

FACES AND PLACES

APPOINTMENT

Joël Mesot becomes director at PSI

Joël Mesot, an internationally acknowledged solid-state physicist, has become the new director of the Paul Scherrer Institut (PSI). His term of office began on 1 August, the Swiss national "birthday", in the year that PSI is celebrating its 20th anniversary. He takes over from the interim director, Martin Jermann (*CERN Courier* October 2007 p37).

Mesot was elected to the post by the Swiss Federal Council at the end of 2007. He was also elected to a joint professorship in physics at the two Swiss federal polytechnics, ETH-Zurich and EPF-Lausanne, by the ETH Council in April 2008.

Mesot's career in solid-state physics, which started with neutron scattering at ETH-Zurich/PSI and the Institut Laue-Langevin, continued with synchrotron radiation studies while a guest scientist at Argonne National Laboratory.

His work, with an emphasis on materials with unusual electronic properties, has made him well known in the fields of neutron



Joël Mesot, who took over at PSI on 1 August. (Courtesy Markus Fischer/PSI.)

scattering and photoelectron spectroscopy in connection with high-temperature superconductivity. He holds two patents associated with his research, and in 2002 was awarded the European Science Foundation's Latsis Prize for outstanding and innovative contributions in a selected field of European research.

Since December 2004 he has been head of the Laboratory of Neutron Scattering of PSI and ETH-Zurich, based at the Swiss Spallation Neutron Source (SINQ) at PSI.

Mesot will take over an active multidisciplinary "user laboratory" with world-class research facilities for material science, elementary particle physics, biology, medical science and energy and environmental research – a legacy promoted by previous directors. This, together with the foreseen realization of a compact X-ray free-electron laser at PSI, will guarantee an exciting and ambitious challenge for the next decade.

VISIT

French research minister comes to CERN

On 6 June Valérie Pécresse, the French minister for higher education and research, visited CERN. The main objective of the visit was to obtain input on the organization of large research infrastructures, based on information concerning CERN's administrative and scientific configuration and the experiment collaborations.

After a tour of the CMS experiment and the LHC tunnel, with the president of the French National Assembly, Bernard Accoyer, the delegation took part in a round-table discussion attended by a dozen physicists. This included the director-general, project leaders, deputy spokespeople, members of the experiments, CERN personnel and users. The minister commented that fields of biomedical research, such as Alzheimer's disease and cancer, could benefit from pooling resources at the European level following CERN's example.



The French minister for higher education and research, Valérie Pécresse, with CERN's director-general, Robert Aymar. She visited CERN to learn more about the organization of large research infrastructures.

AWARDS

CERN receives Duke's Choice Award for Java development

CERN was honoured by Sun Microsystems at the JavaOne conference in May, with a gold Duke's Choice Award for the collection of Java applications that CERN developed for the installation and operation of the LHC. James Gosling, inventor of Java and vice-president of Sun Microsystems, presented the award to CERN's Derek Mathieson, who collected it on behalf of the organization.

Mathieson also had the opportunity to give live demonstrations of four of CERN's Java applications during Gosling's keynote presentation. These started with EDH, an application used by the administration as part of its Advanced Information Systems project. This was followed by the Technical Infrastructure Monitoring application used to monitor critical systems such as electricity, water supplies and cooling, 24 hours a day throughout the CERN site. The third application was the GraXML event viewer, which provides three-dimensional visualization of the ATLAS detector



Derek Mathieson, right, receives the Duke's Choice Award from James Gosling, on behalf of CERN. Mathieson also gave demonstrations at the ceremony. (Courtesy John Todd/Sun Microsystems.)

geometry with event data overlaid, allowing researchers to see the reconstructed particle tracks as they traverse the detector. The demonstrations finished with the GridPP

real-time monitoring tool developed at Imperial College, London, which provides real-time views of Grid activity, visualized on a three-dimensional view of the Earth.

All-ion accelerator scoops 21st Century Invention Prize

Ken Takayama and Yoshio Arakida of KEK and Yoshito Shimosaki of the Japan Synchrotron Radiation Research Institute and Kota Torikai Gunma University, have been awarded the 21st Century Invention Prize for 2008 by the Japan Institute of Invention and Innovation (JIII) for their work on an all-ion accelerator, based on the induction synchrotron concept. Atsuto Suzuki, director-general of KEK, has also been awarded the 21st Century Contribution to Invention Prize. They received their awards from Prince Masahito, president of JIII, at a ceremony on 17 June.

