

People and things

A tribute to Heinz Pagels, physicist, author and Executive director of the New York Academy of Sciences, who died in a climbing accident on 24 July, will appear in the next issue.

Edoardo Amaldi – President of the Accademia dei Lincei.



front of world high energy physics through the construction of the KEK 12 GeV proton synchrotron and the big TRISTAN electron-positron collider, and has furthered the use of machines such as the KEK Booster and Photon Factory in other fields of science.

The Japanese Government's Purple Ribbon Medal for scientific and artistic achievement has been awarded to Yoshio Yamaguchi, Chairman of the International Committee for Future Accelerators (ICFA) and Vice President of the International Union for Pure and Applied Physics (IUPAP), for his contributions to particle, nuclear and cosmic ray physics theory.

Among this year's recipients of the US National Medal of Science, the country's highest scientific honour bestowed by the President, were – D. Allan Bromley (Yale, particle/nuclear physics, tandem accelerators), Paul Chu (Houston, high temperature superconductors), Norman F. Ramsey (Harvard, basic physics

On people

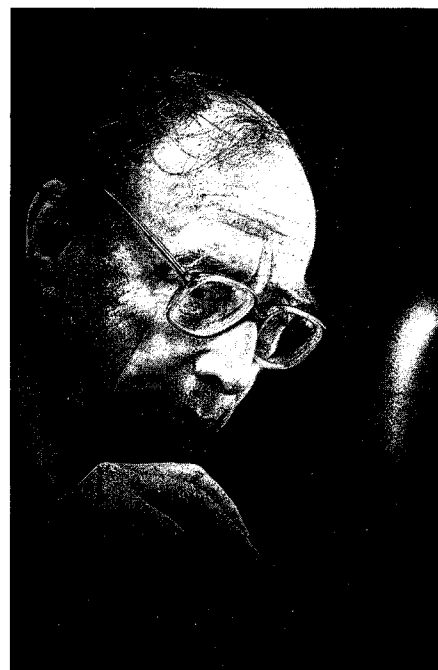
Edoardo Amaldi, 80, doyen of Italian physics and one of the prime movers behind the establishment of CERN as an international Laboratory in the early 1950s, has been elected President of the prestigious Italian 'Accademia dei Lincei'. He was previously its Vice-President.

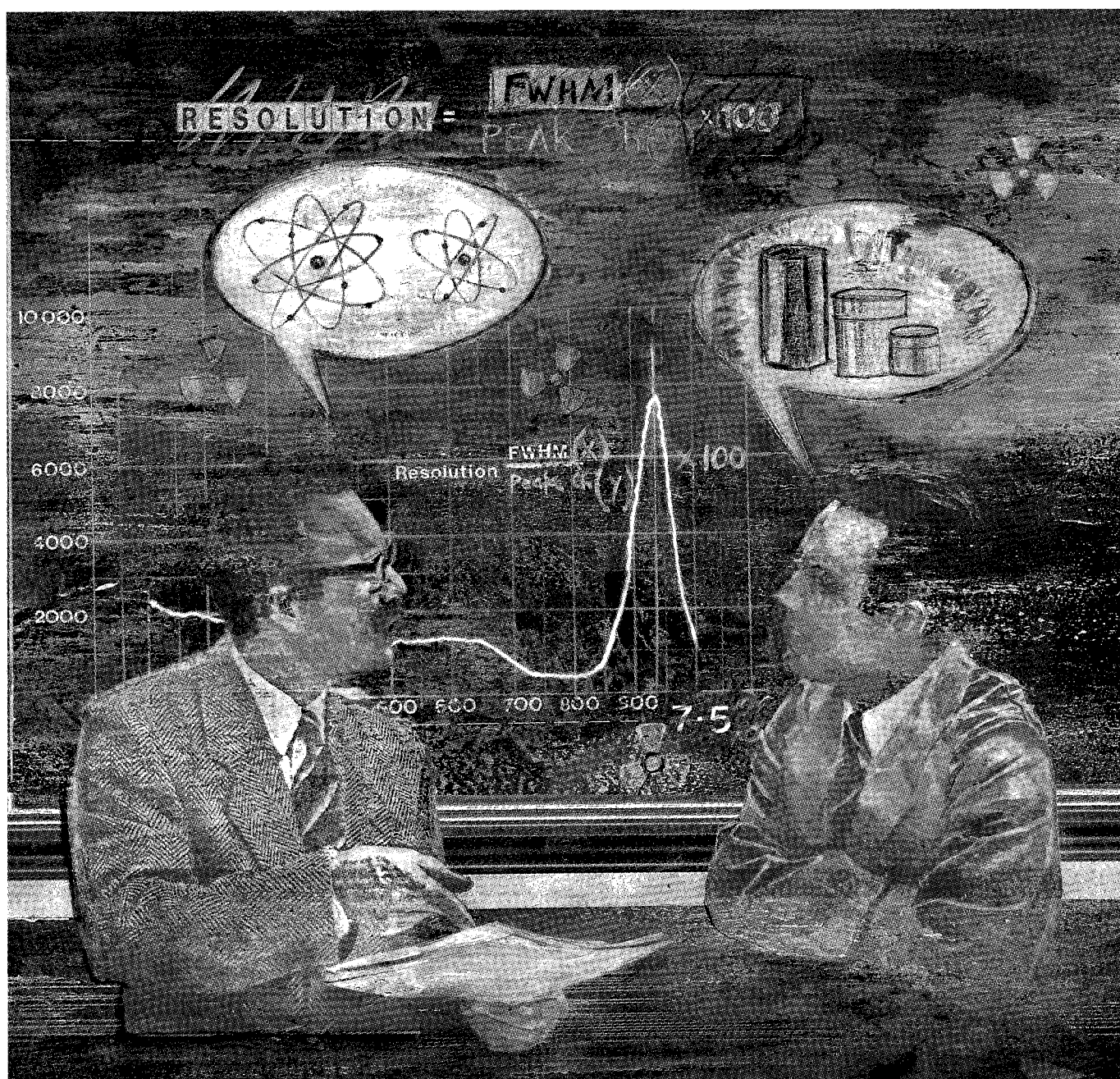
The Fujiwara Prize, one of the most highly regarded national awards for pure and applied science in Japan, has been awarded to Tetsuji Nishikawa, Director General of the KEK Laboratory, for his distinguished achievements in the development of high energy particle accelerators. As well as his researches on high intensity linear accelerators and his promotion of accelerator research in Japan, he has played a major role in bringing Japan to the fore-

KEK Director General Tetsuji Nishikawa – Fujiwara Prize.



Distinguished Soviet theoreticians Dmitry V. Shirkov (top) and Victor I. Ogievetsky (below) of the Joint Institute for Nuclear Research, Dubna, near Moscow, recently celebrated their 60th birthdays.





Scintillation Detectors? Now We're Talking

You already know BDH as a major supplier of crystals.



But now, we've broken new ground.

BDH can offer a new range of truly sophisticated scintillation detectors.

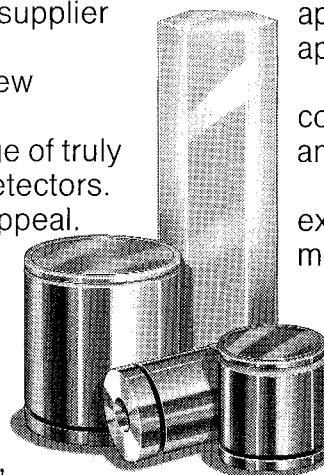
Because a scintillation detector is only as good as the crystal inside it.

Our crystals are produced to the same high BDH standards of purity and accuracy.

We can guarantee it.

After all, BDH are unique in the UK, in controlling the entire process from raw material to finished crystal.

You'll find our scintillation detectors



appearing in some very demanding applications.

Applications as diverse as ore sorting; coal face cutting; bunker level control; and in medicine too.

They all have one thing in common – exacting standards of precision measurement.

standards that only a BDH scintillation detector can meet.

BDH Limited, Advanced Materials Division

Contact: BDH Limited, Broom Road, Poole, Dorset BH12 4NN, England. Tel: (0202) 745520. Fax: (0202) 738299.
Telex: 41186 or 418123 TETRA G.



VISIT OUR STAND AT THE
"BRITAIN AT CERN"
 EXHIBITION IN OCTOBER



EUROPEAN SYNCHROTRON RADIATION FACILITY GRENOBLE FRANCE

The European Synchrotron Radiation Facility is a state-of-the-art Synchrotron Radiation source to be built in Grenoble, France to meet the needs of the European scientific community for X-rays of high brilliance well into the next century. The accelerator part consists of:

- an 850 metre circumference storage ring with 32 straight sections to accommodate wiggler and undulator sources
- a fast cycling synchrotron used as an injector for the storage ring
- a 400 MeV positron preinjector

The experimental part consists of a huge hall adjacent to the storage ring. A total of 40 X-ray beam lines will be distributed in this hall. These beam lines will be dedicated to research in a wide range of scientific applications.

The Technical Services are in charge of:

- the supervision of the creation of the buildings and conventional technical infrastructure
- the mechanical engineering of the accelerator components
- the creation of the vacuum systems
- the geodetical survey of machine and beam lines

we are looking for our ASSISTANT TO THE HEAD OF TECHNICAL SERVICES

He will be essentially assisting in the field of the creation of Buildings and Technical Infrastructure. The candidate will be in charge of:

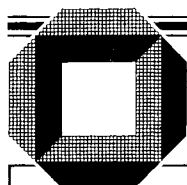
- helping to define ESRF technical needs
- producing corresponding specifications based on good general knowledge of building and infrastructure
- supervising the Industrial Architect's work and controlling that ESRF specifications are correctly interpreted and applied
- adapting the general technical infrastructure to the specific needs of each experimental X-ray beam line.

The candidate will be a senior engineer with outstanding results in the creation and operation of building and technical infrastructure activities for a Research Laboratory. He must demonstrate very good knowledge of infrastructure techniques usual in a Research Facility: electrical network, fluids generation and distribution, civil engineering, safety regulations. He should have a good experience of international relations and must be very good at human relations.

