

People and things

In front of the control room of the Opal experiment at CERN's LEP electron-positron collider: centre, Masashi Akiba, international science programmes coordinator of Japan's Monbusho ministry, flanked by Akinori Mori, first secretary of the Japanese mission to Geneva, and Sachio Komamiya of Tokyo. Japan recently announced a further contribution to CERN.

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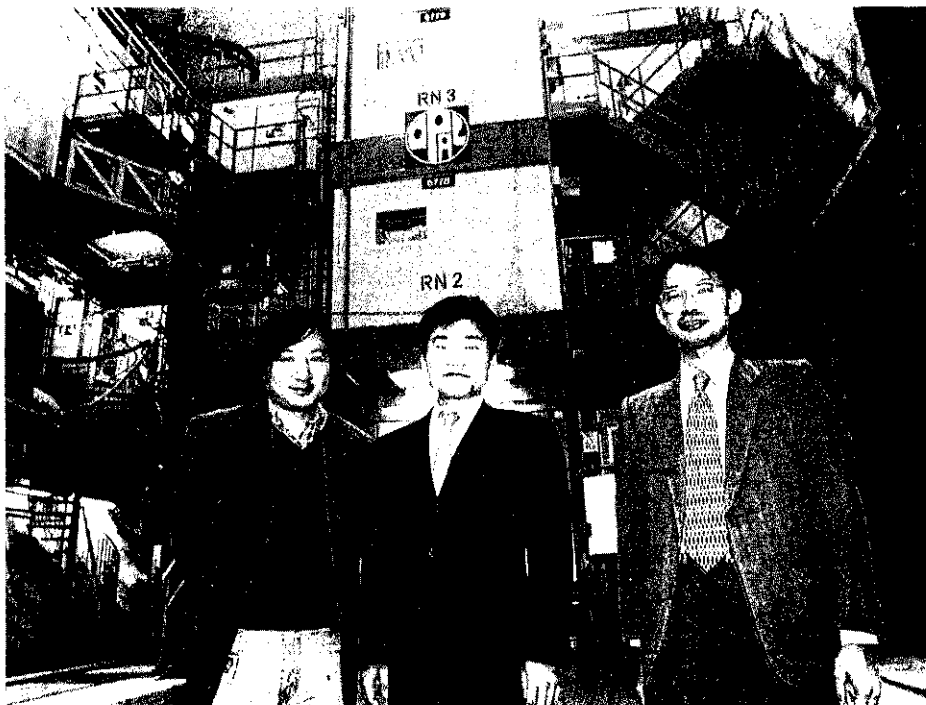
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CERN Courier

In the most significant development for the CERN Courier since the decision to 'go international' in 1975, we are pleased to announce that the UK Institute of Physics Publishing, Bristol, will manage the journal.

Although we are justifiably proud of the reputation which the CERN Courier has achieved and the position it has established as a showcase for world particle physics, it has become increasingly clear that the business of handling a magazine with a total print run of 27,500 and worldwide distribution has outstripped what CERN can reasonably manage.

Now CERN, through Courier Editor Gordon Fraser, retains editorial control, with the vital support of a network of correspondents, while IOPP takes responsibility for production and development.

With IOPP's acknowledged journal and magazine reputation and its expertise in electronic publication, we look forward to exciting new developments which will consolidate the Courier's position as the international journal of particle physics. Its serious coverage of discoveries, timely news of developments and informed progress reports should bring advances in basic physics and increased understanding of the structure of the Universe to a wider audience.

1998 LEP flying start

A good omen for 1998 operations at CERN's LEP electron-positron collider when on 20 May, a 500 microamp beam of positrons was accelerated to a record energy of 96.5 GeV using 2.9 GV of radiofrequency. The conditions were stable with a lifetime of more than 20

Former CERN Director General Herwig Schopper (left) receives the 650-year Jubilee Medal of Prague's Charles University from Rector Karel Maly. Schopper's lecture "Universities and Large Research Centres - a Beneficial Symbiosis" at a conference on "The Role of the University at the Threshold of the 21st Century" used CERN as an example for such fruitful collaborations.



hours. LEP is now equipped with 256 superconducting niobium-sputtered copper cavities giving 2621 MV of power, 16 superconducting solid niobium cavities giving 136 MV, and 52 conventional copper ones giving 130 MV. With the niobium-copper cavities running extremely well, LEP is able to deliver a maximum kick to its circulating particles. Soon afterwards, LEP was colliding electrons and positrons for physics at a new high energy of 94.5 GeV per beam (collision energy 189 GeV) with good luminosities.

Yen for CERN

Japan's Ministry of Education, Sports, Science and Culture (Monbusho) has announced, subject to formal approval, a further contribution of 5 billion yen for the construction of CERN's LHC collider. In May 1995, Japan made a first contribution of 5 billion yen to the LHC, and the country became an official CERN Observer State in June

of that year. In December 1996, Japan announced a further contribution of 3.85 billion yen. The total LHC contribution from Japan now amounts to 13.85 billion yen (some \$100 million at current rates of exchange).

