AWARDS



A selection of 2011 APS prize-winners: (left to right) Yaroslav Derbenev, Gerald Gabrielse and Ian Hinchliffe. (Courtesy Jefferson Lab, Harvard and ATLAS.)

APS announces winners for 2011

The American Physical Society (APS) has announced its awards for 2011, including some major prizes in particle physics and related fields.

With physics at the LHC having started during 2010, it is appropriate that the award that recognizes and encourages outstanding achievement in particle theory – the J J Sakurai Prize for Theoretical Particle Physics for 2011– goes to Ian Hinchliffe of the Lawrence Berkeley National Laboratory (LBNL) and Kenneth Lane of Boston University, together with Estia Eichten and Chris Quigg of Fermilab. The four receive the prize for their "work, separately and collectively, to chart a course of the exploration of TeV-scale physics using multi-TeV hadron colliders". In 1983–1984, Eichten, Hinchliffe, Lane and Quigg wrote "Supercollider physics", a paper that explored the reach of high-energy hadron colliders for the physics of the Standard Model and for potential new physics associated with the electroweak breaking scale of 1 TeV. They have all since worked on various ideas that will be tested at the LHC. Hinchliffe served as ATLAS physics co-ordinator in 2006–2007 and is currently head of LBNL's ATLAS group.

Theoretical physics is also the focus this year of the Hans A Bethe Prize for outstanding work in theory, experiment or observation in the areas of astrophysics, nuclear physics, nuclear astrophysics, or closely related fields. Christopher J Pethick of the Nordic Institute for Theoretical Physics receives the 2011 award "for fundamental contributions to the understanding of nuclear matter at very high densities, the structure of neutron stars, their cooling, and the related neutrino processes and astrophysical phenomena".

The Lars Onsager Prize is another award for theoretical physics, in this case to recognize outstanding research in theoretical statistical physics, including the quantum fluids. The 2011 award goes to Alexander A Belavin of the L D Landau Institute for Theoretical Physics, Alexander B Zamolodchikov of Rutgers University and Alexander M Polyakov of Princeton University for their "outstanding contributions to theoretical physics, and especially for the remarkable ideas that they introduced concerning conformal field theory and soluble models of statistical mechanics in two dimensions".

Experimental physics is rewarded by a number of APS prizes. The W K H Panofsky Prize in Experimental Particle Physics is to recognize and encourage outstanding achievements in the field. The award for 2011 goes to A J Stewart Smith of Princeton University, Laurence Littenberg of Brookhaven National Laboratory and Douglas Bryman of the University of British Columbia. They receive the prize for "leadership in the measurement of kaon decay properties and in particular for the discovery and measurement of $K^+ \to \pi^+ \nu\nu$".

The Robert R Wilson Prize for Achievement in the Physics of Particle Accelerators is also to recognize and encourage outstanding work in the field. Yaroslav Derbenev of the Thomas Jefferson National Accelerator Facility receives the 2011 prize for "a broad range of seminal contributions and innovations in beam physics, including theory and control of polarization with 'Siberian snakes', electron and ionization cooling, round-to-flat beam transformations, FELs and electron–ion colliders."

In nuclear physics the Tom W Bonner Prize is to recognize and encourage outstanding experimental research in nuclear physics, including the development of a method, technique or device that significantly contributes in a general way to nuclear-physics research. Richard F Casten of Yale University receives the 2011 prize for "providing critical insight into the evolution of nuclear structure with varying proton and neutron numbers and the discovery of a variety of dynamic symmetries in nuclei".

The Julius Edgar Lilienfeld Prize recognizes a most outstanding contribution to physics, by a single individual who also has exceptional skills in lecturing to diverse audiences. The 2011 award goes to Gerald Gabrielse of Harvard University "for novel methods that enable measurement of the electron magnetic moment and fine structure constant to unprecedented precision", as well as his skill in sharing this science with a range of audiences.

Finally, the Prize for a Faculty Member for Research in an Undergraduate Institution goes to Janet Seger of Creighton University. A member of the STAR collaboration at the Relativistic Heavy Ion Collider in Brookhaven, she receives the 2011 award for "significant contributions to the understanding of ultra-peripheral relativistic heavy-ion interactions, skill in involving undergraduates in a large experimental research collaboration and successful mentoring of undergraduates at her institution".