The invention is based on the induction synchrotron concept, proposed by Takayama and the late Junichi Kishiro in 2000 and fully demonstrated using the KEK 12 GeV PS in 2006 after the first partial demonstration in



Left to right: Yoshito Shimosaki, Ken Takayama, Kota Torikai, and Yoshio Arakida at the award ceremony. (Courtesy KEK.)

2004 (*CERN Courier* April 2005 p22). In the all-ion accelerator, all ions, including cluster ions and radioisotope ions, are captured from the ion source and accelerated in the induction acceleration cells with pulsed voltages generated by transformers.

The transformers are energized by corresponding switched power supplies. Solid-state power conductors act as switching elements controlled by gate signals digitally manipulated from the signal of the circulating beam. This guarantees the synchronization of the acceleration with the revolution of the ion beam, whatever the ion and its possible charge state.

The KEK 500 MeV Booster is currently under renovation to become the world's first injector-free all-ion accelerator.

Centennial Markov Prizes honour neutrino and accelerator physics

The centenary of Russian physicist Moisey Markov was celebrated on 14–16 May at the 6th Markov Readings held in Moscow and Dubna. In honour of the anniversary, the event saw the award of two Markov Prizes for 2008, to specialists in neutrino physics and accelerator physics.

Markov (1908–1994) made pioneering contributions to research in neutrino physics, as well as to studies of fundamental problems in elementary particle physics and quantum gravity, and on the borderline between particle physics and cosmology. The academician secretary of the Nuclear Physics Division of the Academy of Sciences of the USSR for two decades (1967–1988), Markov played a big role in the country's development of nuclear, particle and cosmic-ray physics and neutrino astrophysics. The Markov Prize was established by the Institute for Nuclear Research (INR) of the Russian Academy of Sciences in his memory as one of the founders of the Institute.

One Markov Prize for the centennial year was awarded to Stanislav Mikheev of INR and Alexei Smirnov of the Abdus Salam International Centre for Theoretical



From left to right: Victor Matveev, director of INR, with prize-winners Stanislav Mikheev, Leonid Kravchuck, Alexandr Feschenko, Sergei Esin and Albert Tavkhelidze, chairman of the Markov prize committee. Markov's portrait is in the background. (Photos courtesy INR-RAS.)



Alexei Smirnov shared the prize with Mikheev but was unable to be in Moscow. He will receive his prize later.

Physics and INR. They received the prize “for their outstanding contributions to the theory of neutrino oscillations and neutrino astrophysics that has made major impact on the interpretation of data from the institute's unique experiments at Baksan, the Large Volume Detector and the Liquid Scintillator Detector, as well as from other experiments”. They are especially well known for their

work on neutrino oscillations, particularly in matter. Sergei Esin, Leonid Kravchuck and Alexandr Feschenko, all from INR, received the second centennial Markov Prize “for the outstanding contribution to the development of physics and technology of accelerators, construction and upgrade of the high current linear accelerator of the Moscow Meson Factory”.

SCIENTIFIC INFORMATION

Workshop tackles scientific dissemination via open access

We hear the phrase “it's all on the Internet” more and more frequently, but it is not true for everyone. In the western world most of the information that scholars access for research is restricted to subscribers, with subscriptions only affordable by wealthy institutions. Moreover, access to the Internet is not necessarily easy – in several countries there is extremely limited bandwidth combined with a power supply that may be highly irregular.

Open access has begun to address the first of these problems. In particle physics, for example, use of the preprint service arXiv.org means that there is basically always one version of any paper written in the last

15 years available to anyone with access to the Internet.

On 7–16 July the Science Dissemination Unit (SDU) of the International Centre for Theoretical Physics (ICTP), in collaboration with CERN and the International Network for the Availability of Publications, organized a workshop on how to use open-access models for scientific dissemination. Some 60 participants attended, coming from 35 different countries, mainly from the less advantaged parts of the world.

The stimulating discussions at the workshop showed that open access should not only provide an opportunity for improving

access to information but also be used to augment the visibility of results from research carried out in less wealthy countries. There are still many practical issues to be solved, but there is no doubt that open access offers a level playing field to researchers across the world for accessing and disseminating scientific results.