The working language at the ESRF is English.

Please send your curriculum vitae and name and address of 3 referees by **26 SEPT. 88** to:

**ESRF, Personnel office – Ref. 20/6109,
BP 220, 38043 GRENOBLE CEDEX FRANCE**



UNIVERSITÄT KARLSRUHE

Am Institut für Theoretische Physik der Universität Karlsruhe (TH) ist eine

Professur (C3) für Theoretische Physik

zu besetzen.

Das Forschungsgebiet soll relativistische Quantenfeldtheorie mit Anwendung auf supersymmetrische Theorien, Gravitationstheorien, Stringtheorien oder Elementarteilchentheorien sein.

Eine angemessene Beteiligung an den Lehrverpflichtungen der Fakultät für Physik wird erwartet.

Bewerbungen mit den üblichen Unterlagen werden bis zum **15. Oktober 1988** erbeten an den Dekan der Fakultät für Physik,
Universität Karlsruhe,
Postfach 6980,
7500 Karlsruhe 1.

UNIVERSITY OF OXFORD ENGLAND DEPARTMENT OF NUCLEAR PHYSICS APPOINTMENT OF RESEARCH OFFICER

Applications are invited for the above post from experimental physicists, preferably with a few years postdoctoral experience in research, to take part in one of the experimental programmes of the Particle Physics group. Current activities include preparation for the DELPHI (LEP) and ZEUS (HERA) experiments, the SOUDAN II proton-decay experiment, and the development of cryogenic detectors.

Participation would be particularly welcomed in one of two new research projects:

- Solar neutrino detection using an underground heavy-water Cerenkov detector proposed for Sudbury in Canada.
- Establishment of a programme of experimental particle-accelerator physics including a proposed Free Electron Laser (FEL) research and applications facility, based on a 10 MV Van de Graaff accelerator.

The appointment will be for three years in the first instance, renewable for a further two years. Salary will be on the University lecturer scale (£ 9,865 to £ 20,615). The postholder is normally expected to undertake a limited amount of teaching.

Applications with a Curriculum Vitae, statement of research interests, and the names and addresses of two referees should be sent to:

**Mr. A. Jones
General Administrator
Department of Nuclear Physics
Keble Road
Oxford
OX1 3RH
England**

to arrive by **17 October 1988**.

An Equal Opportunity Employer.



US Particle Accelerator School 1988 Prizes for Achievement in Accelerator Physics and Technology – (left to right) Andrew M. Sessler, Ilya M. Kapchinskii and Vladimir A. Teplyakov.

and service to the US scientific community), and Jack Steinberger (CERN, strange particles, neutral kaons and high energy neutrinos).

The US Particle Accelerator School 1988 Prizes for Achievement in Accelerator Physics and Technology went to Andrew M. Sessler (Berkeley) for his contributions to the understanding of particle beam instabilities, and jointly to Ilya M. Kapchinskii (Institute for Theoretical and Experimental Physics, Moscow) and Vladimir A. Teplyakov (Institute for High Energy Physics, Serpukhov) for their invention of the radio-frequency quadrupole.

Among the six scientists selected for the 1988 E.O. Lawrence Memorial Awards for outstanding US contributions in fields of science and technology related to atomic energy is theorist Mary K. Gaillard of Berkeley.

Gifted Norwegian experimenter Arne Lundby passed a formal retirement milestone at CERN this summer. Arriving at the infant CERN in 1956 from Chicago, he contributed over the years to a whole series of ingenious experiments. Here (right) he prepares with Jean-Pierre Stroot a pioneer study using the scale model (rear) of CERN's first machine, the synchro-cyclotron.



Saclay theorist Claude Itzykson has been awarded the Prix Robin of the Societe Francaise de Physique.

CERN career milestone

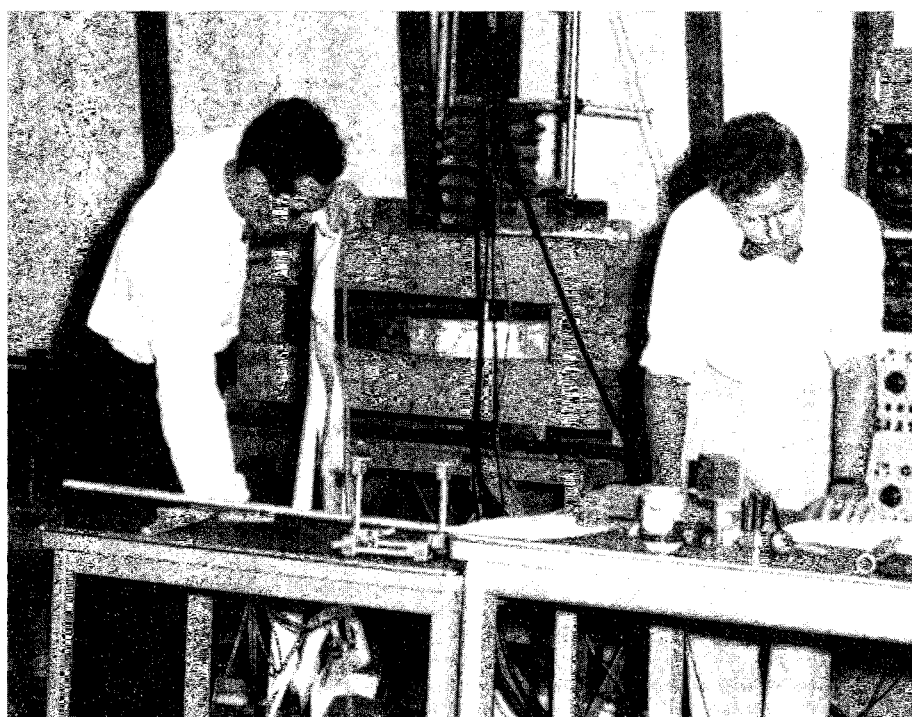
Another CERN pioneer, Kes Zilverschoon, is formally retiring after a distinguished career in accelerators and in administration. Responsible for installation during the building of the PS proton synchrotron, he went on to take the key role as deputy to Kjell Johnsen in the legendary smooth construction of the Intersecting Storage Rings. Since



then he has held senior management posts, including a spell as Directorate member, and from 1981-87 was Chairman of CERN's Pensions Board.

Pierre Germain 1922-1988

Pierre Germain died on 16 August. Born in Brussels in 1922, he joined CERN in 1955 working on the construction of the radiofrequency system for the Proton Synchrotron. He became Leader of the PS Division in 1961 and was appointed Directorate Member for Technical Management in 1963.



Physicists and Engineers

The Superconducting Super Collider (SSC) is a proposed basic research laboratory designed to advance understanding of the structure of matter. In the collider's underground tunnel, 53 miles in circumference, two beams of protons will be steered in opposite directions by two rings of superconducting magnets and accelerated to an energy of twenty trillion electron volts. When the beams collide head-on, enormous energy will be concentrated in a volume of subnuclear size, revealing the fundamental particles and forces in detail far beyond the reach of today's accelerators. The SSC will require 10,000 superconducting electromagnets of various geometries. Now under intensive development are the 8,000 dipoles, each a 22,000-pound complex structure two feet in diameter, 55 feet long, cooled by liquid helium. The magnet development program will require a combination of analytic and numerical calculations, laboratory experiments, and tests of full-scale magnets. Congress has appropriated \$100 million for FY 1989 for research and development toward the SSC. A site is to be named early in 1989. The SSC R&D program is managed for the U.S. Department of Energy by Universities Research Association, Inc., a consortium of 66 leading research universities.

The SSC Central Design Group (CDG) invites applications from physicists and engineers interested in participating in the SSC R&D program. Appointments at various levels are available in the following areas:

Accelerator Design

We seek candidates with experience and interest in applications of analysis to practical accelerator design for several positions, including computer simulation of beam dynamics, calculation of beam tube impedances and collective effects, particle tracking simulation, lattice design, injector design, systems design and integration, and the modeling of magnetic and mechanical properties of superconducting magnets.

These positions require either a Ph.D. in physics or an engineering degree with equivalent experience; knowledge of modern computational methods; and the demonstrated ability to pursue a vigorous, well-organized research program. Strong verbal, writing, analytical, and interpersonal skills are desirable.

Superconducting Magnet Development

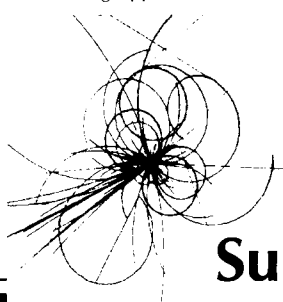
We seek candidates who will make significant contributions to the development of superconducting accelerator magnets. The primary responsibility is to test model and full-size prototypes and to analyze mechanical, electrical, and magnetic measurement data. Some of these positions require the candidate to work at the Magnet Test Facility at Fermi National Accelerator Laboratory, with periodic trips to the CDG at Lawrence Berkeley Laboratory and to Brookhaven National Laboratory.

These positions require a Ph.D. in experimental physics, applicable hardware experience, and experience with data analysis software. Candidates should have demonstrated the ability to initiate, plan, and carry out experiments. Familiarity with computer data acquisition systems is desirable. Strong verbal, writing, analytical, and interpersonal skills are desirable.

Initial assignment for these positions will be at the SSC Central Design Group headquarters in Berkeley, California. URA employees enjoy competitive salaries and a comprehensive benefits program, including relocation assistance. *Universities Research Association is an equal opportunity, affirmative action employer.* To learn more about these outstanding opportunities write:

Universities Research Association
SSC Central Design Group
1 Cyclotron Road, 90-4040
Berkeley, CA 94720
Attn: Mr. Douglas Kreitz

Bitnet: Kreitz@LBL
Telex: 910-366-2037
Fax: (415) 486-6796



Supercollider

ISTITUTO NAZIONALE DI FISICA NUCLEARE (I.N.F.N.)