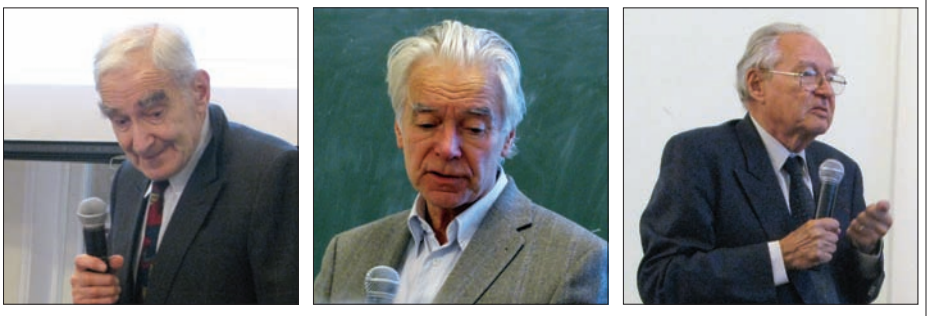
Pomeranchuk prizes for 2009 and 2010

André Martin of CERN and Valentine Zakharov of the Max Planck Institute for Physics, Munich, have been awarded the Pomeranchuk Prize for 2010. They received their awards in a ceremony on 1 October that was tempered by sadness. Both Nicola Cabibbo, laureate of the prize for 2009, and Alexei Kaidalov, chairman of the prize committee, have recently passed away. During the ceremony opened by the new chairman, Alexander Gorsky, the audience rose in memory of these two influential theoreticians. The prize, established by the Institute of Theoretical and Experimental Physics (ITEP) in Moscow, is given in memory of Isaak Pomeranchuk.

Cabibbo was awarded the 2009 prize for his outstanding contribution to elementary particle physics – the realization of the idea of mixing in weak interactions, which paved the way to the Standard Model. Boris Ioffe of ITEP also received the 2009 prize, for his pioneering work on CP violation, the elucidation of the space-time picture in deep-inelastic scattering and for important results in perturbative QCD.

Martin received the 2010 prize for his work on analytic properties of scattering amplitudes that led to the Froissart–Martin bound on the growth of cross-sections with energy, while Zakharov was honoured for work including the establishment of QCD sum rules and the computation of precise β-functions in supersymmetric quantum field theory.

The ceremony for the 2009 prize was postponed until this year at Cabibbo's request but sadly he died before it took place. The diploma was sent to the International Centre for Theoretical Physics in Trieste, where it was delivered to his family at the ceremony for the award of the Dirac Medal – also to Cabibbo – on 8 November.



Left to right: Boris Ioffe, Valentine Zakharov and André Martin at the ceremony. (Courtesy ITEP.)

Mexico honours Giubellino

Paolo Giubellino, the spokesperson-elect of the ALICE collaboration, has been awarded the Medal of the Division of Particles and Fields by the Mexican Physical Society. As the first European to be awarded the medal, he is recognized for his work in the development of high-energy physics in Mexico. He received the medal during a special session of the 5th Workshop on High Energy Physics, held on 27 September – 1 October in Mexico City.

Giubellino has played a significant role in developing closer collaboration between Europe and institutes in Latin America. His contributions and support led to Mexico's involvement in the ALICE experiment at the LHC, as well as in the successful construction of the V0 detector and the cosmic-ray detector, in particular.

Paolo Giubellino with Guillermo Contreras Nuno, the President of the Particles and Fields section of the Mexican Physical Society. (Courtesy Isabel Doninguez/Instituto de Ciencias Nucleares of UNAM.)

Pierpaolo Mastrolia, former CERN fellow, has won the Sofja Kovalevskaja Award, presented by the Alexander von Humboldt Foundation. These awards are given to young scientists, helping them develop research groups at German host institutes.

Pierpaolo will be continuing his research at the Max Planck Institute of Physics, Munich. In his project, he seeks to elaborate the mathematical models and employ them to compute processes that are relevant to the discovery of the Higgs particles.

