

FACES AND PLACES

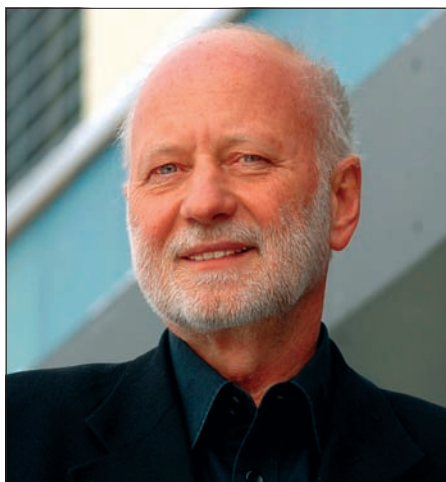
APPOINTMENTS

All change for directorate at PSI

Ralph Eichler has stepped down as director of the Paul Scherrer Institut (PSI) to become president of the Swiss Federal Institute of Technology (ETH) Zurich. The Swiss Federal Council elected him in May, and he took up the post at the beginning of September, after more than five years as director of PSI.

During Eichler's time at the helm, PSI has continued its growth with a diversity of new projects and facilities. In the field of accelerators, for example, these range from the expansion of the Swiss Light Source (a synchrotron radiation facility) via a new proton-therapy facility, PROSCAN, to the initiation of the project for a future compact X-ray free-electron laser facility, PSI-XFEL.

Martin Jermann, current vice-director of planning and operations and long-standing chief-of-staff of the PSI directorate, will succeed Eichler as interim director of PSI. Jermann has a great interest in proton therapy, and as head of the proton-therapy



Martin Jermann (left) takes over from Ralph Eichler at the helm of PSI. (Courtesy PSI.)

programme he has played a leading role in planning and commissioning the PROSCAN project (*CERN Courier* December 2006 p24). The Swiss Federal Council has also



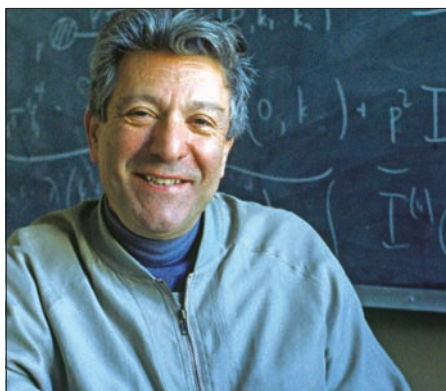
appointed two new vice-directors. Friso van der Veen and Alexander Wokaun take on special responsibilities for the PSI-XFEL project and for energy research, respectively.

AWARDS

Iliopoulos and Maiani receive Dirac medal

The Abdus Salam International Centre for Theoretical Physics (ICTP) has awarded the 2007 Dirac medal to Jean Iliopoulos, emeritus director of research at the Laboratory of Theoretical Physics of the Centre National de la Recherche Scientifique, and Luciano Maiani, former director-general of CERN and now at Rome's La Sapienza University. The medal honoured the two physicists for their joint "work on the physics of the charm quark, a major contribution to the birth of the Standard Model, the modern theory of elementary particles".

In 1970, Maiani and Iliopoulos – together with Sheldon Glashow of Harvard – made an invaluable contribution to electroweak theory when they postulated what became known as the Glashow–Iliopoulos–Maiani (GIM) mechanism. One implication of this was the existence of new, fourth quark, the charm quark (discovered in 1974), with properties similar to those described in



Left: Jean Iliopoulos. (Courtesy CNRS Photothèque/Julien Quideau.) Right: Luciano Maiani.

the original paper on the GIM mechanism. Their work has also contributed to the development of the Standard Model.

The announcement of the annual award, which the ICTP established in 1985, is always on 8 August, the birthday of Paul Dirac. It recognizes fundamental contributions to



theoretical physics or mathematics.