Post-doctoral fellowships for non Italian citizens
in the following research areas:
Theoretical Physics (n. 8)
Experimental Physics (n.10)

Applications are invited for one year fellowships, starting on September-October 1989.

The successful applicants may carry on their research at any of the following laboratories and sections of I.N.F.N.:

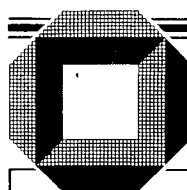
National Laboratories of Frascati (Rome)
National Laboratories of Legnaro (Padua)
National Southern Laboratories (Catania)
National Gran Sasso Laboratory (L'Aquila)
I.N.F.N. Sections in the universities of: Turin, Milan, Padua, Genoa, Bologna, Pisa, Rome «La Sapienza», Rome II, Naples, Catania, Trieste, Florence, Bari, Pavia, Perugia, Ferrara, Cagliari, Lecce and National Institute for Health (Rome).

The annual gross salary is lit. 24,000,000, corresponding to lit. 1,600,000 net per month, plus travel expenses from home Institution to I.N.F.N. Section or Laboratory and return.

Deadline for application is December 31, 1988.

Candidates should submit an application form and statement of their research interests, including three letters of reference.

For further information and application forms, please apply to: Fellowship Service - Personnel Office, Istituto Nazionale di Fisica Nucleare (I.N.F.N.) - Casella Postale 56 - 00044 Frascati (Roma) Italy.



UNIVERSITÄT KARLSRUHE

Am Institut für Experimentelle Kernphysik der Universität Karlsruhe (TH) ist eine

Professur (C3) für experimentelle Elementarteilchenphysik

wieder zu besetzen.

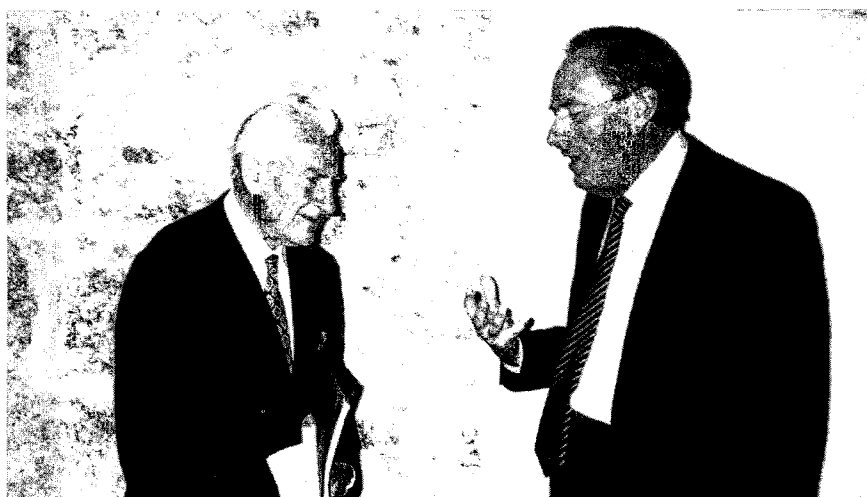
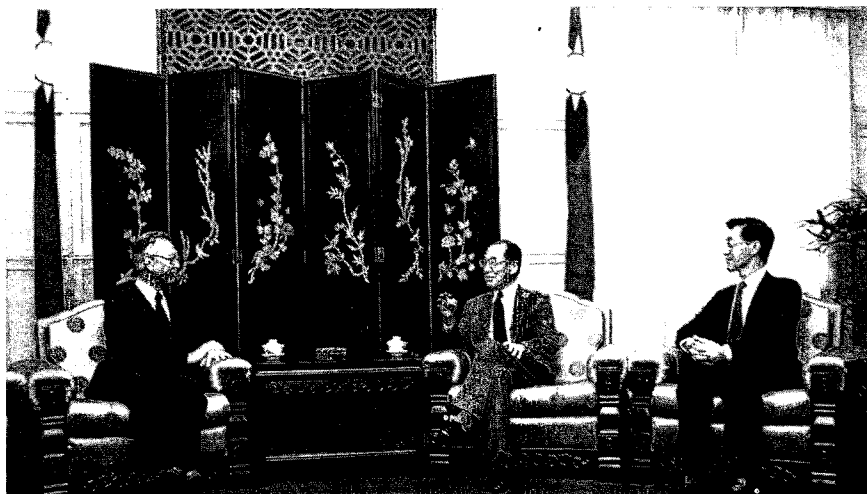
Die Stelleninhaberin oder der Stelleninhaber soll sich an laufenden Hochenergie-Experimenten des Instituts beteiligen. Erwünscht sind auch Entwicklungsarbeiten für künftige Experimente.

Eine angemessene Beteiligung an den Lehrverpflichtungen der Fakultät für Physik wird erwartet.

Bewerbungen mit den üblichen Unterlagen werden bis zum **15. Oktober 1988** erbeten an den Dekan der Fakultät für Physik,

Universität Karlsruhe,
Postfach 6980,
7500 Karlsruhe 1.

Physics without frontiers. CERN Director General Herwig Schopper (left) discusses with Lee Teng-hui, (centre) President of Taiwan, ways of improving scientific cooperation between Taiwan and Europe. Right is President of the Taiwan Commission for Sciences Chen Li-an. Below, Schopper, with Sam Ting (right) and Zhou Guangzhao, President of the Academy of Sciences of the People's Republic of China, on the occasion of the signing of an extension to the agreement covering Chinese participation in experiments at CERN's new LEP electron-positron collider.



Meetings

An International Workshop on High Transverse Momentum and Higher Twist Physics is being held at the College de France, Paris, from 21-23 September. Further information from Maurice Benayoun or Jean-Louis Narjoux, Laboratoire de Physique Corpusculaire, College de France, 11 place Marcelin Berthelot, 75231 Paris, Cedex 05, France; telefax (1) 43 54 69 89; telex INPNPP 204929F; telephone (1) 43 29 12 11, ext 2014, 2013, 2004; bitnet narjoux at frcpn11, benayoun at frcpn11; decnet CDFVAX::LERUSTE

An international conference entitled 'Inside the Sun' will be held in Versailles, France, from 22-26 May 1989, organized by the Department de Physique des Particules Elementaires and Service d'Astrophysique, Saclay; Nice Observatory; Meudon Observatory; and LPSP, Verrieres le Buisson. Scheduled topics include standard solar models, probing stellar interiors, probing the solar interior, and 'beyond the standard model'. Further information from Jacqueline Boratav, CEN-Saclay, DPhPE/SEPH, 91191 Gif-sur-Yvette, Cedex, France.

A Switched Power Acceleration Workshop is being held from 17-21 October in Shelter Island, New York. Further information from R. Palmer at Brookhaven or SLAC (see page 14).

At a meeting in Pisa in June to mark the 20th Anniversary of the European Physical Society (EPS) and the 90th Anniversary of the Italian Physical Society - (left) G. Bernardini, first EPS President and CERN Research Director in the early 1960s, with Sir Alec Morrison, President of CERN Council 1982-84, both of whom played important roles in CERN's early research programme.

(Photo M. Jacob)

KERNFORSCHUNGSANLAGE JÜLICH

Wir sind eine von 13 Großforschungseinrichtungen in der Bundesrepublik Deutschland mit etwa 4500 Mitarbeitern. Schwerpunkte unserer Forschungen liegen auf den Gebieten Stoffeigenschaften und Materialforschung; Grundlagen der Informationstechnik; Gesundheit, Umwelt, Biotechnologie; Energieforschung und Energietechnik; Kernfusion und Nukleare Grundlagenforschung.

Wir suchen für unsere **PROJEKTLÉITUNG COSY** eine/n

DIPLOM-INGENIEUR/IN (TH/U)

Fachrichtung Hochfrequenztechnik/Nachrichtentechnik
oder

DIPLOM-PHYSIKER/IN (mit entsprechenden Kenntnissen)

— Kennziffer 069/88 —

mit Befähigung zur Leitung einer Arbeitsgruppe

sowie eine/n

DIPLOM-INGENIEUR/IN (FH)

Fachrichtung Hochfrequenztechnik/Nachrichtentechnik

— Kennziffer 070/88 —

Aufgabengebiet: Mitarbeit am Cooler-Synchrotron COSY Jülich, das als Beschleuniger- und Speicherring für leichte Ionenstrahlen mit seinem Präzisionsstrahl Experimente einer neuen Qualität auf dem Gebiet der Mittelenergie- und Kernphysik ab 1992 ermöglichen wird. Spezifizierung, Planung, Bau, Erprobung und Inbetriebnahme sowie späterer Betrieb der komplexen Hochfrequenz-Anlagen, teilweise in enger Kooperation mit der Industrie und anderen Forschungseinrichtungen.

Anforderungen: abgeschlossenes Studium; gute theoretische Kenntnisse und praktische Erfahrungen auf dem Gebiet der Hochfrequenztechnik im Bereich bei ca. 30 MHz/100 kW sowie Grundkenntnisse auf dem Höchstfrequenzgebiet bis ca. 5 GHz.

Die Vergütung und Sozialleistungen erfolgen nach den Bestimmungen des Bundesangestelltentarifvertrages (BAT).

Bitte richten Sie Ihre ausführliche Bewerbung mit den üblichen Unterlagen an die

KERNFORSCHUNGSANLAGE JÜLICH
Gesellschaft mit beschränkter Haftung
Personal- und Verwaltungsabteilung
— Personalentwicklung —
Postfach 1913, 5170 Jülich
Telefon 02461/615358



TRIUMF

MESON RESEARCH FACILITY
UNIVERSITY OF BRITISH
COLUMBIA
Postdoctoral and Research
Associate Positions
Intermediate Energy Physics

Postdoctoral and Research Associate positions in experimental physics are available with University of British Columbia groups at the TRIUMF 500 MeV cyclotron. Candidates should have experience in a relevant field of physics and have completed a Ph. D. in nuclear or particle physics within the past two years. Graduate students expecting to complete their degrees within the next few months are also invited to apply.