Further reading

For more about the workshop, see <http://sdu.ictp.it/openaccess>. The ICTP SDU has published a free book *Science Dissemination, using open access*. This is available at <http://sdu.ictp.it/openaccess/book.html>.

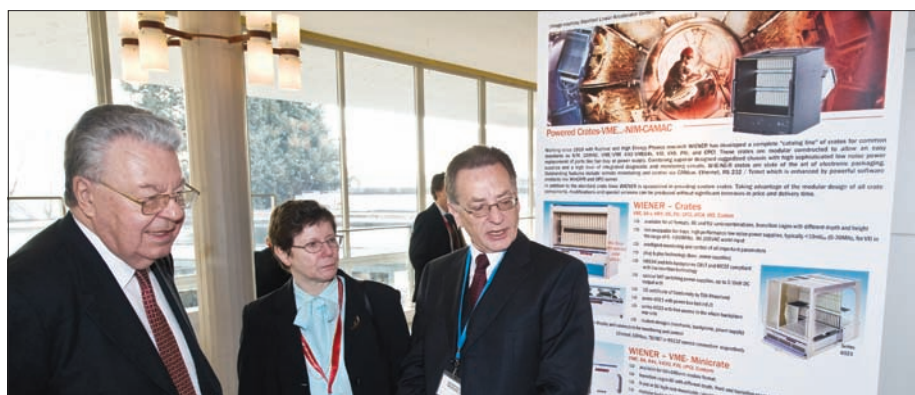
INDUSTRY

CERN and German ministry host first Innovation Forum

This year the Federal Ministry of Education and Research (BMBF), together with CERN, held the first ever Innovation Forum at CERN in parallel with the 10th industrial exhibition in the series "Germany at CERN". Open to participants from all CERN member states, the forum aimed to provide researchers, innovators, chief technology officers and entrepreneurs the opportunity to learn more about CERN's technological know-how and expertise, accumulated through building the LHC, its detectors and the Worldwide LHC Computing Grid. In addition, participants could find out about the applications and benefits of CERN technology in many different domains beyond high-energy physics.

After a preliminary contact and networking evening on 28 January, both events were opened the following day by Beatrix Vierkorn-Rudolph, head of the BMBF Directorate and German delegate to the CERN Council, and Robert Aymar, CERN's director-general. They then toured the industrial exhibition, which provided a state-of-the-art picture of German industry. Some 30 German companies presented their products at the exhibition, in the main areas of mechanical and electrical engineering, electronics, data processing, radiation protection, vacuum and low-temperature technology, civil engineering and buildings. As with other exhibitions of this kind, it provided a platform for companies to offer their services to scientists and purchasing officers at CERN, to establish contacts and to find out about future purchasing opportunities.

More than 200 participants from Germany and other CERN member states representing about 100 research institutes and companies attended the Innovation Forum, which, like the exhibition, was on from 29–30 January. Members of the CERN Technology Transfer Group were first to talk at the forum, presenting technology transfer at CERN and the conditions for accessing technology developed at CERN, together



Beatrix Vierkorn-Rudolph (centre), head of the BMBF Directorate and German delegate to the CERN Council, and Robert Aymar (left), CERN's director-general, visiting the industry exhibition. (Courtesy BICOM.)

with an overview of the technology-transfer opportunities for applications in, for example, microelectronics, cryotechnology, surface treatment and mechanics. Experts from CERN also presented specific state-of-the-art technologies developed in domains such as accelerators, material and surface technology, ultra-high vacuum and microelectronics. As an illustration of a successful application, Germany's Raytest GMBH presented its ClearPET small-animal PET system for imaging in pharmaceutical research. This is based on detector technology developments carried out within the Crystal Clear Collaboration (*CERN Courier* July/August 2005 p27).

Following the presentations, "matchmaking talks" took place between experts from CERN and industry representatives interested in specific technologies. These provided participants from both industry and research with excellent networking opportunities. Many discussions took place to present products, know-how and expertise available from industry for CERN, as well as to raise awareness of CERN as a centre of excellence for innovative technologies and expertise. The talks evaluated co-operation possibilities between fundamental research and industry.