Recipients of the Nobel prize, the Fields medal or the Wolf foundation prize are not eligible – so ruling out Glashow, who received the Nobel prize in 1979 for his work on electroweak theory, together with Abdus Salam and Steven Weinberg.

WFS honours André Martin with 2007 Gian Carlo Wick medal

Theoretical physicist André Martin received the 2007 Gian Carlo Wick Gold Medal in a ceremony in Erice on 20 August. Martin won the award for “his proof of an entire set of rigorous analyticity and symmetry properties of scattering amplitude in particle physics, including the Froissart–Martin bound on total cross-sections, and for his comprehensive analysis of the heavy quark systems in sub-nuclear physics”.

The World Federation of Scientists (WFS) awards the medal each year to a theoretical physicist for outstanding contributions to particle physics. Nobel prize laureate TD Lee chairs the selection committee, which is composed of eminent physicists.

In 1965, Martin established a theoretical basis for the Froissart bound, which limits the total cross-section for the interaction between two particles. He went on to do extensive work on quarkonium systems,



André Martin (centre) together with TD Lee (left), chair of the selection committee, and Antonino Zichichi (right), president of the World Federation of Scientists. (Courtesy WFS.)

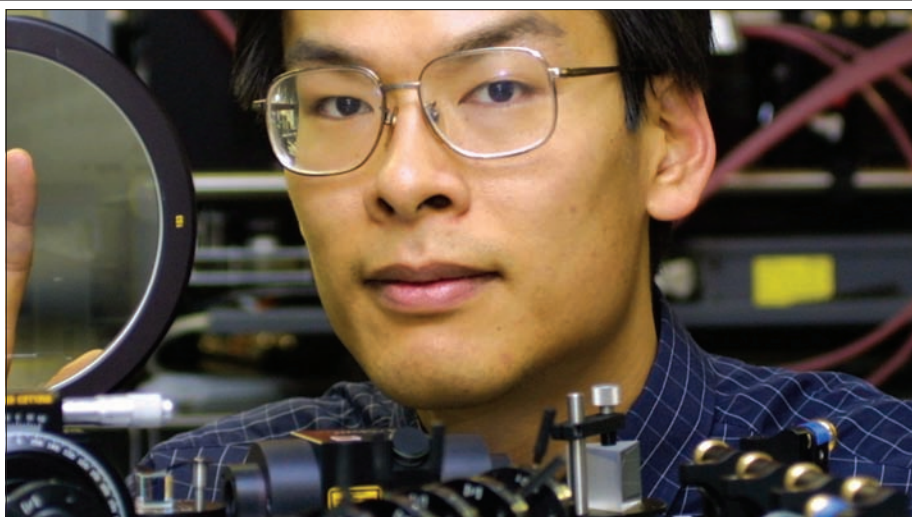
establishing new properties for the Schrödinger equation on these systems. The quarkonia model was later extended to

baryons. Martin was in the theory division at CERN from 1959 until he retired in 1994, and he still works at CERN on theoretical physics.

Masaki Hori wins EURYI award

High-precision spectroscopic measurements on atoms made wholly or partly from antiparticles at CERN's Antiproton Decelerator have received a boost with a prestigious award to Masaki Hori of the ASACUSA collaboration. Hori has received a European young investigator (EURYI) award and research grant to develop his work in this field. A collaboration between the European Heads of Research Councils and the European Science Foundation initiated the EURYI awards scheme in 2003. It aims to attract outstanding young researchers worldwide to create their own research teams at European research centres.

Hori, who is Japanese, will be affiliated with the Max Planck Institute for Quantum Optics in Garching, and undertake the research at CERN's Antiproton Decelerator. He is currently at the University of Tokyo



Hori, winner of a prestigious award for young researchers. (Courtesy ASACUSA.)

but spends most of his time at CERN. His was one of 20 successful projects selected from more than 450 applications. He aims to break new ground in handling and storing antiprotons to create antihydrogen atoms.