These appointments can be renewed annually (subject to the usual budgetary confirmation) up to a maximum period of three years. Salary will depend on experience, with a minimum of \$ 27,000 per annum.

Curriculum vitae, list of publications and names of three referees should be forwarded as soon as possible to:

Dr. G. Jones
Department of Physics
University of British Columbia
6224 Agriculture Road
University Campus
Vancouver, B.C. Canada, V6T 2A6

Deadline for applications is November 30, 1988.

The starting date for these positions is January 1, 1989.

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. This advertisement is valid for a two year period.



PAUL SCHERRER INSTITUT

Computer Specialist/Physicist

The Laboratory for Nuclear and Particle Physics of the Paul Scherrer Institute (formerly Swiss Institute for Nuclear Research) has a vacancy for a computing specialist/physicist, to support experiments conducted by the Laboratory and by visiting universities. The experimental facilities are equipped with micro-VAX data acquisition computers, using PDP-11 Starburst front-ends in Camac, and a standard data acquisition package provided by the Computing Division. Some experiments use read-out electronics which includes distributed micro-processors. The support required is primarily to take the responsibility of ensuring that experimental groups have all necessary on-line computing tools implemented.

Qualifications required are at least one year's experience of programming for experiments in a research laboratory or university environment, an ability to write reliable software efficiently, and the flexibility to adapt to the requirements of a research environment. An academic background in physics or similar discipline and familiarity with hardware would be advantageous. The position is initially for three years.

The Paul Scherrer Institute is a multi-disciplinary Swiss national research laboratory, and runs a 600 MeV high intensity proton accelerator. There is close contact with universities and with other laboratories around the world. The laboratory is situated in a very pleasant area some 35 kms west of Zurich, with excellent public transport connections.

Applications including a curriculum vitae should be sent before October 15, 1988 to PAUL SCHERRER INSTITUT, Personnel Division, CH-5303 Würenlingen/Switzerland (ref. code 1118).

ASSISTANT PROFESSOR EXPERIMENTAL HIGH ENERGY PHYSICS

Florida State University

The Physics Department is seeking qualified candidates for a tenure-track faculty position. The experimental group has made major commitments to the collider programs, D0 (FERMILAB) and ALEPH (CERN), and the candidate is expected to have compatible research interests. The research group has close association with the Supercomputer Computations Research Institute with access to a CYBER 205 and ETA-10 supercomputers as well as a number of VAXes. Applicants should submit a resume, the names of at least three references and a statement regarding teaching and future interests to

Prof. Donald Robson, Chairman
Department of Physics
Florida State University
Tallahassee, Florida 32306-3016
U.S.A.

For further information call (904)6441492

The Florida State University is an Equal Opportunity, Affirmative Action Employer.



A visitor to CERN in July was Italian Education Minister Giovanni Galloni (centre) who saw among other things the progress in the Italian-funded LAA project for new detector technologies, headed by Antonino Zichichi (left), and progress (photo below) at CERN's LEP electron-positron collider for the L3 experiment headed by Sam Ting (right).

(Photo CERN 0666.7.88)

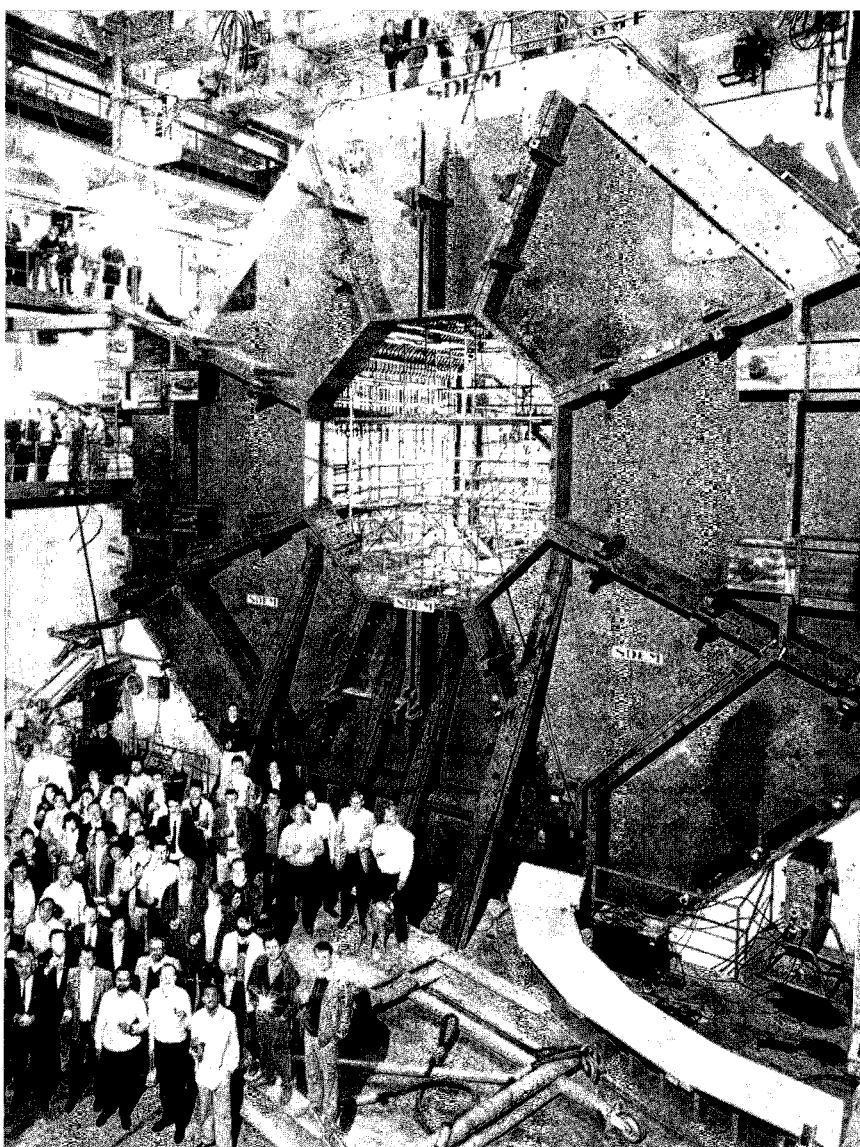
The XII International Conference on the Few Body Problem in Physics will be held in Vancouver from 2-8 July 1989. Further information from the Conference Organizer, Harold W. Fearing, TRIUMF, 4004 Wesbrook Mall, Vancouver, BC, Canada V6T 2A3.

A 'Workshop on Thermal Field Theories and their Applications' to be held in Cleveland, Ohio, from 3-5 October will also include a special session on the statistical mechanics of strings. Further information from the Organizing Committee Chairman, K.L. Kowalski, Physics Dept., Case Western Reserve University, Cleveland, Ohio 44106, BITNET: KOWALSKI at CWRU.

Books

As the proceedings of the first ICFA School on Instrumentation held at Trieste in June 1987, 'Instrumentation in Elementary Particle Physics', edited by C.W. Fabjan (CERN) and J.E. Pilcher (Chicago) and published by World Scientific, Singapore, is a useful introduction to modern detector techniques, an important area of physics where textbooks are thin on the ground.

(Following the success of the 1987 school, the second school is scheduled for Trieste's International Centre for Theoretical Physics from 12-23 June, 1989. Further information from C. Fabjan at CERN or J. Pilcher at the Enrico Fermi Institute, Chicago.)



In parallel with installation of LEP machine components in the 27 km tunnel, the four LEP experiments are taking shape in their underground caverns. At L3, a contingent poses in front of the vast 'door' of the experiment's magnet.

IMPORTANT ANNOUNCEMENT

World Scientific is pleased to announce that due to expansion plans, we have opened a new office in London to serve the European Market.

Please send orders to

World Scientific Publishing Co Pte Ltd

P O Box 379, London N12 7JS

ENGLAND

Tel: (01)446-2461 Fax: (01)446-3356

The office will serve editorial functions from 1 July and marketing/customer services from 23 September 1988.

John Wiley and Sons Ltd. has ceased to be our agent w.e.f. 23 September 1988.

We take this opportunity to thank John Wiley & Sons for being our sole distributor in Europe since 1982.

IMPORTANT TITLES

PERSPECTIVES IN STRING THEORY

Proceedings of the Niels Bohr Institute/Nordita Meeting
Copenhagen, Denmark 12-16 Oct 1987

edited by P Di Vecchia (*Nordita*) & J L Petersen (*Niels Bohr Institute*)

This volume of proceedings contains papers on the most recent advances in different aspects of String Theories, contributed by those who are at present actively engaged in this field of research.

Readership: High energy physicists, astrophysicists and cosmologists.

524 pp Jun. 1988 50-526-6(US\$76)H/C 50-534-7 (**US\$48)S/C

INSTRUMENTATION IN ELEMENTARY PARTICLE PHYSICS

Proceedings of the ICFA School on Instrumentation
ICTP, Trieste, Italy June 1987

edited by C W Fabjan (*CERN, Geneva*) & J E Pilcher (*Univ. of Chicago*)

This didactic introduction of Modern Concepts in Particle Detection provides an excellent opportunity for established researchers in particle physics to refresh their knowledge, or for students to become acquainted with current techniques. There are no equivalent text books existing.

Readership: Researchers in particle physics and electrical engineers.

540 pp Jun 1988 50-585-1(US\$74)H/C 50-637-8 (**US\$35)S/C

World Scientific Lecture Notes in Physics - Vol. 25

THE PHYSICS OF MASSIVE NEUTRINOS

by B Kayser (*Nat'l Sci. Foundation*) with F Gibrat-Debu (*CEN-Saclay*) & F Perrier (*Stanford Linear Accelerator Center*)

This book explains the physics and phenomenology of massive neutrinos. This volume requires of the reader only a knowledge of quantum mechanics and of very elementary quantum field theory.