In the evening, participants were able to

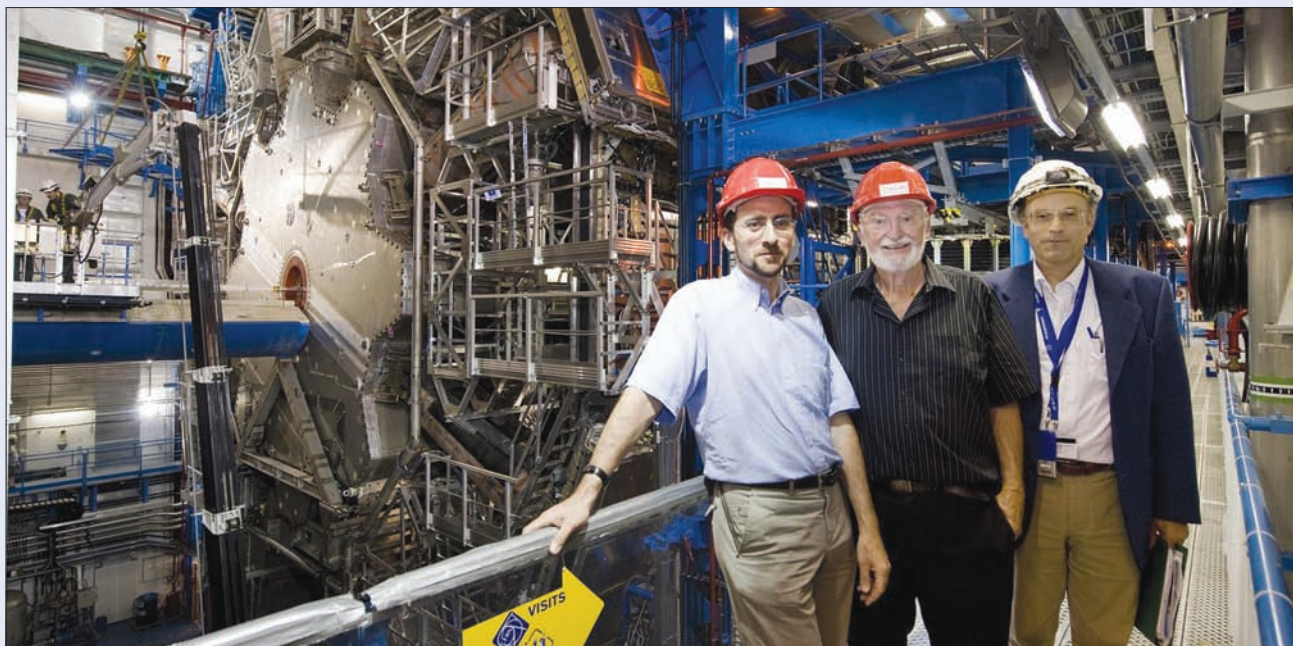
continue discussions and networking in a relaxed atmosphere inside CERN's Globe of Science and Innovation.

The forum continued the next day with the exchange of ideas and exploration of network opportunities, followed by a visit to the underground areas of the CMS and ATLAS experiments. This gave the participants an idea of the challenges, complexity and performance of the LHC and its experiments, all of which have never been achieved before.

In general, the participants recognized the benefits of fundamental research, in particular particle physics, for society and could see the commercial prospects and competitive advantages that particle physics offers to high-tech industry. Participants from industry showed a strong interest in the presentations on CERN's technologies and their potential for application outside high-energy physics.

For follow-up and similar events in the future, all participants will be contacted and asked to fill in a questionnaire about the importance and impact of this event.

● For more about the programme, participants and company profiles, and all presentations, see the BICOM GmbH website www.innovationsforum-cern.de.



Heinrich Rohrer (centre), the 1986 Nobel Laureate who shared the prize in physics with Gerd Binnig for the design of the scanning tunnelling microscope, visited CERN on 25 June. Welcomed by ATLAS spokesperson Peter Jenni (right) and head

of the former IT Communications Team, Francois Grey, he visited the cavern of the ATLAS experiment. Afterwards he toured the ATLAS control room, the Computer Centre, the Unosat project, the Antimatter Decelerator and ISOLDE.