Cooperation Agreement between Mexico and CERN

The research programme of CERN's LHC continues to attract attracting scientists from all over the world. For a couple of years a group of Mexican physicists have been working in the ALICE project which is planning to study high-energy heavy ion collisions at LHC. Countries other than CERN Members States play an important role within the ALICE collaboration. Recently the Mexican funding agency for Science and Technology - Consejo Nacional de Ciencia y Tecnología (CONACyT) and CERN Director General Chris Llewellyn Smith signed a Cooperation Agreement. The

document was signed by Director General Carlos Bazdresch Parada on behalf of CONACyT.

Physics in space

On 12 June, the Space Shuttle Discovery returned to Earth after a 10-day mission carrying as primary payload the three-ton AMS Alpha Magnetic Spectrometer experiment. This 100-hour precursor study provided valuable experience before deploying AMS on the International Space Station Alpha, provisionally scheduled for 2003. This could reveal the first evidence for nuclear cosmic antimatter, a major step towards resolving a long-standing puzzle about the apparent absence of antimatter in a Universe created in a Big Bang which supposedly produced matter and antimatter in equal amounts.

AMS is the first large scale physics detector deployed in space and the project, with major contributions from NASA and from the US Department of Energy, traditional paymasters of US particle physics, brings a novel and significant symbiosis of space-borne and particle physics research. First news from AMS in the next issue.

On people

As Peter Zerwas of DESY ends his term as Chairman of CERN's LEP Experiments Committee, he is succeeded by Roger Cashmore of Oxford.

Following the appointment of Enzo Iarocci as Chairman of the Italian INFN (April, page 31), his place as Chairman of CERN's LHC Committee is taken by Jos Engelen of the Dutch NIKHEF laboratory.

Bernard D'Almagne of LAL, Orsay,

Gerhard Söhngen (left), Deputy to the DESY Director of Research, receives a honorary doctor's degree by Yerevan State University for his "scientific-organizational activities" from R. Martirosian, Rector of Yerevan State University.



retiring from his position as Chairman of CERN's SPS and PS Experiments Committee, becomes Deputy Director of the French Institute of Nuclear and Particle Physics (IN2P3). The new experiments committee Chairman is Kay Königsman from Freiburg.

Inside CERN, Paris Sphicas takes over as LEP physics coordinator from Pippa Wells.

On April 2, Gerhard Söhngen, Deputy to the DESY Director of Research, was awarded a honorary doctor's degree by Yerevan State University for his "scientific-organizational activities". He became a coordinator of Armenian and German particle physicists when Armenia became an independent republic in 1991, actively promoting the exchange of scientists - giving Armenian physicists the possibility of participating in HERA experiments and students to regularly take part in the DESY summer students programme.

In particular he promoted a satellite connection linking Armenia and Germany, allowing Armenia to

participate in global information links and to maintain contacts around the world. He actively supported the introduction of new computer and information technologies in Armenia itself.

First the personal assistant of DESY Director General Willibald Jentschke for two years, then founder and head of the DESY public relations division from 1968 to 1975, G. Söhngen has been Deputy to the DESY Director of Research for the past 23 years.

Pomeranchuk Prize

The 20 May was the 85th anniversary of the birthday of outstanding scientist and founder of Moscow's Institute of Theoretical and Experimental Physics (ITEP) Theory Division I.Ya.Pomeranchuk (1913-1966). To mark the date, ITEP established the Pomeranchuk Prize in Theoretical Physics, awarded for outstanding achievements in all the fields to which I.Ya Pomeranchuk contributed. The prize, awarded to two candidates annually, is attributed

by a committee headed by ITEP Director Michael Danilov. (Nominations should be sent to pomeron@heron.itep.ru not later than February 1.) More detailed information from <http://face.itep.ru/pomeranchuk.html>

The 1998 Prize is awarded to A.I. Akhiezer (Kharkov, Ukraine) and to S. Drell (Stanford). The former (born 1911) is honoured for his outstanding pioneering contributions to quantum electrodynamics (QED), physics of neutrons and to condensed matter physics. He worked with I.Ya Pomeranchuk in Kharkov (1935-1937) on QED, and later, when Pomeranchuk moved to Moscow, on various aspects of neutron physics and of condensed matter physics (1944-1961). Akhiezer is also known worldwide through his book with V.B.Berestetski on QED.

The Prize is awarded to Sidney Drell for his outstanding contributions to the quantum theory of electrodynamic hadronic process and for the development of the beamstrahlung theory for future colliders. He is the author, with J.D.Bjorken, of the famous monograph "Relativistic quantum fields".

Albert Hofmann retires

Renowned accelerator expert and almost equally renowned personality Albert Hofmann recently retired from CERN.