Readership: Particle physicists and nuclear physicists.

180 pp Sep. 88 50-661-0(US\$42)H/C 50-662-9(US\$22)S/C

EXPERIMENTS, DETECTORS, AND EXPERIMENTAL AREAS FOR THE SUPERCOLLIDER

Proceedings of the Workshop
Berkeley, California, USA 7-17 July 1987

edited by R Donaldson & M G D Gilchriese (*LBL*)

This volume presents the findings of the workshop in four broad groups: physics and experiments at large P_T , physics and experiments at intermediate P_T , physics and experiments at low P_T , and physics and experiments related to "exotic" particle searches or interactions.

Readership: High energy physicists and nuclear physicists.

936 pp Apr. 1988 50-473-1(US\$89)H/C

Advanced Series in Mathematical Physics - Vol. 8

INTRODUCTION TO STRING FIELD THEORY

by W Siegel (*SUNY, Stony Brook*)

This volume covers the latest findings on string field theory.

Readership: High energy physicists, mathematical physicists and mathematicians.

256 pp Oct. 1988 50-731-5(US\$24)H/C 50-732-3(US\$16)S/C

VARIATIONAL CALCULATIONS IN QUANTUM FIELD THEORY

Proceedings of the Workshop on Variational Calculations in Quantum Field Theory
Wangerrooge, West Germany 1-4 September 1987

edited by L Polley (*Oldenburg*) & D E L Pottinger (*IBM, UK*)

This workshop brought together for the first time the leading researchers in this field in order to review its current state-of-art as well as to identify profitable directions for future research in the possibility of obtaining accurate qualitative and quantitative information on the structure of quantum field theories using non-perturbative continuum and lattice variational techniques.

Readership: High energy and nuclear physicists, condensed matter physicists, mathematical physicists.

316 pp Jul. 1988 50-500-2(US\$55)H/C 50-501-0 (**US\$35)S/C

FIRST EUROPEAN PARTICLE ACCELERATOR CONFERENCE (EPAC 88) - In 2 Volumes

Rome, Italy 7-11 June 1988

edited by S Tazzari (*INFN, LNF-Frascati, Rome*) & K Huebner (*CERN*)

This conference provide a comprehensive overview of Research, technology and applications in the field of accelerators. The proceedings will include papers from the whole field of accelerators, including low-and high-energy machines, medical and industrial accelerators.

Readership: High energy physicists and accelerator physicists.

1600 pp (approx.) Dec 1988 50-642-4(US\$78 Vol. 1)(US\$82 Vol. 2) H/C
50-643-2 (**US\$47 Vol. 1) (**US\$49 Vol. 2) S/C

Advanced Series in Mathematical Physics - Vol. 3

KAC-MOODY AND VIRASORO ALGEBRAS

A Reprint Volume for Physicists

edited by P Goddard (*Cambridge*) & D Olive (*Imperial College*)

This volume reviews the subject of Kac-Moody and Virasoro Algebras. It serves as a reference book for physicists with commentary notes, review articles and also original works by experts in the field.

Readership: Mathematical and high energy physicists.

604 pp Jun. 1988 50-419-7(US\$78)H/C 50-420-0 (**US\$37)S/C

UNDULATOR MAGNETS FOR SYNCHROTRON RADIATION AND FREE ELECTRON LASERS

Symposium in the Adriatic Conference Series

Trieste, Italy 23-26 June 1987

edited by L Fonda (*Trieste, Italy*)

In this conference, the latest developments in this critical area with particular emphasis on the construction and measurement techniques and on the analysis of the emitted spectra were discussed. The problems related to high magnetic field as well as to field quality are also theoretically and experimentally treated.

Readership: Physicists and engineers.

300 pp (approx.) Nov. 1988 50-709-9(US\$58)H/C

25% discount to orders from developing countries.

**Soft cover editions of proceedings and advanced series for all individuals and developing countries only. Prices are subject to change without notice.

For information, please contact:



World Scientific
AN INTERNATIONAL PUBLISHER

- P O Box 379, London N12 7JS
ENGLAND Telefax: (01) 4463356 Tel: (01) 4462461
- 687 Hartwell Street, Teaneck, NJ 07666, USA
Toll-free: 1-800-227-7562 Telefax: (201) 837-8859 Tel: (201) 837-8858
- Farrer Road, P O Box 128, SINGAPORE 9128 Cable "COSUPB"
Telex: RS 28561 WSPC Telefax: 2737298 Tel: 2786188

RF/CC-809

John R. Schrieffer (right, UC Santa Barbara – 'High-temperature superconductors') and Maurice Jacob (CERN – 'How to find evidence for the quark-gluon plasma') were keynote speakers at the annual meeting of the Norwegian Physical Society in Oslo in June.

(Photo Geir Holm, Oslo)



'Frontiers of Particle Beams', edited by M. Month and S. Turner and published by Springer-Verlag, is the proceedings of the course organized by the Joint US-CERN School on Particle Accelerators held at South Padre Island, Texas, in October 1986. A central theme of the internal physics of beams is supplemented by material on recent projects and ideas.

'Experiments, Detectors and Experimental Areas for the Supercollider' is the title of the Proceedings of the Workshop held at Berkeley from 7 – 17 July 1987. Edited by Rene Donaldson and M.G.D. Gilchriese and Published by World Scientific Publishing Company, Singapore, this detailed volume presents the potential experimental programme at the proposed US SSC Superconducting Supercollider. The workshop findings are categorized into two broad groups: the evaluation of physics signatures and the resultant requirements for detectors parameters; and the presentation of conceptual

designs of first generation experiments to allow comparison among the competing designs.

'A Passion for Science', published by Oxford University Press and edited by Lewis Wolpert and Alison Richards is a series of fascinating interviews with famous scientists (including Abdus Salam, Martin Rees, Francis Crick, Dorothy Hodgkin) exploring the frequently ignored human and personal side of their work.

The summer/fall 1984 edition of 'Los Alamos Science' published by Los Alamos National Laboratory was an imaginative attempt to put across the current state of particle physics and has been on the CERN Courier's office bookshelf ever since. Equally impressed was Cambridge University Press, which has now published the updated volume as 'Particle Physics – A Los Alamos Primer', edited by Necia Grant Cooper and Geoffrey B. West. Four years down the line, it is still a good read.

VMEbus

VMEbus in Research is the title of an international conference and exhibition to be held at ETH Zurich on the 11, 12 and 13 October, sponsored by CERN, the Paul Scherrer Institute (formerly SIN) Switzerland, IFIP – International Federation for Information Processing, ECA – European CAMAC Association, VITA – VMEbus International Trade Association, and SAP – Swiss Automation Pool. Covering hardware, software and systems aspects as well as developments in the applicable standards, it is open to all interested in the design and use of equipment based on the VMEbus specifications in all types of research. Two days will be of a strong technical and scientific interest, with one day for VMEbus manufacturers to present their latest design concepts. Information on registration may be obtained from VITA Europe (address below) or from any member of the organizing committee – A. Bolsinger (PSI-SIN), C. Eck (CERN), M. Hugelshofer (SAP), Z. Hunor (VITA), D. Jones (ECA), C. Parkman (CERN), W. Schoeps (SIN) In parallel with the conference, and at the same location, VITA will hold a two day exhibition on 12 and 13 October. Companies wishing to participate should contact VITA Europe, PO Box 192, 5300 AD Zaltbommel, Netherlands.



L'UNIVERSITÉ DE GENÈVE

La Faculté des sciences ouvre une inscription pour un poste de

MAÎTRE D'ENSEIGNEMENT ET DE RECHERCHE

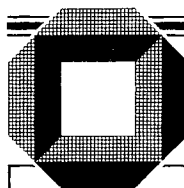
au Département de physique théorique

Charge: Il s'agit d'un poste à charge complète, comprenant l'enseignement (environ deux heures hebdomadaires) et recherche en physique théorique et mathématique (mécanique statistique, dynamique classique et quantique, théorie des champs). Tâches organisatrices.

Titre exigé: doctorat ou titre jugé équivalent.

Entrée en fonction: 1^{er} octobre 1989 ou date à convenir.

Les dossiers de candidatures doivent être adressés avant le 15 octobre 1988 au Directeur du Département de physique théorique, 24, quai Ernest-Ansermet, CH-1211 Genève 4, auprès duquel des renseignements complémentaires peuvent être obtenus sur le cahier des charges et les conditions.



UNIVERSITÄT
KARLSRUHE

Am Institut für Theoretische Kernphysik der Universität Karlsruhe (TH) ist eine

Professur (C4) für Theoretische Physik (Nachfolge G. Höhler)

voraussichtlich zum WS 1989/90 wieder zu besetzen.

Gesucht werden Bewerberinnen und Bewerber mit dem Arbeitsgebiet Phänomenologische Theorie der Elementarteilchen. Eine angemessene Beteiligung an den Lehraufgaben der Fakultät für Physik wird erwartet.

Bewerbungen mit den üblichen Unterlagen werden bis zum **15. Oktober 1988** erbeten an den Dekan der Fakultät für Physik,

Universität Karlsruhe,
Postfach 6980,
7500 Karlsruhe 1.

MICRON SEMICONDUCTOR HIGH TECHNOLOGY SUPPLIER OF
SILICON MICROSTRIP DETECTORS
FOR HIGH ENERGY PHYSICS & HEAVY ION PHYSICS

VERTEX DETECTOR DATA NA14 CERN
Imperial College, London
1000 CHANNELS
100% READOUT

EXPERIMENT PROVEN MAINTENANCE FREE TECHNOLOGY
Total Depletion with over voltage operation.
High Reliability & High Strip Yield.
Sub micron position High Resolution.
Unstable two track operation. Large number charge tracks per event.

