so through the EPS Main Secretariat.

Further information on the activities of the Group may be obtained from the Secretary, Dr. K.A. Berrington, Dept. of Applied Mathematics & Theoretical Physics, Queen's University, Belfast BT7 1NN, Northern Ireland.

E. W. Laing

Computational Physics Group

The EPS Computational Physics Group was founded in 1972. Its primary aim is to organise international conferences and postgraduate schools on computational physics, and to sponsor specialised meetings, in association with EPS Divisions, on computation in different branches of physics, computers or software for physics. It also aims to establish working contacts in computational physics between European physicists in industry and research institutions, and to stimulate visits and exchanges of physicists and students between laboratories with interests in computational physics.

The present Board of the Group consists of the following :

Individual members :

M. Bloch, CEN-Saclay, Gif-sur-Yvette
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E.W. Laing, University of Glasgow, Glasgow.

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S. Cuperman, Tel Aviv University, Tel Aviv

J. Nadrchal, Institute of Solid State Physics, Prague

R. Zelazny, Institute of Nuclear Research, Swierk.

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D. Biskamp, Max-Planck Institut für Plasmaphysik, Garching

G. Diercksen, Max-Planck Institut für Physik und Astrophysik, Munich.

European Conferences on Computational Physics

The inaugural meeting of the Group, the First European Conference on Computational Physics, entitled "The Impact of Computers on Physics", was held in April 1972 at CERN, Geneva, and covered a broad range of computer applications.

More recently, it was decided to hold a series of topical conferences, and the Second European Conference, held in Garching, F.R.G. in April 1976, had as title "Computing in Plasma Physics and Astrophysics". The topics covered included stellar evolution, transport processes in laboratory plasmas and in stars, high energy astrophysics, particle simulation of plasmas and stellar systems, magneto-fluid equilibrium and stability, non-linear dynamics and resistive instabilities. The proceedings of this conference were published in *Computer Physics Communications*, 12 (1976).

The next conference in the series will be held at Nottingham University, U.K., 12-15 September 1978, on "Computational Atomic and Molecular Physics", with emphasis on studies of stationary states and scattering of atoms and molecules. This conference will be combined with the annual Quantum Theory Conference that is held in England.

It is hoped that the computational conferences will in future be held annually, and some thought is being given to the fourth conference in 1979. A likely topic is "Computing in High Energy Physics".

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