Studies of nuclei near the drip line win the Flerov prize

From left to right: Mikhail Itkis, acting director of JINR, Semen Gershtein, chair of the prize jury, Yuri Oganessian of the Flerov Laboratory for Nuclear Reactions, Sidney Gales and Yuri Penionzhkevich. (Dominique Guillemaud-Mueller was unable to be present.) (Courtesy JINR.)

Sidney Gales, director of the French heavy-ion accelerator laboratory GANIL, Dominique Guillemaud-Mueller of CNRS/Orsay and Yuri Penionzhkevich of JINR are the recipients of the 2009 Flerov prize. They have been honoured for outstanding results achieved in the study of properties of exotic nuclei near the nucleon drip-line. The prize was awarded during the 108th session of the JINR Scientific Council held in Dubna, on 25–26 September.

The G N Flerov prize was established in 1992, in accordance with the resolution of the 71st session of the JINR Scientific Council, in memory of the eminent physicist Georgy Nikolaevich Flerov (1913–1990). The prize is awarded for contributions in the field of nuclear physics related to Flerov's interests connected with experimental heavy-ion physics, including the synthesis of heavy and exotic nuclei using ion beams of stable and radioactive isotopes, studies of nuclear reactions, accelerator technology and applied research.

OUTREACH

Bonn's Physikshow is a hit at CERN

Some of the presenters display letters from the particle alphabet outside the Globe of Science and Innovation, where the performances of Physikshow *took place. (Courtesy Merlin Rossbach.)*

Towards the end of September, 20 students from the University of Bonn put on three highly successful performances of their *Physikshow* in CERN's Globe of Science and Innovation. The students quickly won over their audience using an array of amazing experiments and zany sketches to illustrate the world of particles, the principle of forces and the evolution of the cosmos.

Physikshow, an award-winning theatrical journey into the world of particles, was first performed in 2002 and has evolved over the years thanks to the input of new students (*CERN Courier* October 2007 p54). The key to its success lies in exploiting the students' originality and spontaneity to convey fundamental physics principles through a stage production using simple, entertaining experiments. To mark their trip to CERN, the troupe put a little extra into the show – sequences on LHC research were inserted and the actors learnt their lines in French. More than 370 pupils from local secondary schools in France and the Cantons of Geneva and Vaud travelled to CERN for the two performances that were especially reserved for schools, with the audience for the public event numbering around 250.

SCHOOLS

Students study accelerator physics in Bulgaria

The CERN Accelerator School (CAS) and the Institute for Nuclear Research and Nuclear Energy (INRNE – Bulgarian Academy of Sciences) jointly organized an introductory course on accelerators, held at the Grand Hotel Varna on the Bulgarian Black Sea coast on 19 September – 1 October. The course was extremely well attended with 109 participants, representing 34 different nationalities and coming from countries as far afield as Australia, Canada and Vietnam.

The intensive programme comprised 39 lectures, three seminars and a poster session, where students could present their own work. There were also four tutorial sessions, with participating students split into three groups, and seven hours allocated for guided and private study. Feedback from the participants was very positive, praising the expertise and enthusiasm of the lecturers as well as the high standard of their lectures. For the first time at CAS, CERN's director-general, Rolf Heuer, visited the school and presented a seminar entitled, "CERN and High Energy Physics – the Grand Picture".

In addition to the academic programme, the visiting students had the opportunity during a one-day excursion to visit the Aladja Monastery, built into the local rock, and to enjoy some time at Cape Kaliakra. There was also an evening visit organized to the Varna Observatory in collaboration with Svejina Dimitrova, head of the Astronomic Observatory and Planetarium in Varna.

● The next CAS course will be the Joint School on Particle Accelerators (CERN–US–Japan and Russia) on "Synchrotron Radiation and Free Electron Lasers". The will take place in Erice on 6–15 April 2011. Also next year is a specialized course on "High Power Hadron Machines" in Bilbao on 24 May – 2 June. For details, see www.cern.ch/schools/.

Students came from as far afield as Australia, Canada and Vietnam to attend the latest CAS introductory school. (Courtesy Deyan Stoev, Varna, Bulgaria.)