Hori and colleagues in ASACUSA laid the

ground for this project in their research on the antiproton, the mass and electric charge of which the team has measured down to within a few parts per billion relative to the proton's values (*CERN Courier* May 2004 p31 and *July/August* 2006 p8).

Brightness award recognizes work by DESY engineer

Frank Close wins science-writing award for obituary



Electrical engineer Jens Peters (right) receives the Brightness award from Jose Alonso, president of the award committee. The ceremony was held in Korea. (Courtesy E Gatz.)

On 27 August, Jens Peters from DESY received the Brightness award at the 2007 International Conference on Ion Sources in Korea. The award, sponsored by Bergoz Instrumentation in France, is in recognition of his contributions in the field of H-sources. Hydrogen atoms with a negative charge – H-particles – are required for effective proton production at particle accelerators.

Peters, an electrical engineer, worked on developing radio-frequency systems for the PETRA electron-positron collider at DESY and later collaborated in the construction of the HERA H-LINAC III. To develop the HERA high-frequency H-source, he used radio frequency for plasma production instead of

the caesium source that is normally used, thus designing an almost maintenance-free source. DESY has since patented this source and CERN is building a copy to provide the LHC with protons. In addition, the Spallation Neutron Source at Oak Ridge uses essential parts of the source and Fermilab also plans to use them.

At the presentation of the Brightness award, there was special mention of Peters' excellent collaboration with other international institutes. A world record, for the production of the longest beam pulse with a source of this kind, has only been possible with the provision of equipment from other institutes.

The Association of British Science Writers (ABSW) has chosen Frank Close, theoretical physicist at Oxford, as one of the 2006 winners of the Syngenta ABSW's awards. Close is well known for his books on particle physics, in particular *The Cosmic Onion*. However, it is for writing an obituary in the *Guardian* newspaper that he has received the prize for "best science writing in a non-science context".

Close's obituary on Nobel laureate and solar-neutrino pioneer, Raymond Davis, was published in the *Guardian's* obituary section on 19 June 2006 and described Davis as "the first person to look into the heart of a star". The awards honour writers and broadcasters who have, in the opinion of an independent judging panel, produced the highest quality science journalism each year, and highlighted important issues accurately and with flair.

● Read the winning article at www.guardian.co.uk/obituaries/story/0,,1800756,00.html.



Frank Close appeared on the cover of CERN Courier for the January/February edition in 2000. He has recently won an ABSW award for his writing about science.

SCHOOLS

Digital signal processing debuts at CAS with resounding success

The CERN Accelerator School (CAS) and Uppsala University jointly organized a specialized school on a new theme this summer, with a course on digital signal processing, which took place in Sigtuna, Sweden, from 1–9 June.

The course was different this year in that the topic had never been treated by CAS, and unlike the usual specialized courses, the structure comprised 32 hours of theoretical lectures in the mornings and a 16-hour “hands-on” course in the afternoons. The latter (well thought out by experts from CERN) had novel logistical implications for transporting computers and evaluation boards (DSPs and FPGAs) to Sigtuna, in central Sweden.

The principle of this new approach was well received by the accelerator community. A total of 97 participants representing 23 different nationalities attended the course, with 80% of the participants originating from the CERN member states. The positive feedback from the participants showed that the course was a resounding success, all the result of the expertise and enthusiasm of the lecturers who volunteered



Participants at the specialized CAS school in Sigtuna. (Courtesy T Thörnlund, Uppsala.)

to take on this challenge. Considering the quality of the preparatory work, as well as the experience collected during the course, it is certainly conceivable that such a course will be considered again in the not-too-distant future, either in the framework of another CAS or similar schools.

In addition to specialized courses,

CAS also organizes general accelerator physics schools at introductory or intermediate levels. More information about this and future courses, as well as examples of lecture notes from previous CERN accelerator schools and the corresponding proceedings, can be found at www.cern.ch/schools/CAS.