After a PhD at ETH Zurich in 1964, he spent seven years at the Cambridge Electron Accelerator (CEA), that breeding ground of accelerator talent, before coming to CERN in 1973. His ten very productive years at the Intersecting Storage Rings (ISR), working on bunched beam and coasting beam instabilities, RF noise, Landau cavity,

FACULTY POSITION

The University of Tennessee

The Department of Physics and Astronomy of The University of Tennessee, Knoxville invites applications for a tenure-track position at the full professor level in experimental elementary particle physics to begin in the 1998-99 academic year. Candidates should have a strong interest and experience in detector design and construction, and experience with large collaborations such as those at SLAC, Fermilab, CERN, or KEK. Leadership experience in directing a research group is highly desirable, as is interest in non-accelerator based experiments (e.g. baryon instability or neutrino oscillations). Candidates must have a Ph.D. in physics or equivalent and extensive experience in a faculty or research position, and must demonstrate ability to teach effectively at the undergraduate and graduate levels and to conduct a vigorous research program. Applicants should send vitae and the names and addresses of three references to Dr. Lee L. Riedinger, Head, Department of Physics and Astronomy; The University of Tennessee; 401 Nielsen Physics Building; Knoxville, TN 37996-1200. Review of applications will begin July 1, 1998 and continue until the position is filled. **UTK is an EEO/AA Title VI/Title IX/Section 504/ADA Employer.**



DESY Fellowship Programme

DESY announces the **DESY Fellowship Programme** for young scientists in experimental particle physics to participate in the research mainly with the HERA collider experiments H1 and ZEUS or with the fixed target experiments HERA-B and HERMES. New fellows are selected twice a year in April and October. DESY fellowships in experimental particle physics are awarded for a duration of two years with the possibility of prolongation by one additional year.

The salary for the fellowship is determined according to tariffs applicable for public service work (BAT II a).

Interested persons, who have recently completed their Ph.D. and who should be younger than 32 years are invited to send their application including a resume and the usual documents (curriculum vitae, list of publications, copies of university degrees) until 30 of september or 31 of march of each year to

DESY

Personalabteilung

Notkestraße 85, D-22607 Hamburg

They should also arrange for three letters of reference to be sent until the same date to the address given above.

Handicapped applicants with equal qualifications will be preferred.

DESY encourages especially women to apply.

As DESY has laboratories at two sites in Hamburg and in Zeuthen near Berlin, applicants may indicate at which location they would prefer to work.



UPPSALA UNIVERSITY

New Director for The Svedberg Laboratory, Uppsala University, Ref no 2661/98

The Svedberg Laboratory (TSL) is a Swedish national research facility for accelerator-based research, hosted by Uppsala University. TSL is located close to the center of Uppsala and has a well developed infrastructure for guest users. The laboratory provides a range of accelerated ion beams for Swedish and international scientists with approved projects and carries out research using its own resources. TSL runs two accelerators; one combined synchrotron and storage ring (CELSIUS), with electron cooling, and one $K = 200$ MeV cyclotron, isochronous of frequency-modulated. The highest beam energy is 1.36 GeV for protons accelerated in CELSIUS. For light heavy ions with a charge-to-mass ratio of 1/2 the corresponding energy is 470 MeV/nucleon.

Eight scientists form the laboratory research staff and approximately 50 people are employed in total. Some 50 research projects are in progress, performed by about 250 PhD scientists and 50 PhD students, with half the users coming from foreign countries. Examples of active fields of research are meson production processes, rare decays of mesons, intermediate energy heavy-ion physics, basic and applied neutron physics, materials science, radiation biology and biomedicine.

For further information about the university and the laboratory, contact the University Director, Johnny Andersson (tel. +46 18 471 3312, fax: +46 18 471 1640, e-mail: johnny.HYPERLINK mailto:andersson@uadm.uu.se andersson@uadm.uu.se) or the present Laboratory Director, Leif Nilsson (tel.: +46 18 471 3061, fax: +46 18 471 3833, e-mail: HYPERLINK mailto:nilsson@tsl.uu.se nilsson@tsl.uu.se), or consult the web-site of the laboratory at <http://www.tsl.uu.se/>.

The laboratory is now seeking a new Director, who will be appointed by the Board of Uppsala University for a period of three years, with the possible extension of another three-year period. The Director will be offered a permanent position at Uppsala University after a 3 + 3 year period as Director.

The Director, together with the Programme Advisory Committee and the Board of TSL, is responsible for the scientific and technical development of the laboratory. The Director is further responsible for the day-to-day management of the laboratory.

The Board of TSL appoints a Deputy Director, but the Director decides upon the division of work between him/herself and the Deputy Director. The appointee is expected to take part in the research activities at the laboratory.

Qualifications

Documented wide experience in nuclear or particle physics research or in a closely related research field at professional level. Proven experience of managing research teams at international or large national laboratories, preferably laboratories for accelerator-based research.

Other qualifications of significance for the position.

Knowledge of and experience in accelerator physics research is considered to be an asset.

Application

The salary will be negotiated.

There is no specific application form.

The applications, together with CV and other documents, to which the applicants wish to refer, should be sent to Uppsala University, Registrars Office, Box 256, S-751 05 Uppsala, Sweden, to arrive there no later than August 3, 1998. Faxed applications (fax no. + 46 18 471 20 00) must be followed by a mailed copy carrying a hand-written signature in ink.