NEW PRODUCTS

Aerotech has announced new Motion Designer software that provides an easy-to-use graphical user interface for generating and analysing motion trajectories, as well as improving the performance of complex motion profiles. The software simplifies trajectory programming and reduces development time where an exact motion profile needs to be generated. It can be used with Aerotech's PC-based A3200 Automation Platform motion and machine-control system, as well as with the EnsembleT or single-axis SoloistT motion controllers. For more information, contact Cliff Joliffe, tel +44 118 940 9400 (fax +44 118 940 9401), e-mail cjoliffe@aerotech.co.uk.

AMS Technologies now has the small, ultra fast Sudden Fault Fuse Resistors (SFFR) in IGBT driver circuits from Caddock Electronics available up to 1100V. The SFFR technology eliminates the catastrophic damage in the gate driver circuit caused by sudden breakdown in gate isolation in the IGBT. In the

SFFR the sudden application of a high voltage fault instantaneously causes distributed multiple interruptions along the length of the SFFR element, opening the high voltage fault. For more information, tel +49 898 957 7514, e-mail salesinfo@ams.de or see www.ams.de.

HamaTech Advanced Process Equipment has shipped its 30th MaskTrack photomask-cleaning system for 45 nm photolithography processing. This combines the capability to control process parameters dynamically, allowing an unparalleled variety of surface materials to be cleaned with a single tool and thereby eliminating adjustment downtime, together with innovative inspection and repair feedback for the targeted cleaning of specific areas of the mask. For more information, tel +49 704 5418 or fax +49 704 454 1239.

Heason Technology has announced the EDGE Motor from Nanomotion, a micro sized, sub micron resolution ceramic servomotor, just 13.5 mm long, 7.6 mm wide and 3.15 mm

high. The EDGE can deliver a dynamic stall force of 300 mN at speeds of up to 120 mm/s – sufficient to position focusing mechanisms and other small optical devices, and devices such as miniature pumps. The motor is rated for a temperature range of -20°C to $+60^{\circ}\text{C}$. For more information, contact Jon Howard, tel +44 140 375 5800 (fax +44 140 375 5810), e-mail jhoward@heason.com or see www.heason.com.

HiTek Power has introduced a series of 600 W ultraslim, lightweight high-voltage power supplies housed in a 1U high chassis. These new supplies measure 430 mm wide, 500 mm long, and 42 mm high, and they offer double the power available from other similar-sized supplies. The series provide full digital front-panel control and monitoring. The units offer output voltages of 1 kV to 80 kV, using air as the primary insulation medium. Output currents range from 7.5 mA to 600 mA. For more information, contact Michelle Quiggan, tel +44 190 371 2400, e-mail MQuiggan@hitekpower.com or see www.hitekpower.com.

OBITUARIES

Peter Schlein 1932–2008

Friends and colleagues were shocked and deeply saddened by the unexpected death of Peter Schlein on 26 February 2008. He was a highly respected particle physicist who started his long career on emulsion experiments and moved on to bubble-chamber, fixed-target and hadron-collider experiments. His best-known efforts include his role in founding two fields: the partonic structure of the pomeron and forward B-particle production.

Peter was born in Brooklyn, New York, on 18 November 1932, the eldest of four sons. His father, Irving Schlein, was a neoclassical composer, Broadway musical conductor and teacher. After graduating from Union College in Schenectady, New York, Peter received his PhD from Northwestern University in Evanston, Illinois. He worked as a postdoctoral researcher at the University of California, Berkeley, and Johns Hopkins University before joining the physics department at University of California Los Angeles (UCLA) in 1962.

Peter's research was unique. Had he not pursued it, much of the work in his field would probably not have been done or would have been undertaken at a much later date – and it would certainly have lacked his distinctive style. He took sabbatical leave from UCLA in 1969 at CERN to work at the ISR. The experiment was so fascinating for him that he continued the collaboration, dividing his time between CERN and UCLA. He went on to construct the first wide-aperture forward spectrometers at the ISR in 1973–1974, and this was to influence much of his future research. In the mid-1970s Peter returned to the US, where he collaborated on the fixed-target experiment E260 at Fermilab. He later returned to CERN to build the second-generation forward spectrometer to observe the Λ_c baryon and to study forward systems.