ACCELERATORS

U70 reaches 40th anniversary

On 14 October the U70, or the 70 GeV proton synchrotron at the Institute for High Energy Physics (IHEP) in Protvino, in south-western Russia, marks the 40th anniversary of its successful commissioning. The machine held the record for the top beam energy during the late 1960s and became the venue for work by many research, scientific and industrial institutions from around the former Soviet Union. It continues to form the core of experimental facilities of IHEP.

The schedule for launching the U70 in 1967 was tight. In its original configuration, the machine was fed with a beam injected from the 100 MeV Alvarez-type linac (I-100), for which commissioning had started as late as July the same year. On 17 September, the first beam circulated around the main ring and, on 12 October, the accelerator team achieved the important “transition crossing” at 8 GeV. At midnight on 14 October, the U70 accelerated a beam of protons up to an

energy of 76 GeV. The U70 took up an important role in high-energy physics in the late 1960s and was the focus of successful co-operation with CERN on various accelerator systems (fast extraction, controls) and experimental facilities, such as the RF separator for the Mirabelle bubble chamber and other experimental equipment (*CERN Courier* November 2003 p3). Researchers carried out more than 50 experiments at the U70 in co-operation with physicists from CERN.

During the past four decades, the accelerator complex of IHEP has been subject to an extensive upgrade programme. A new injector came into operation (the 1.5 GeV, 16 Hz fast-cycling booster proton synchrotron U1.5) in 1985 to ease the Coulomb tune-shift limitation on beam intensity. This is fed by a unique 30 MeV proton linac (URAL30) based on conventional and drift-tube RF quadrupole (RFQ) accelerator concepts that were pioneered at IHEP.

Beam physicists and engineers at IHEP continue their efforts to keep the machine running and improve the quality of the proton beam that is delivered to



An aerial view of the U70 in Protvino, in south-western Russia. (Courtesy IHEP.)

users. The newly built 30 MeV DTL RFQ proton linac (URAL30M) is currently being pre-commissioned, and a programme to accelerate light ions (deuterium and carbon) through the re-conditioned I-100 to the booster, and eventually to the main ring of the U70, is taking place step-by-step.

The safety margin foreseen in the design and construction of the U70 is a legacy of the previous generations of accelerator experts, and is now a prerequisite for the continued operation of the U70 – the largest proton accelerator in Russia – for fundamental and applied research in the energy range of a few tens of giga-electron-volts.

OBITUARIES

Kjell Johnsen 1921–2007

Kjell Johnsen passed away at his home in Switzerland on 18 July following a long battle with cancer.

Kjell was born in Norway in June 1921 and studied electrical engineering at the Technical University of Trondheim. He was selected by Odd Dahl of Bergen, one of the founding fathers of CERN, to take part in the early studies for the accelerators of the future European physics centre. Kjell joined CERN in 1952 and took part in the design of the new laboratory's most ambitious project, the alternating gradient proton synchrotron, which became known as the PS. He soon developed into one of the few real accelerator experts in the world at the time.

For several years, Kjell dedicated his energy and vision to obtaining approval for the construction of the Intersecting Storage Rings (ISR), the world's first proton–proton collider. This project was approved under Kjell's leadership and construction began in 1966 – with completion in 1971. At the time, the ISR was an incredibly ambitious and controversial project. Many eminent scientists stated openly that the beams would not survive long enough to produce physics data. It is now history that the ISR is one of the great accelerator success stories. It opened up a new energy domain for high-energy physics and paved the way for the approval and construction of many larger projects, such as converting CERN's SPS into a proton–antiproton



Kjell Johnsen, leader of the Intersecting Storage Rings project, announced from the crowded control room that the first-ever interactions from colliding proton beams had been recorded on 27 January 1971.

collider, the Tevatron at Fermilab and, now, the LHC. Under Kjell's leadership, the ISR project was an inspiring example of well-directed teamwork. For all of us who had the privilege to work on this machine under him, we can honestly say that this was a rewarding and uniquely major scientific experience and adventure.