CUSTOM AND STANDARD DESIGNS BOTH SINGLE AND VARIABLE PITCH DEVICES.
SINGLE SIDED & DEVELOPMENT DOUBLE SIDED STRUCTURES.
OPTIMUM SIGNAL TO NOISE WITH MINIMISING MULTIPARTICLE SCATTERING.
CHOICE OF TOTALLY DEPLETED DETECTOR THICKNESSES: 200µ, 300µ, 450µ, 500µ

MICROSTRIP DETECTORS FABRICATED FROM BOTH 3 inch and 4 inch SILICON FEATURES:
LARGE ACTIVE DIMENSIONS. MINIMUM CHARGE TRACK RESISTANCE.
LOW LEAKAGE CURRENT. LOW CAPACITANCE TO ANODE AND LOW INTERSTRIP CAPACITANCE. MINIMUM RESISTANCE. STRIP SPACING. WITH OPTIONAL CUSTOM OVERGLAZE PROTECTION.
DETECTORS SUPPLIED FOR FULL OPERATIONAL LIFE WITH INTERLOCKING ASSEMBLIES.
READOUT CHOICE ON 100% EVENT LINE OR CAPACITANCE DIVISION UP TO EVERY FIFTH STRIP.

VERTEX DETECTOR DATA E691 FERMI LAB
University of California
Santa Barbara
1000 CHANNEL
100% READOUT

NEW YAG/SPR PHOTOPLAS
SILICON MICROSTRIP DETECTOR
EVENT 201
MAX 327
VIEW 3
TRIGGER

MICROSTRIP DETECTORS ARE SUPPLIED TO PHYSICISTS . . .
Chip only
Assembled on Fanout PCB
Assembled on Fanout Ceramic
Assembled on PCB or Ceramic with Flexible Pre-amplifier Interfaced with ULST Amplifier Chips

VERTEX DETECTOR DATA E691 FERMI LAB
One-Side Inverted
1000 CHANNEL CAPACITANCE DIVISION

MICRON Semiconductor Ltd
1 Royal Buildings
Churchill Industrial Estate
Lancing Sussex England
Tel. 01243 750252 Telex: 877896G

MICRON Semiconductor Inc.
120 Baywood Avenue
Longwood
Florida 32750 U.S.A.
Tel. 305-339-4385 Telex: 46717

ARBEIT

Wünschen Sie ein neues Leben?

Suchen Sie eine Arbeit im Ausland? Dieses Buch ist was Sie brauchen.

Hier bekommen Sie alle Auskünfte und Adressen zu etwa 1000 Unternehmen und Stellenvermittlungen. Wir erlauben uns, Ihnen gleichzeitig das Buch anzubieten, das für jeglichen Bewerber einfach eine notwendige Voraussetzung ist.

Es enthält alles; von der Bewerbung bis zum Anstellungsvertrag, Auskunft über Arbeitserlaubnis, Visa, Klima, Lohn- und Wohnverhältnisse in Europa, den USA, Kanada, Westindien, Australien und dem Fernen Osten. Es gibt Arbeiten wie z.B. Metall, Ölindustrie, Gartenbau, Fahrer, Reiseleiter, Hotel und Restaurant, Aupair, Luxus-Kreuzfahrten.

Wenn Sie interessiert sind, fragen Sie schriftlich nach unserer Freibroschüre mit weiterer Auskunft, die in Deutsch und Englisch erscheint. Schreiben Sie an:

- ☐ Freibroschüre
☐ Buch «Arbeit im Ausland»
Preis: DM 45.-

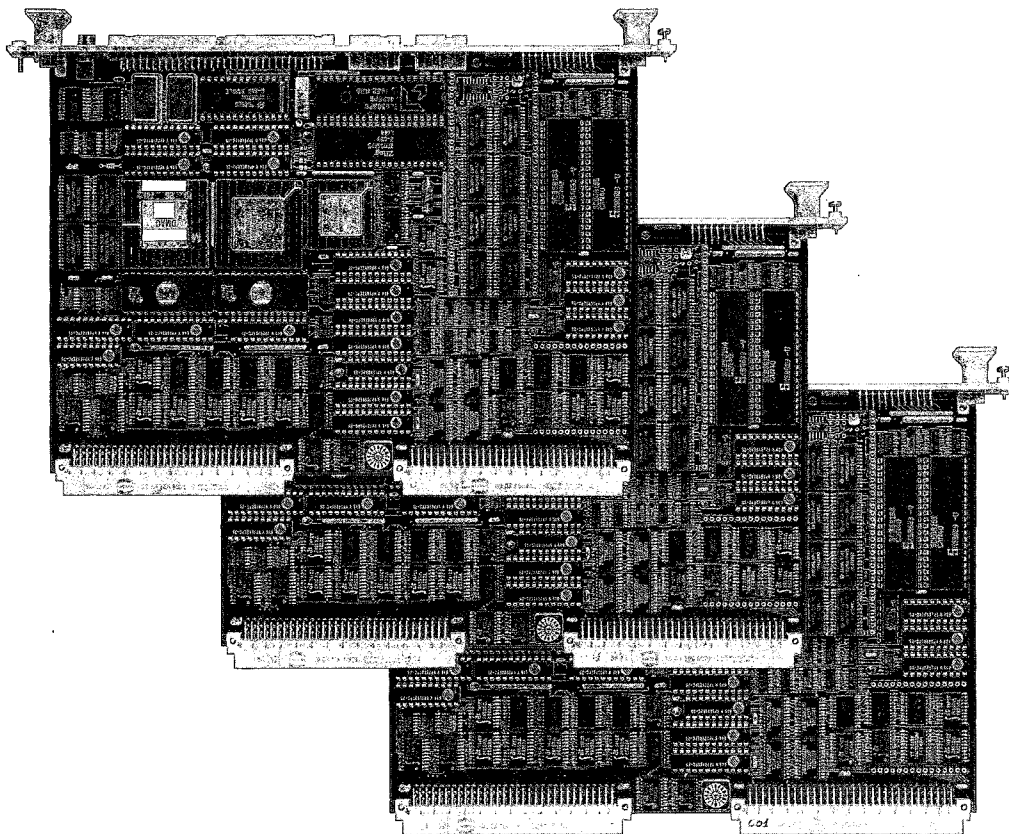
EUROPA BOKFÖRLAG AB
Box 2014 S-135 02 Tyresö Sweden

N.B. Wir vermitteln keine Arbeiten!

The Right Stuff in VME FIC 8230

Just three facts:

- * In sheer speed nothing gets close.
- * Runs OS9™, PSOS™, VRTX™ and CERN VALET-PLUS Operating Systems including CAMAC, DMA and Multi-Crates drivers (OS9 only).
- * Ex-stock from C.E.S.



In the last six month, several major applications in physics have been equipped with C.E.S. real-time systems, including :

- LEP OPAL experiment and computer control network
- HERA H1 experiment
- CERN LEAR experiments
- GSI experiments.

C.E.S. has been able to tailor a complete Data Acquisition solution from the analog to digital conversion up to the host computer.

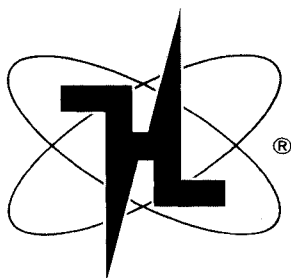
For these and our other VME and CAMAC modules, contact us for your nearest distributor.

Headquarters:	CES Geneva, Switzerland	Tel: (022) 925 745	Fax: (022) 925 748	Tlx: 421 320
	CES.D Germany	Tel: (6055) 4023	Fax: (6055) 82 210	Tlx: 418 4914
	CE.Systems, US Inc, USA	Tel: (602) 838 2220	Fax: (602) 838 4477	

CES Creative Electronic Systems SA 70, Route du Pont-Butin Case Postale 107 CH-1213 Petit-Lancy 1 GENEVA SWITZERLAND



CREATIVE ELECTRONIC SYSTEMS



Huntington®

Vacuum Positioners

LARGEST SELECTION OF VACUUM POSITIONERS

Huntington offers the vacuum industry's largest selection of bellows-sealed and magnetically coupled positioning devices for ultrahigh-vacuum and high-vacuum applications.

MULTIMOTION PERFORMERS

The positioning possibilities include X-Y-Z precision manipulators; rotary, linear, and angular motion feedthroughs;

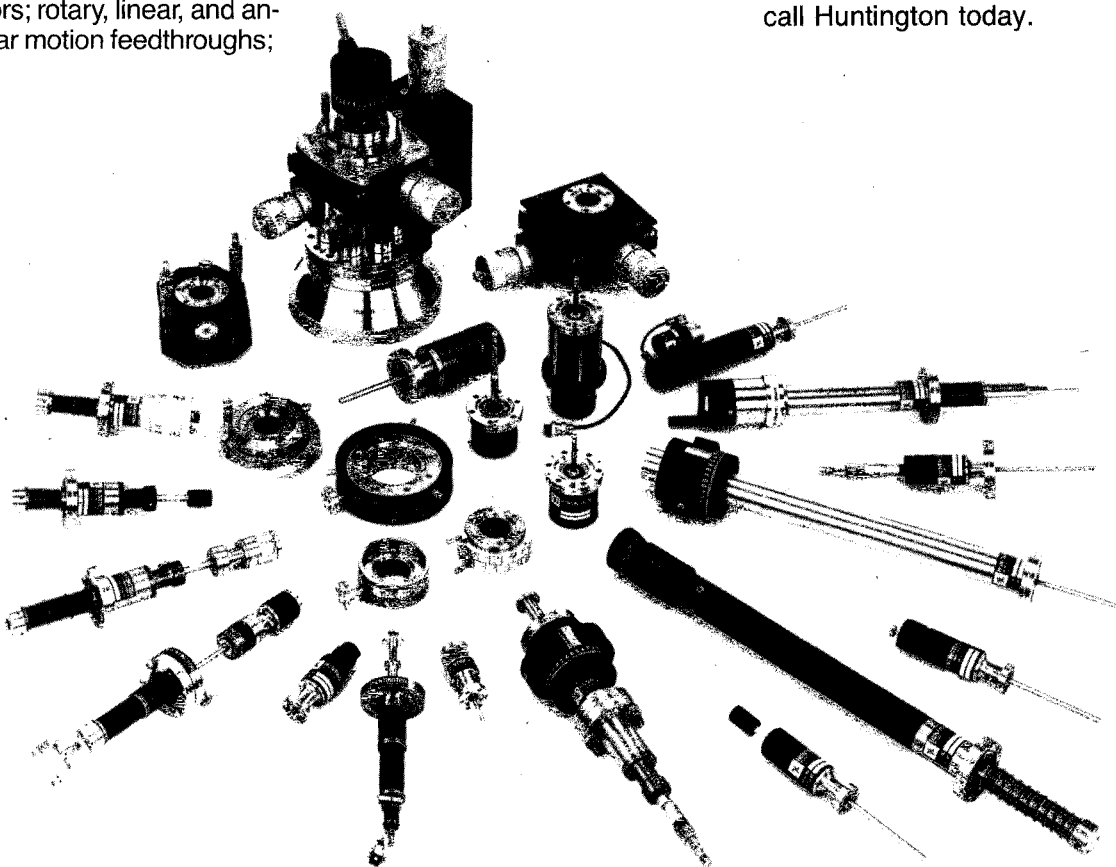
and a variety of mounting devices providing tilt, rotary, or linear motion for any flange-mounted source.