Nonconformist Albert Hofmann - at work in the LEP tunnel.



etc, appropriately included two years as Chairman of the Performance Committee for that record-breaking machine. After switching to LEP beam instrumentation, in 1983 he moved back to the US, this time to Stanford. In 1987 he was fortunately enticed back to CERN in time for a major role in the commissioning of LEP. After this success, Albert strove to push LEP performance and played a crucial part in its delicate energy calibration.



A brilliant physicist and experimenter, having contributed to about 20 different machine projects all over the world, his insight can be impressive - it was Albert, with the late Gerry Fisher, who explained mysterious LEP effects as being due to Earth tides. Moreover he has always been willing to impart this wisdom to whoever asks.

Almost as much as his scientific contributions and generosity, his exaggerated modesty, infuriating optimism and mischievous humour have endeared him to all.

During the recent SysComms conference on Real-Time and Embedded Systems, held at CERN, Chris Parkman of CERN (right) receives the VMEbus Personality of the Year Award for his contributions towards the advancement of VMEbus in Europe from Ray Alderman of VITA, the VMEbus International Trade Association.

Manuel Aguilar Benitez de Lugo, Director of the Department of Fusion and Elementary Particles, CIEMAT, Madrid, receives the prestigious 1997 Science Prize of the Spanish CEOE Foundation for his contributions to the study of elementary particles and the development experimental high energy research in Spain from CEOE Foundation President Carlos Ferrer Salut.



Meetings

The XXVII International Symposium on Multiparticle Dynamics, ISMD98, organized by the University of Athens will be held at the European Cultural Centre in Delphi, Greece, from September 6 - 11. The Symposium brings together theorists and experimentalists with broader interests. The Conference will cover: 1) Non-perturbative QCD in soft hadronic processes; 2) Interplay between soft and hard processes; 3) Hadronic final states in electron-positron and lepton-hadron collisions; 4) New developments in heavy ion collisions; 5) Fluctuations and correlations in high energy collisions; 6) Multiparticle dynamics in astroparticle physics. Secretary of ISMD98 is: Ms. Lia Kontraros, tel: +30-1-7257533, fax: +30-1-7295069. e-mail: ISMD98@atlas.uoa.gr Internet: <http://www.uoa.gr/congres/ismd98.htm>

Please take note of the change of date and chairman of the 4th Workshop on Small-x and Diffractive Physics; to be held at Fermilab, September 17-20, Andrew Brandt, Fermilab, and Alan White, Argonne, are Co-Chairs. More information from <http://www.hep.anl.gov/Theory/smxdf.html>



Frederick Lobkowicz

Frederick Lobkowicz of Rochester died on 3 February from complications following a heart attack. He was 65. An exceptionally versatile scientist, he participated in experiments at many accelerator laboratories, and introduced liquid argon calorimetry at Fermilab, where he and his collaborators constructed two large instruments for studying the radiative widths of mesons and direct photon production. His most recent contributions were to the D0 experiments at the Fermilab Tevatron, and to the liquid argon calorimeter being developed for the ATLAS detector at CERN's LHC.

Frederick Lobkowicz

CERN Courier contributions

The Editor welcomes contributions. These should be sent via electronic mail to cern.courier@cern.ch

Plain text (ASCII) is preferred. Illustrations should follow by mail (CERN Courier, 1211 Geneva 23, Switzerland).

Contributors, particularly conference organizers, contemplating lengthy efforts (more than about 500 words) should contact the Editor (by e-mail, or fax +41 22 782 1906) beforehand.

CRISTINA WIRTH: "Dessine-moi un drapeau"

AFGHANISTAN	ALBANIA	ALGERIA	ANDORRA	ANGOLA	ARGENTINA	AUSTRALIA	AUSTRIA	AZERBAIJAN	BANGLADESH
ARMENIA	AUSTRALIA	AUSTRIA	AZERBAIJAN	BANGLADESH	BELGIUM	BRAZIL	BULGARIA	BURKINA FASO	BURUNDI
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TURKEY	UKRAINE	UNITED KINGDOM	UNITED STATES	UZBEKISTAN	VENEZUELA	VIETNAM	WALES	WHITE HOUSE	YEMEN
UKRAINE	UNITED KINGDOM	UNITED STATES	UZBEKISTAN	VENEZUELA	VIETNAM	WALES	WHITE HOUSE	YEMEN	ZAMBIA
UNITED KINGDOM	UNITED STATES	UZBEKISTAN	VENEZUELA	VIETNAM	WALES	WHITE HOUSE	YEMEN	ZAMBIA	ZIMBABWE



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SCIENTIFIC STAFF POSITIONS

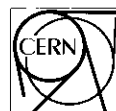
Experimental Spin Physics

A research center focusing on the physics program of the Relativistic Heavy Ion Collider (RHIC), hard QCD/spin physics, lattice QCD and relativistic heavy ion physics has been established by the Institute of Physical and Chemical Research, Japan (RIKEN) at Brookhaven National Laboratory. An experimental division on spin physics will be established this summer. The RHIC will be the first polarized proton collider, beginning in 2000, and the Center will play a major role in developing the RHIC spin program. RIKEN-BNL Fellow (up to a five-year appointment) and Research Associate (two-year appointment) positions will be offered for the fall of 1998. Members of the experimental division of the Center will have the opportunity to participate in the detector program at RHIC.