After the closure of the ISR, and excited by the results of his R608 experiment on diffractive dissociation of protons, Peter and Gunnar Ingelman proposed that the pomeron, which is exchanged in such interactions, should have partonic structure. Like any other



Peter Schlein. (Courtesy Lonnie Schlein.)

strongly interacting particle, this partonic structure could be measured experimentally by observing jets in this class of interactions. He proposed and constructed the UA8 experiment at the Sp $\bar{p}$ S Collider at CERN to observe the jets produced in diffractive interactions. This saw the first use of Roman pots to trigger a central collider experiment. A very clean signal for jets in diffractive dissociation was observed with the first year's data, and so the new field of "hard diffraction" was born.

Before data-taking on the UA8 experiment was completed, Peter started thinking about studying B mesons and CP violation in hadron colliders, at a time when many physicists were planning to build e^+e^- colliders to study the same physics. During the next few years he directed the R&D programme that

developed the topology trigger and the silicon system deployed a few millimetres from the circulating beams, two major obstacles for studying B mesons in hadron colliders. His series of proposals for a B experiment at the SPS, Fermilab and RHIC at Brookhaven eventually formed the basis of the plan for the LHCb experiment that will start data taking at the LHC this year. He left the LHCb experiment because of a lack of US support and, along with his UCLA colleagues, joined another LHC experiment, CMS, where he again concentrated on forward physics.

Peter spent four decades with the UCLA physics department, where he left a strong impression. Throughout his career he brought several notable faculty members to the department, and his impact was evident on the younger generation of faculty who were regularly asked by outside colleagues: "How is Peter doing?"

Near the end of his career and during his retirement, Peter turned his boundless energy towards reviving the legacy of his father's classical music. He catalogued hundreds of old scores and recovered lost pages from a variety of musical sources. He befriended many of the top musicians and musicologists in St Petersburg, Russia, transcribing all of the scores into digital form, and he commissioned performances and recordings by members of the St Petersburg Philharmonic. In all, Peter produced 14 CDs of his father's works, which are now being performed by musicians around the world. He was as proud of his accomplishments in creating "a new page in American music" as he was of his career as a physicist. With boundless energy and unstinting enthusiasm, he brought the beauty and originality of his father's musical works to the attention of an audience that never knew of their existence. This new work of musical discovery remains a work in progress and will add to his legacy.

Peter Schlein was a devoted family man and he leaves behind his wife, Lisa, his children, Oren and Ilana, five grandchildren and three brothers.

Samim Erhan, David Saltzberg and Rainer Wallney, UCLA.

Hiroshi Hirabayashi 1934–2008

Hiroshi Hirabayashi, a leading figure and professor emeritus of KEK, passed away on 11 April 2008. He was an internationally renowned pioneer in the field of applied superconductivity and cryogenics for high-energy physics.

Hirabayashi was born in Gifu Prefecture, renowned for the Shirakawa-go world heritage site. He was educated in nuclear engineering at the graduate school of Tokyo Institute of Technology, where he gained his PhD in 1966, before becoming a research associate at the Institute of Nuclear Study at the University of Tokyo. He worked on preparations for the National Laboratory for High Energy Physics, or KEK, now the High Energy Accelerator Research Organization, in particular in developing a hydrogen bubble chamber, essential for high-energy physics experiments in Japan. At the same time he established cryogenics – the necessary basic engineering – as a new academic discipline in Japan, and contributed to the development of applied superconductivity and cryogenics in collaboration with Japanese industry.

Moving as an associate professor to KEK when it was set up in 1971, Hirabayashi became a key person in the development of the KEK 1-m bubble chamber. From 1979, as professor, he led the construction of the primary proton and secondary (kaon and pion) beam lines at the KEK 12-GeV proton synchrotron. With excellent foresight, he advocated the importance of applied superconductivity and cryogenic engineering for accelerator science at the energy frontier of particle physics and was able to develop these areas through his strong leadership. His activities in these fields extended



Hiroshi Hirabayashi. (Courtesy KEK.)

internationally through the developments of a superconducting secondary beam line at KEK, superconducting magnets for the TRISTAN project, a challenging 10-T dipole magnet for future accelerators, and collaborations on superconducting magnet development for the Superconducting Super Collider project, the g-2 experiment at Brookhaven, the WASA experiment at Uppsala University and the LHC project at CERN. He made Japanese superconducting magnet technologies for accelerator and particle physics highly appreciated throughout the world.

Hirabayashi went on to become head of the Experiment Management Division, head of the Cryogenics Center, and director of the Applied

Research Laboratory at KEK. In 1995 he was invited to head the Safety and Environment Research Center at the National Institute for Fusion Science, where he used his extensive experience and knowledge to advise on the construction of the Large Helical Device.