In addition, Huntington has developed a range of coaxial and multimotion feedthroughs and accessories for gripping, holding, heating, cooling, and transferring samples within the vacuum environment.

POSITIONING SOLUTIONS

If your positioning problem cannot be solved by any of the wide range of devices already on the shelf at Huntington, tell us about it. Whether the solution is an innovative modification or an entirely new concept, Huntington is ready to help.

For information on several newly patented positioning devices and for current prices, call Huntington today.



Huntington® Laboratories, Inc. • 1040 L'Avenida, Mountain View, CA 94043 • (415) 964-3323 • (800) 227-8059
FAX (415) 964-6153 • Telex 592328 • TWX 910 379-6944 • Easylink 62-795443



Only a great past conceives a greater future.

With technology advancing so rapidly, just how do you keep up with the latest developments?

That's when you need the experience of the specialist with a proven track record.

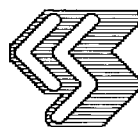
And in advanced cable technology that frontrunner is always **Pirelli Special Cables**.

Backed by the know-how and resources of one of the world's leading industrial groups, **Pirelli Special Cables** are designed to perform in the most sensitive applications, in the most demanding conditions.

In electronics, computing, telecommunications, nuclear,

industries, defence, and specialized installations, **Pirelli Special Cables** are synonymous with the utmost safety, security and reliability.

Pirelli Special Cables available today, to meet the needs of tomorrow - in the tradition of all **Pirelli Cables**.



PIRELLI
SPECIAL CABLES

Società Cavi Pirelli spa
Azienda Cavi Speciali

20098 San Giuliano Milanese (Mi)
Via Giovanni XXIII, 23 - Telephone (02) 9807.1
Telex 321304 - Fax (02) 9807266

The perfect choice for high energy gamma ray detection



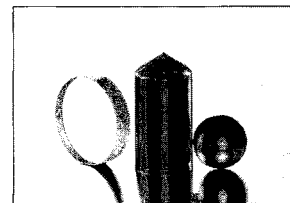
CsI (TI) SCINTILLATION DETECTORS

The addition of newly developed precision manufacturing techniques to more than thirty years of experience in growing huge, mainly ionic, single crystals has now enabled HORIBA to establish the technology for manufacturing the highest quality CsI (TI), ideal for such high energy physics research as e^+e^- colliding experiments and space physics.

The outstanding quality of HORIBA optical crystals for infrared application has also earned them an excellent reputation among a broad range of users.



NaCl Crystals (300 ϕ) & As-Grown Ingot



KCl Crystal with AR and moisture-proof coatings & KRS-5 Ingot and Lens

HORIBA

HORIBA, Ltd.
Miyahigashi, Kisshoin, Minami-ku, Kyoto, Japan
Phone: (81) 75-313-8123 Fax: (81) 75-321-5725

HORIBA INSTRUMENTS INCORPORATED
Irvine Facility
1021 Duryea Ave., Irvine, Calif. 92714, U.S.A.
Phone: (1) 714-250-4811 Fax: (1) 714-250-0924

HORIBA EUROPE GmbH
Industriestrasse 8, D-6374 Steinbach, West Germany
Phone: (49) 6171-7755 ~ 7758 Fax: (49) 6171-8044

HORIBA EUROPE Branch Offices

HORIBA SWITZERLAND
1-3, Chemin de la Roche CH-1020 Renens, Switzerland
Phone: (41) 21-35-70-71 Telex: (45) 25354

HORIBA FRANCE
Rue L. et A. Lumière Technoparc 01630 ST-GENIS-POUILLY, France
Phone: (33) 50-42-27-63 Fax: (33) 50-42-07-74

HORIBA AUSTRIA
Prinz-Eugen-Strasse 44, A-1040 Wien, Austria
Phone: (43) 222-505-23-80 Fax: (43) 222-505-23-80-10

HORIBA INSTRUMENTS LIMITED

1 Harrowden Road, Brackmills Northampton, NN4 0EB, England
Phone: (44) 604-765171 Fax: (44) 604-765175

HORIBA KOREA CO., LTD.
112-6 Sogong-Dong, Choong-ku, Seoul, Korea
Phone: (82) 2-753-7911 ~ 7912 Fax: (82) 2-756-4972

HORIBA ASIA/PACIFIC REPRESENTATIVE OFFICE
Parkway Parade # 07-03, 80, Marine Parade Road, Singapore, 1544
Phone: (65) 3453030 Fax: (65) 3452930

SOLIDSTATE COMMUNICATIONS

**Now Providing Significant
Coverage of the Rapid
Developments in Superconductors
and Superconductivity**

An International Journal

Editor-in-Chief: **ELIAS BURSTEIN, USA**

Associate Editor-in-Chief:

MANUEL CARDONA, FRG

An international medium for the publication of short communications on significant developments in the solid state sciences. The journal publishes communications dealing with original, experimental and theoretical research on the physical and chemical properties of solids and condensed systems. The principal fields of interest are the electronic structure of solids, the excitation states of solids and the statistical mechanics of condensed systems. The primary aim is to give solid state scientists immediate access, on an international basis, to important work just completed. In keeping with this aim the journal will also publish short versions of important papers being submitted to national journals. In response to the tremendous interest in the new high T_c oxide superconductors and to the large number of theoretical and experimental papers on superconductors and superconductivity being submitted, the papers on superconductors and superconductivity now appear together as a special section in the centre of each issue. The journal also features a Calendar of Solid State events and the abstracts of articles accepted for publication in the Journal of *Physics & Chemistry of Solids*.

Subscription Information

1989: Volumes 69-72 (48 issues)

Annual subscription (1989) DM 2120.00

Two-year rate (1989/90) DM 4028.00

Pergamon accepts UNESCO coupons. Prices are subject to change without notice. Prices include postage and insurance. German Mark (DM) prices quoted apply in Europe, Africa, Asia and Australia (with the exception of Japan). For the rest of the world apply to the nearest Pergamon office. Advertising rate cards are available on request.



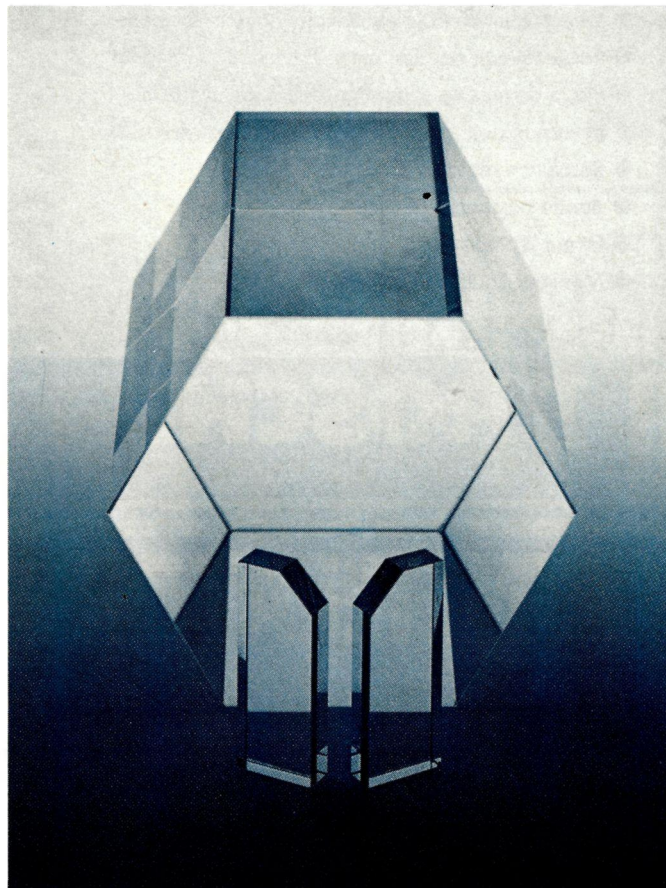
Pergamon Press plc
UK and all other countries:
Headington Hill Hall,
Oxford OX3 0BW, UK

Pergamon Press Inc.,
USA, Central & South America:
Fairview Park, Elmsford,
New York 10523, USA

FREE SAMPLE COPIES AVAILABLE ON REQUEST

High Performance BaF_2 Scintillators

MERCK – the authorized source!