Scientists with appropriate backgrounds who are interested in applying should send a curriculum vitae and three letters of reference to Dr. T.D. Lee, Building 510A, Brookhaven National Laboratory, P.O. Box 5000, Upton, Long Island, NY 11973-5000, before July 15, 1998. BNL is an equal opportunity employer committed to workforce diversity.

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Les rêves relatés pourraient avoir subi la patine de l'inconscient - à la fois archéologue, homme grenouille et journaliste - un peu par hasard - devenir astronaute, biologiste puis interprète - jamais su que faire - la prédiction de devenir un artiste - pilote d'avion, danseuse, vétérinaire - tenté par les métiers d'ingénieur ou d'architecte - à la question de l'orientation, personne n'a hésité - rêvé d'être pianiste classique puis champion d'échecs, avant de vouloir être physicien théoricien - jardinier - peut-être pour ne pas décevoir mon père - inventé un métier, "ingénieur photographique": personne cherchant à comprendre des émulsions photographiques - pilote d'avion et conducteur de camion déchets - déjà intéressé par la vie académique - être acteur de théâtre - besoin de suivre un seul chemin - exactement le métier rêvé, mais la volonté de ne pas continuer dans ce milieu - être chirurgien - ils ne l'ont pas voulu et ils avaient raison - représenter un pays dans un sport quelconque - travailler avec des animaux - aujourd'hui la technique en horreur - d'autres intérêts: le dessin publicitaire, l'architecture, les bandes dessinées, la beauté de la nature et aussi la mécanique - pas de conception d'un futur métier - être astronaute - devenir chimiste et, ensuite, peintre ou musicien - une longue succession de circonstances - infirmière ou assistante sociale - pilote d'avion, boulanger, instituteur - voyageur dans l'espace ou vendeur dans le magasin de poissons paternel - pas de souvenir d'une future profession - pilote de Formule 1 et gagner le Championnat du monde - poussé dans cette direction - paysan - des phases policier et pompier - passé par dessinateur, pilote, puis guide de montagne - fasciné par les locomotives - pas sûr d'avoir rêvé précisément d'un métier - devenir médecin et pilote de ligne - archéologue et après, physicienne - pas vraiment à faire toute la vie - être écrivain ou cinéaste - le souvenir des histoires qu'un oncle racontait avec brio sur les physiciens du Cern.

CLAUDIA GISLER



Le laboratoire de recherche expérimentale, prochainement installé dans la cabane No 6410, parking Newton du CERN, s'occupe de l'observation de nouvelles particules réalisées en images de synthèse.

Grâce à une animation dynamique et par ajustement de paramètres, les particules simulées rentrent en collision et se transforment, une étude de différentes matières aléatoires est en cours.

Les programmes utilisés décèlent également les déplacements des chercheurs autour de la machine et ces mouvements déterminent la configuration des images.

Nous recherchons un programmeur intéressé pour participer à cette recherche.

Le candidat doit connaître les logiciels de détection des particules et de simulation de leurs mouvements. Une expérience dans le domaine des matières procédurales est vivement souhaitée.

Cette collaboration est l'occasion de créer un objet hybride entre art et science.

Pour participation et plus d'informations contacter:

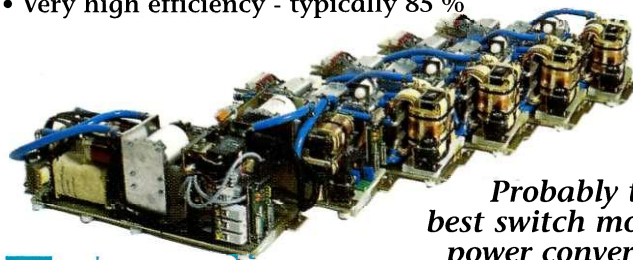
Elodie Formaris
tel: 021 702 95 52
021 702 95 59
fax: 059 450 41 01 94
email: elodie_formaris@hotmail.com
elodie.formaris@ecal.vd.ch



Great and reliable engineering

With the Model 889 in the SYSTEM 8800 power converter program we are offering our customers a new generation of high performance power converters incorporating primary soft switching technology with IGBT's operating at 20 kHz. With the Model 889 we are introducing a high current modular system to meet the increasing demand for powering superconducting loads with currents ranging from 4 to 32 kA.

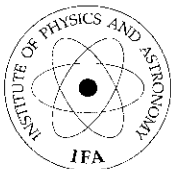
- Basic module can deliver 4kA/24kW
- Paralleling of modules up to 32kA
- Full bridge primary converter
- Excellent current stability
- Short circuit and open circuit operation
- All power components are water cooled
- Very high efficiency - typically 85 %



**Probably the
best switch mode
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In India: Transact India Corp. · Tel.: (22) 285-5261 · Fax: (22) 285-2326



**Institute of Physics and Astronomy
Aarhus University**

Post Doctoral Research Position

The Centre for CERN related Atomic and Nuclear Physics under the Danish Natural Science Research Council invites applications for a post doc position in experimental atomic physics. The position is open from September 1, 1998 for a 2 year period with the possibility of extension.