Kjell was made professor at the Technical University of Trondheim, and for several years he dedicated an important part of his time to teaching at doctoral level and training young people. He was also the creator and inaugural director of the CERN Accelerator School, which has become a successful enterprise, attracting many talented and gifted young students from all over the world, and thereby promoting scientific collaboration at a European and worldwide level (see p42).

Kjell's many friends around the world have always valued his kindness, competence, intellectual honesty, seriousness, scientific vision, courage and dedication. It was to him that people always went for clarifications, advice and guidance.

We will miss him dearly. We should, however, be comforted by the thought that he has been a great example and role model to many of us. He has been respected and appreciated, and has most definitely left a permanent mark in his chosen professional field of accelerator research. His friends and colleagues.

Mike Ronan 1949–2006

Mike Ronan, a senior staff scientist at Lawrence Berkeley National Laboratory and lecturer at the University of California, Berkeley, died tragically on 17 October 2006. A consummate experimentalist, he made substantial contributions in many areas of high-energy physics projects, from detector development and accelerators, to software design and physics analyses. He was 57 years old.

Mike received a degree in physics in 1970 from the University of Massachusetts, followed by a master's degree and, in 1976, a PhD in elementary-particle physics from Northeastern University. He came to Lawrence Berkeley Laboratory (LBL) that same year to join the Lead Glass Wall (LGW) experiment at SLAC's storage ring, SPEAR. LGW sought to confirm the existence of the tau lepton using good electron identification, as well as to study charmed meson branching ratios. The experiment discovered a new particle, the Ψ (3772), a $c\bar{c}$ state at the threshold of open charm. In addition, there was for the first time evidence for direct photon production in $e^+e^- \rightarrow gg\gamma$. Mike did this very difficult analysis with only one other colleague, and reported it at conferences, gaining the rare distinction of being invited to lunch by Richard Feynman.

In 1978 Mike joined the emerging effort at LBL on the time projection chamber (TPC) for the PEP-4 experiment at SLAC's PEP storage ring. He led the development of the complex trigger electronics, based on a sophisticated sliding window in the TPC r-z plane to distinguish true event tracks



Mike Ronan was a strong supporter of the International Linear Collider and TPC effort.

from backgrounds. In addition, he did all the software development for the PDP11/70 that controlled data acquisition. Later,

Mike served as experiment spokesperson, championing the physics analysis of several topics and guiding PhD students. More than a hundred publications were completed under Mike's leadership.

In the era of the SLAC Linear Collider, Mike turned his attention to a particularly challenging aspect of the new accelerator complex – the synchronization of the new and older linac subsystems at gigahertz frequencies, thought by some to be challenging to the point of technical impossibility. Mike served as project engineer with great success, the first non-SLAC individual to hold such responsibility. He later developed a mini-TPC that allowed an early study of backgrounds at BaBar, the PEP-II experiment for the study of b-quarks.

Mike was a strong supporter of the International Linear Collider from the early stages, and was a driving force for an advanced TPC effort. With equal versatility, he built collaborations, developed a suite of fast simulation tools spanning detector performance to physics histograms, and contributed hands-on effort to laboratory studies of the spatial resolution in TPC R&D activities. In recognition of his substantial contributions, he was invited to serve as the American representative for the Global Large Detector effort.

Mike had an uncommon level of enthusiasm, versatility and skill. His sudden and unexpected loss is felt keenly by all of us in the international science community who had the good fortune to work with him. *Lina Galtieri and Dave Nygren, LBNL.*

MEETINGS

The **CLIC workshop 2007 (CLIC07)** is on 16–18 October and will take place at CERN. It will provide a forum to review all aspects related to the accelerator, detector and

particle physics of a multi-tera electron-volt linear collider based on compact linear collider (CLIC) technology.

For more details contact Hans Braun

(Hans.Braun@cern.ch) or Albert De Roeck (deroeck@mail.cern.ch), or see <http://project-clic07-workshop.web.cern.ch/project-CLIC07-workshop>.



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