He contributed to several boards and committees, as a member of the international cryogenic engineering committee in 1990–1999, chairman of the cryogenic society of Japan in 1992–1994, and a member and chairperson of the superconductivity and cryogenics panel of the international committee for future accelerators in 1987–1995. He was also the Asian editor of *Cryogenics* from 1987–1996. His exceptional work in the field was recognized with the IEEE Award for Continuing and Significant Contributions in the Field of Applied Superconductivity and the special award for superconducting technology from the Society of Non-Traditional Technology.

After retirement in 1998, with a view to the environment and energy saving, Hirabayashi highlighted the need for the “convergence of liquid hydrogen and superconducting technology”. His ideas for future society and technology leave an important legacy.

Hirabayashi's most important contribution was to devote energy to train the next generation to work in the fields of superconductivity and cryogenics and the development of these technologies. He trained many young scientists who now work actively in accelerator science and particle physics.

Hirabayashi's sudden death has been received with deep sadness not only by people in Japan but worldwide. *Takakazu Shintomi and Akira Yamamoto, KEK.*

Uwe Timm 1924–2008

Uwe Timm, a senior physicist at the DESY Laboratory, died aged 84 on 1 May 2008.

Coming from the University of Hamburg, Timm joined DESY in 1958, before its official foundation in 1959. He was among a group of idealistic and enthusiastic young people

whom Willibald Jentschke had attracted to build a 6 GeV electron synchrotron. The group succeeded in building a superb accelerator, even though they had all been amateurs in the field. Timm's responsibility was the 40 MeV electron linac injector which performed well

from the beginning when the first electron beam was accelerated on 25 February 1964.

Timm subsequently turned to experimental high-energy physics. His unique contribution to this field was building a beam of high-energy coherent bremsstrahlung: an

electron beam hitting a diamond target under precise conditions produces coherent gamma radiation with high linear polarization. For this achievement Timm received the Röntgen award from the University of Giessen in 1966. The polarized photon beam offered new ways to study photoproduction and Timm's group used it to measure ρ photoproduction and Compton scattering on the proton with polarized gamma rays, producing spectacular early results at DESY. The polarized gamma beam was also used by other DESY groups and helped the F35 group, for example, to study pion photoproduction and win the "Physikpreis" of the German Physical Society in 1970.

When DESY turned to storage-ring physics, Timm became spokesman of the PLUTO collaboration at the DORIS storage ring. PLUTO soon had good data on the total hadronic cross-section and on inclusive muons, which confirmed the existence of the τ lepton. The collaboration's pioneering work on gamma-gamma physics is still quoted today. The investigation of the Y resonance

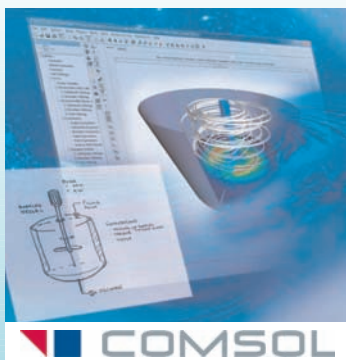


Uwe Timm. (Courtesy DESY, Hamburg.)

decaying into three gluons established early indirect evidence for the existence of the gluon and for its spin. The PLUTO detector moved to the PETRA storage ring where the collaboration saw the first clear two-jet events and took part in the first round of experiments connected with the discovery of the gluon.

Yet another challenge awaited Timm at the end of his career, with the approval in April 1984 of the electron-proton storage ring HERA. Its construction required an enormous coherent effort from the DESY staff. Many physicists and engineers from the experimental groups joined the teams building HERA. As one of them, Timm again did a great service to the laboratory by, perhaps not surprisingly, building a 50 MeV proton linac (Linac III) of the Alvarez-type. It was ready for duty in November 1988, well in time before Timm retired officially in April 1989.

Timm was one of those people who do not seek the limelight, but who are vital to keep a laboratory successful. In collaborations he provided the necessary leadership and saw to it that consensus and harmony prevailed, and that the collaboration remained on a successful course. He will be remembered by his colleagues and friends at DESY as a personality who was instrumental in shaping the physics and the spirit of the laboratory. *Erich Lohrmann, DESY.*



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