The successful applicant shall participate in an experimental program which aims to investigate the interaction between slow antiprotons and atoms. Phenomena such as energy loss, ionization and channelling will be studied. The program has as one long term goal the production and characterization of antihydrogen. The experiments will be designed and tested at Institute of Physics and Astronomy, Aarhus University, and will be carried out at the AD facility at CERN (Geneva) under the ASACUSA and ATHENA collaborations. The applicant shall work closely together with the members of the former PS194 and NA43 collaborations.

Applicants with experience in atomic collision experiments and/or experimental work at CERN will be preferred.

A PhD degree in experimental physics (or the equivalent) obtained within the past five years is a recommended pre-requisite. The salary depends on seniority as agreed between the Danish Ministry of Finance and the Confederation of Professional Unions.

Applications should include a curriculum vitae giving evidence on which the evaluation of the applicant's scientific qualifications can be based, a complete list of publications with an indication of those which the applicant selects as the most relevant for the application. The applicant must, upon request, submit further material required by the selection committee in its evaluation.

Applications (4 copies) including two letters of reference should be addressed to Faculty of Science, University of Aarhus, Ny Munkegade, Building 520, DK-8000 Aarhus C, Denmark, and marked 212/5-127. The deadline for the receipt of all application material is August 3, 1998.

For further information, contact Dr. Helge Knudsen, Institute of Physics and Astronomy, Aarhus University, DK-8000 Aarhus C, Denmark. Phone: (+45) 8942 3607, E-mail: hk@dfi.aau.dk. Information about the Institute can also be found at <http://www.dfi.aau.dk>



**Professor Position in
Theoretical Particle Physics**

The Physics Department at Technical University Munich invites applications for a professor position which is at the C3 level and limited for five years. We are seeking candidates working in theoretical particle physics in connection with the special research project astro-particle physics (Sonderforschungsbereich Astroteilchenphysik - SFB 375).

The candidate has to fulfil the usual teaching obligations and is therefore expected to show a high grade of teaching ability.

The Technical University Munich encourages women to apply. Disabled candidates of equal qualifications are favoured.

Applications including a curriculum vitae, a list of publications, a short summary of research interests, selected reprints and information about teaching experience should be sent **before July 20, 1998** to

*Dekan der Fakultät für Physik
Technische Universität München
James Franck Str.
D-85747 Garching, Germany*

NATIONAL INSTITUTE FOR NUCLEAR PHYSICS

I.N.F.N.

POST-DOCTORAL FELLOWSHIPS FOR NON ITALIAN CITIZENS

IN THE FOLLOWING RESEARCH AREAS:

THEORETICAL PHYSICS (N. 10)

EXPERIMENTAL PHYSICS (N. 20)

The I.N.F.N. Fellowship Programme 1998-99 offers thirty positions for non Italian citizens for research activity in theoretical or experimental physics.

Fellowships are intended for young post-graduates not more than 38 years of age at the time of deadline.

Each fellowship is granted for one year (which may start during the period from September to November 1999), and may be extended for a second year.

The annual gross salary is 36,000,000 Italian Lire, plus travel expenses for round trip transportation from the home fellows to the I.N.F.N. Section or Laboratory. Lunch tickets are provided for work days.

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

Applications should be sent to I.N.F.N. not later than *October 15, 1998*.

Candidates will be informed by the end of March 1999 about the decisions taken by I.N.F.N.'s committee.

The successful applicants may carry out their research activity in Italy, at any of the following Laboratories and Sections of I.N.F.N.: National Laboratories of Frascati (Rome), National Laboratories of Legnaro (Padua), National Laboratories of Gran Sasso (L'Aquila) and Southern National Laboratory (Catania).

I.N.F.N. Sections in the Universities of:

Turin, Milan, Padua, Genoa, Bologna, Pisa, Rome 'La Sapienza', Rome 'Tor Vergata', Naples, Catania, Trieste, Florence, Bari, Pavia, Perugia, Ferrara, Cagliari, Lecce and Rome 'Tre'.

Informations, requests for application forms, and applications should be addressed to Personnel Office - Fellowship Service, National Institute of Nuclear Physics (I.N.F.N.) - Post Box 56 - 00044 Frascati (Rome) Italy.

**NATIONAL INSTITUTE FOR NUCLEAR PHYSICS
THE PRESIDENT
(Prof. Luciano Maiani)**

Post Doctoral Positions in Experimental Particle Physics

The Fermi National Accelerator Laboratory (Fermilab) has openings for post doctoral research associates in experimental particle physics. The Fermilab research program includes experiments with the 2 TeV proton - anti-proton collider and 800 GeV fixed target experiments. There are several positions for recent Ph.D.s in the CDF and D-Zero collider efforts which have major detector upgrades in progress and are scheduled to begin data taking in early 2000. There are also some limited opportunities to join fixed target experiments where analysis from the data taking in the run completed in September, 1997 is now in progress. Further fixed target running is being planned for 1999.