CELEBRATION

CERN lays on birthday treat for the Ericsons

A Chinese proverb says that happiness is when friends coming from far away meet and talk to each other. These words could very well be used to sum up the celebration held at CERN in honour of the 80th birthdays of Magda and Torleif Ericson, a couple both in the normal sense of the word and often also in the field of physics.

Torleif Ericson received his PhD in 1959 under the supervision of Ben Mottelson in Copenhagen. He joined CERN's Theory Division in 1960, initially to work at the intersection of nuclear and particle physics at the Synchrocyclotron, and retired in 1995. Magda Ericson received her PhD at Saclay in experimental physics in 1958 and later moved to theoretical physics, mastering various aspects of strong and electroweak interactions in nuclei. In 1966 they co-wrote a classic paper on the optical properties of low-energy pions in nuclei.

During the celebratory event on 17 September, speakers reviewed the depth and breadth of the contributions that Torleif and Magda have made to theoretical physics in general and to nuclear physics in particular. José Bernabeu, Guy Chanfray, Wolfram Wiese, Achim Richter and Anthony Thomas all covered the considerable research that has been stimulated by Ericson–Ericson correlation(s) over the past 50 years.

During each of their final remarks, the guests of honour Magda and Torleif mentioned many names – Viki Weisskopf, John Adams, Giuseppe Cocconi, Leon Van Hove, Jacques Prentki, Maurice Jacob – that told of a period when many essential decisions were taken in shaping the future of CERN, and hence European high-energy physics.

A concert and an informal dinner rounded off the celebrations, which were attended by friends and colleagues from CERN as well as from other European and American institutions.

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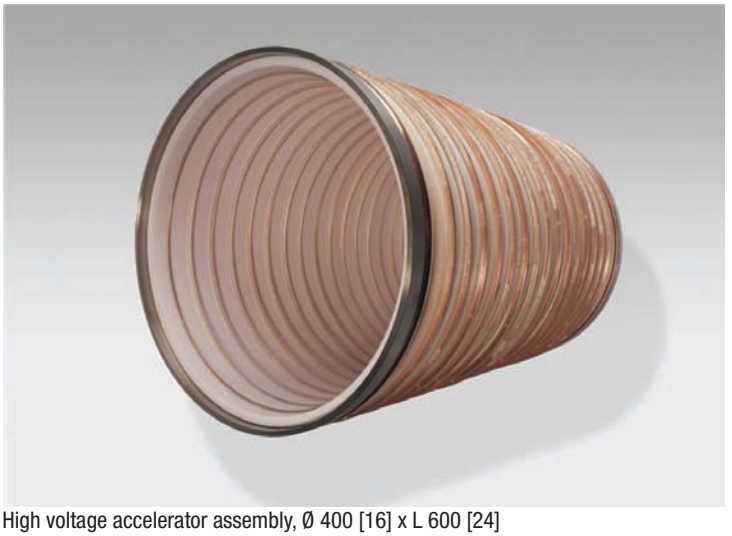
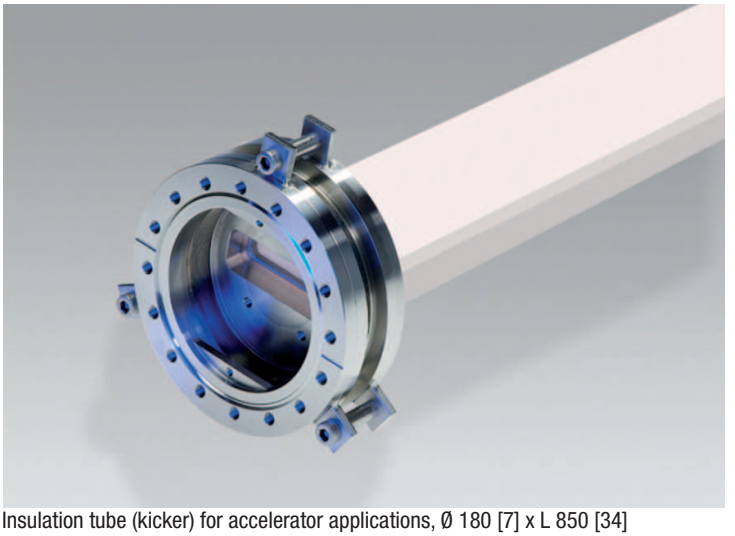
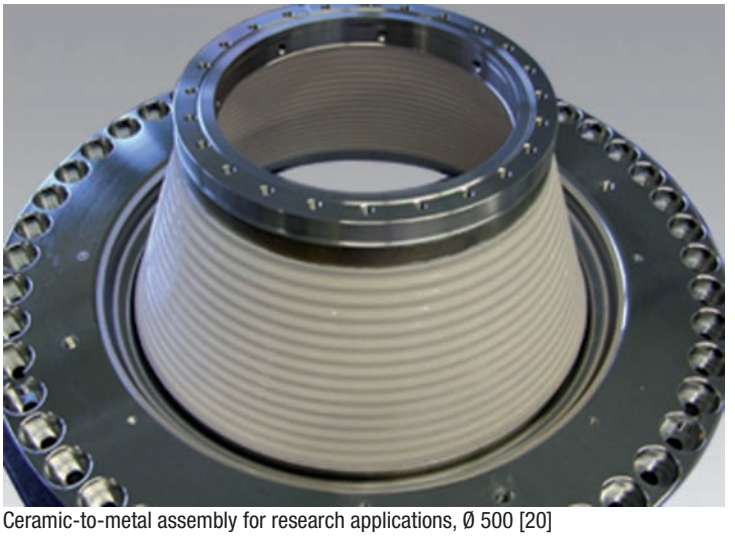