■ High quality BaF_2 Scintillators produced under CEA* patents

■ MERCK together with CRISMATEC is sole licensee for such BaF_2 Scintillators

■ MERCK is also a reliable supplier for CsI, NaF, BGO and other materials of interest to you

For further information please contact E. Merck, Darmstadt

* Commissariat à l'Énergie Atomique, Paris, France

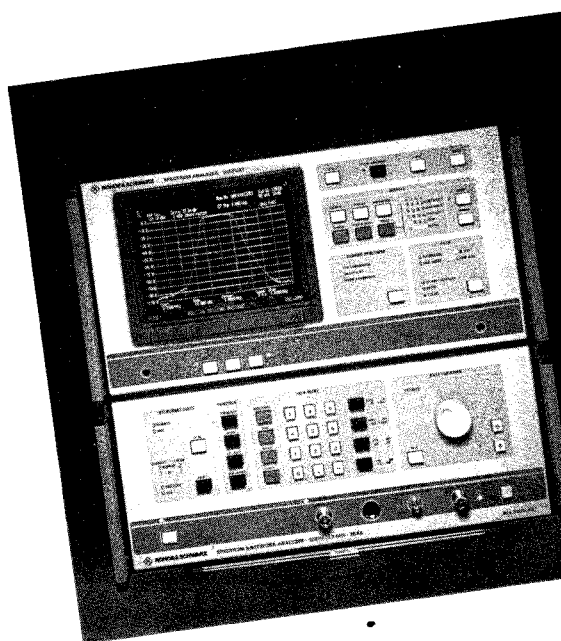
E. Merck
VIC ELO
P.O. Box 4119
D-6100 Darmstadt 1
Phone: (0 61 51) 72 36 86
Fax: (0 61 51) 72 36 30
Telex: 419 328-0 emd

MERCK

Analyseur de spectre FSA/S

de **ROHDE & SCHWARZ**

- Gamme de fréquence 100 Hz à 1,8 (2,0) GHz
- Générateur de tracking à étalonnage intégré
- Faible niveau de bruit propre: typique < -150 dBm
- Plage de mesure sans intermodulation ≥ 100 dB
- Excursion de fréquence réglable en continu
- Résolution réglable de 6 Hz à 3 MHz
- Bande passante $< 0,6$ dB
- Erreur d'amplitude < 1 dB
- Moniteur couleur

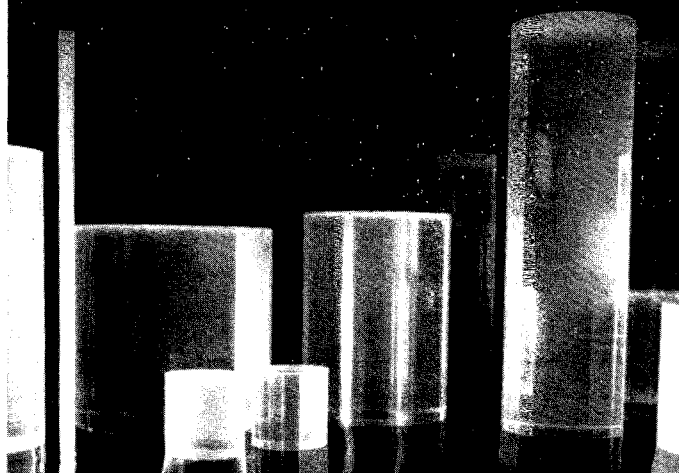


ROSCHI
Télécommunication SA

CH-3063 Ittigen, Case postale
Téléphone 031 58 90 11
Telex 911759

Représentation
générale et service
pour la Suisse

SCINTILLATORS



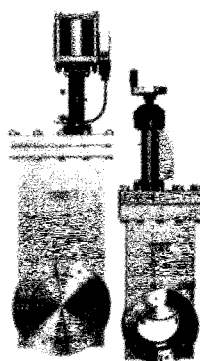
We have the expertise and the know-how for high-quality plastic scintillators. High light output, excellent transmission and fast speed are the main features of our plastic scintillators. We manufacture all sizes to customers specifications. Rods, sheets, blocks and light guides with polished or coated surfaces will be manufactured within close tolerances. Lithium-glass-scintillators are available in special shapes and sizes from powders for HPLC and flow cells, discs for neutron measurements etc. Various types from low background to very high efficiency are available.

ZINSSER ANALYTIC (UK) Ltd.
Howarth Road, Stafferton Way, Maidenhead, Berks. SL6 1AP
Telephone 06 28/2 45 70 · Telex 849 462

M & K

CETEC

AG für moderne
Technologie



THE ALTERNATE CHOICE

for high vacuum gate valves.

Are you in need of reliable

GATE VALVES?

There is a relatively large selection on the market. But when you ask for reliable, long lasting function at a reasonable price...

try CETEC

Come on over to Cetec, let's work together. We, as a team will be nearly unbeatable. Call us or one of our representatives for more information.

CH-9468 SAX (Schweiz) Postfach 41
Tel. 085-7 50 70, Telefax 085-7 50 86
Telex 855 194 cetc ch

VME-Crate and Modules, a perfect whole

STR700 VME-Crate

unconditional modularity, direct access to J2/P2, display for all voltages and currents, fan and power fail disable power supply.

STR721 VSC

VME Scaler/Counter

32 channel rate monitoring, event counting, interval timing, industrial monitoring and control, etc.

DL400 VME Interface

Basic interface module for application submodules.

DL401 FADC Submodule

for fast digitizing of analog signals and sophisticated pulse-shape analysis. (Sampling rate 100MHz; 8bit resolution)

ANT10-B

is a 32 channel input resp. output base component for industrial application, on which various input and output functions are placed on 4 submodules.

Submodules:

ANT10-DE

Opto coupler input
(8 isolated channels)

ANT10-DA

Relay output
(8 isolated channels)

ANT10-DAO

Opto coupler output
(8 isolated channels)

ANT10-AA

Analog output
(4 isolated channels)

STR730 FDDP

Fast Digital Data

Processor

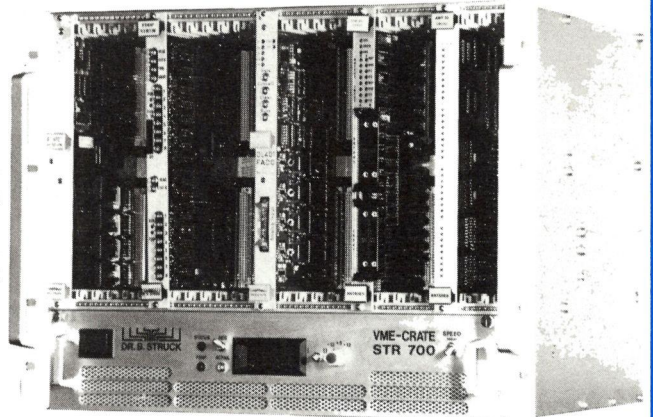
Modular, Expandable,
Flexible

VMEbus card to measure analog signals with flash A/D converters. Two on-board digital signal processors enable fast preprocessing of the digitized signals.

STR711

VME-TAXI

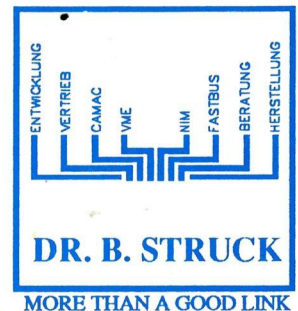
provides all high speed control and data transfer facilities, which are required in a multi-crate VME data acquisition or industrial control system by exploiting large bandwidth fiber optical data links (up to 10km) and high performance processors. (68020)



STR302 CFIVC

VMEbus Coupler

General purpose VME DMA-controller and high speed input/output register.



D-2000 Tangstedt * Bäckerbarg 6 * P.O.Box 1147 * W-Germany

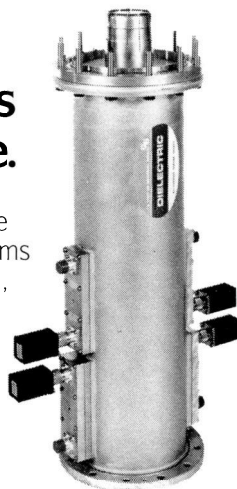
Telefon: (4109) 55 - 0 * Telefax: (04109) 5533 * Telex: 2 180 715 tegs

DIELECTRIC

Dielectric High Power RF Systems, built on 40 years of engineering experience.

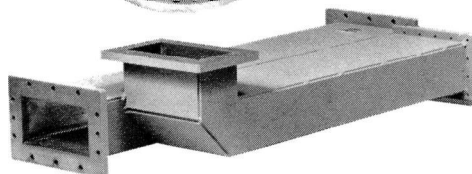
Dielectric Communications—a pioneer in the development of RF coaxial transmission systems during WWII—is still innovating with advanced, high power RF technology today.

Our more than 40 years of RF experience includes design, development and production of components and systems for particle accelerators, fusion research, space and military radars, communications and high power broadcasting. This means that Dielectric has the design, manufacturing and installation expertise to meet your requirements, no matter how demanding.



- Frequencies up to 6.0 GHz
- Power Kilowatts to Megawatts
- Coaxial Transmission Line and Components
- High Power Waveguide and Components
- High Power Vacuum Components

Call Dielectric toll-free for more information at (800) 341-9678.



Cryorefrigerators



The solution for a wide range
of cooling problems

182.8.61.17.013.02 CD

LEYBOLD offers a wide range of cryorefrigerators for research and industrial purposes, covering the temperature range from 4 K to 330 K with closed-cycle helium refrigerators. These refrigerators are suitable for any application where liquid refrigerants are undesirable.

Typical applications include:

- Cooling of test specimens in cryostats, e.g. for high temperature superconductivity research
- Shield cooling of superconductive magnets
- Cooling of low-noise amplifiers and detectors
- Hydrogen liquefiers for H₂ targets

Our product line comprises 1,2 or 3-stage refrigerators with accessories, complete cryostats and - needless to say - cryopumps for all high or ultra high vacuum applications with pumping speeds between 400 l·s⁻¹ and 60,000 l·s⁻¹.



Detailed information on request!

LEYBOLD AG
Oerlikonerstrasse 88
CH-8057 Zürich
Tel.: 01/311 57 57

LEYBOLD AG
Bonner Strasse 498
D-5000 Cologne 51