Successful candidates are offered their choice among interested Fermilab experiments which have openings at the time of the offer. Appointments are normally for three years with one year renewals possible thereafter. Every effort will be made to keep a Fermilab RA until he or she has the opportunity to reach physics results from his or her experiment.

Applications should include a curriculum vita, publication list and the names of three references. Applications and requests for information should be directed to **Dr. Michael Albrow, Head - Experimental Physics Projects**, [Albrow@fnal.gov], Fermi National Accelerator Laboratory, M.S. 122, P.O. Box 500, Batavia, IL 60510-0500. EOE M/F/D/V.



CLAS Data Acquisition System Physicist (Position #PR2143)

The Thomas Jefferson National Accelerator Facility invites applications for the position of a CLAS Data Acquisition System Physicist in the Hall B Group of the Physics Division. The CLAS detector in Hall B at Jefferson Lab is instrumented with wire chambers, scintillation counters, and gas Cerenkov detectors. The data acquisition and control of the detector components is accomplished with a cluster of SUN Unix processors in the control room and with about 30 distributed controllers/processors in the hall connected by Ethernet. The Hall B Group is looking for an individual who will be responsible for data acquisition related hardware and software. The data acquisition framework is provided by the in-house CODA group, and CLAS specific software must be added to match the detector components. The successful candidate must have experience with digitizing and control electronics in Fastbus, VME, and Camac crates as well as with embedded processors, workstations, and multi-processor machines operating as Unix or Unix-like platforms. It is required that the incumbent be able to carry a project through all phases of design, implementation, and testing, and be very familiar with testing/debugging hardware, and communicate well with the CLAS on-line group, the CODA group and representatives of the various detector components.

A Ph.D. in Experimental Physics is required, with at least three years experience with hardware implementation and software development for complex experimental physics detectors. A proven track record of significant contributions to on-line software and hardware projects; in particular, expertise with Fastbus, VME, and Camac protocols, with time and pulse height digitizing units as well as with real-time event-driven processing and communication among real-time processes. A good working knowledge of UNIX, Fortran and C as well as several scripting languages, such as Perl, Tel/Tk, csh, etc. Knowledge of C++ and experience with HTML documents desirable. Applicants should submit a CV, including the names of at least three references, to:

**Jefferson Lab
Attn: Employment Manager
Mail Stop 28D
12000 Jefferson Ave.
Newport News, VA 23606, U.S.A.**

Please specify Position number PR2143 and job title when applying.

Jefferson Lab is an Affirmative Action/Equal Opportunity Employer.



TRIUMF
MESON RESEARCH FACILITY
University of Alberta
Simon Fraser University
University of Victoria
University of British Columbia

Research Associates in Subatomic Physics

Applications are invited for two Research Associate positions with the Hermes group at TRIUMF. The HERMES experiment, which has been taking data since 1995, measures the spin dependent structure functions of the proton and the neutron using deep inelastic scattering of polarized positrons from polarized gas targets at HERA.

The Canadian group is responsible for the transition radiation detector used to distinguish between positrons and hadrons, and for the particle identification algorithms used in the analysis of the data. We are currently focusing our physics analysis efforts on the following topics: semi-inclusive hadron asymmetries and polarized quark distributions; flavour asymmetry of the quark sea; quark fragmentation functions; vector meson production; and ratios of unpolarized structure functions. The group is also involved in the design and construction of new drift chambers used in the study of charm productions.

Applicants must have a PhD in nuclear or particle physics. The successful candidates will spend a third of their time on hardware support or technical analysis, the rest on physics analysis. They will be expected to spend a significant amount of time at DESY in Hamburg, Germany. Salary is competitive and based on experience. Please forward your C.V. and three referees to:

**TRIUMF
Human Resources Department (Comp. #725-515)
4004 Wesbrook Mall
Vancouver, B.C.
Canada V6T 2A3**

Applications will be accepted until the position is filled. For more information contact Dr. M. Vetterli (vetm@triumf.ca).

We offer equal employment opportunities to qualified male and female applicants. In accordance with Canadian immigration requirements, this advertisement is directed first to Canadian citizens and permanent residents.

science serving society

Lead Cryogenics Technician

As a member of the Accelerator Physics and Engineering Group in the LANSCE Division, you will assume a technical leadership role in the design, fabrication, procurement, assembly, and testing of cryostats for superconducting linear accelerators for the Accelerator Production of Tritium Project and other Division projects. Interact with linac and beam transport physicists, cryogenics, mechanical and electrical engineers, mechanical designers, fabrication and test technicians to define technical and design requirements, plan the fabrication/assembly/test of cryostats. Create technical specifications for in-house and subcontract development, and provide training and technical direction. Applicants not meeting all requirements may be considered at a lower level.

Required Skills, Knowledge, Abilities:

15+ years experience in the manufacture, assembly, test and operation of beamline cryostats, superconducting magnets, and/or other cryogenics/superconducting components. A demonstrated understanding must include cryogenics refrigeration systems, vacuum technology, compressed gas (high purity) systems, and leak detection systems. Knowledge of cryostat fabrication and assembly techniques including instrumentation sensor installation. Progressive responsibility including supervision of technicians and work scheduling. Expertise in writing technical specifications and procedures.

Desired Skills, Knowledge, Abilities:

Experience with blueprints including ANSI Y14.5M dimensioning and tolerancing; machine tools and welding equipment; troubleshooting and repair of cryogenics refrigeration systems. Understanding of basic control functions is a plus.

Education, Training, or Licensing:

Associate of Science Degree in Mechanical Design or equivalent combination of education and experience.

Ability to obtain a DOE Q-clearance, which normally requires U.S. citizenship, is required. Applicants will be subject to a Federal background investigation and must meet eligibility requirements for access to classified matter.

For consideration, please send your resume referencing "CERN 983597" to: jobs@lanl.gov (no attachments, please) or mail to: Human Resources Division, Los Alamos National Laboratory, "CERN 983597," Mail Stop P286, Los Alamos, New Mexico 87545.

Los Alamos
NATIONAL LABORATORY



www.lanl.gov

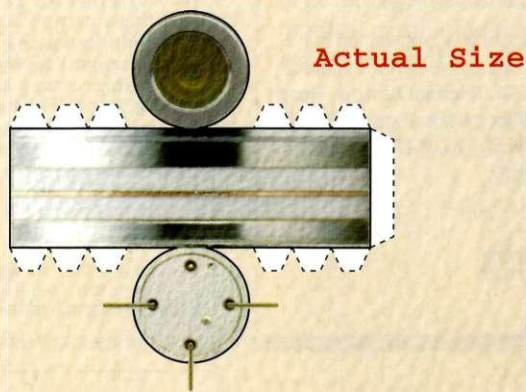
EOE

FEEL OF COMPACT!

Here is a full-scale fold-out drawing to show you just how small and compact our HPD (Hybrid Photo Detector) actually is.

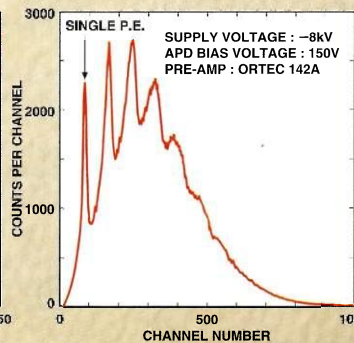
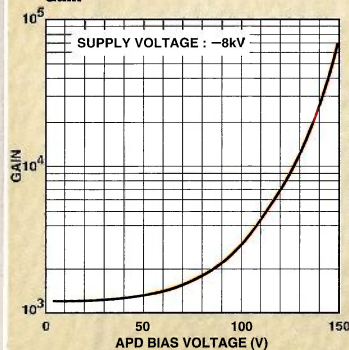
Try it yourself! Make this model with your own hands and get a "feel" for how small this device really is!

52

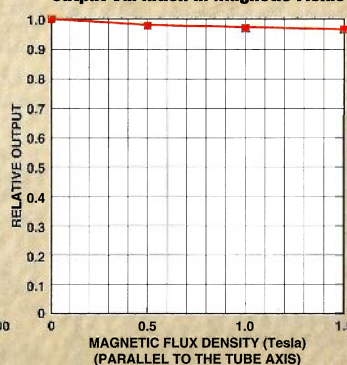


R7110U-07 Typical Characteristics

Gain Photoelectron Spectrum



Output Variation in Magnetic Fields



COMPACT HPD

R7110U-07 : Si-Avalanche Diode Target Type

R7100U-07 : Si-Diode Target Type

Spectral Response : 160 to 850 nm

Effective Area : 8 mm Dia.

Supply Voltage : 8000 V Max.

Weight : 13.8 g



HAMAMATSU PHOTONICS K.K., Electron Tube Center <http://www.hamamatsu.com>

314-5 Shimokanzo, Toyooka-village, Iwata-gun, Shizuoka-ken, 438-0193 Japan. TEL:81-539-62-5248 FAX:81-539-62-2205 TLX:4289-625

United Kingdom: Hamamatsu Photonics UK Limited. TEL:(44)181-367-3560 FAX:(44)181-367-6384

North Europe: Hamamatsu Photonics Norden AB. TEL:(46)8-703-29-50 FAX:(46)8-750-58-95

Italy: Hamamatsu Photonics Italia S.R.L. TEL:(39) 2-935 81 733 FAX:(39) 2-935 81 741

U.S.A.: Hamamatsu Corporation. TEL:(1)908-231-0960 FAX:(1)908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH. TEL:(49)8152-3750 FAX:(49)8152-2658

France: Hamamatsu Photonics France S.A.R.L. TEL:(33) 1 69 53 71 00 FAX:(33) 1 69 53 71 10

Switzerland: CERN Liaison Office TEL:(41)31/879 70 70 FAX:(41)31/879 18 74

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