High voltage accelerator assembly, Ø 400 [16] x L 600 [24]



Insulation tube (kicker) for accelerator applications, Ø 180 [7] x L 850 [34]

X-ray source for radiology, Ø 130 [5]



Ceramic-to-metal assembly for research applications, Ø 500 [20]

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OUTREACH

ATLAS shows its artistic side

On 6 October the ATLAS collaboration officially unveiled a giant mural depicting the ATLAS particle detector on one of the experiment's major surface buildings. Installed in a cavern 100 m underground, the ATLAS detector is no longer open for visits now that the LHC is operating routinely. The mural, painted by American artist Josef Kristofoletti, is three storeys tall yet still one-third the size of the actual detector. It is designed to be the next-best thing to seeing the detector itself.

This is not the first time that Kristofoletti has depicted the ATLAS detector: the giant mural has a smaller relative that was painted for the Redux Contemporary Art festival in South Carolina. That was spotted by members of the collaboration and resulted in the artist being invited to visit the real thing.

Towards the end of October, a different artistic side of the ATLAS collaboration went on display in the UK, with *The Art of ATLAS*, an exhibition at Thinktank, the Birmingham Science Museum. This multimedia installation features a series of short videos that introduce some of the physicists, engineers and technicians who work on the ATLAS experiment, presenting the artists lurking inside them and the imagery they create. The exhibition, which opened on 29 October, will be on display for three months.

The three-story mural painted on an ATLAS building by American artist Josef Kristofoletti.

NEW PRODUCTS

FLIR Advanced Thermal Solutions Group has released the FLIR SC655, a high-resolution, uncooled infrared camera designed specifically for scientific and research and development applications. The SC655 provides both high frame-rates and full 640 × 480 imagery, enabling capture of more than 300 000 pixels of accurate temperature-measurement data in a single image. The dual-purpose FLIR GF320 camera can be used for thermal inspections at plants. It is fully radiometric, meaning it can detect, measure and visualize temperature. For more details, contact Johan Tegstam, e-mail John.Tegstam@flir.se, or visit www.flir.com.

Future Technology Devices International Limited has announced the TTL-232RG family of USB-to-TTL serial UART converter cables, which build upon the existing family of cables by offering new versions to support an extended variety of voltage I/O levels. The cables feature a USB-to-serial-converter PCB encapsulated within a standard type-A USB connector with a wire-ended asynchronous UART output. For more details, contact Erika Dichtl, e-mail marketing@ftdichip.com or see www.ftdichip.com.

Maxon Motor has introduced the next generation of EPOS – easy-to-use positioning systems. Several variants of the EPOS2 24/2 positioning controller permit the use of various brushed DC motors with encoder or brushless EC motors with Hall sensors and encoder up to 48 W. The variety of operating modes, such as position, velocity and current mode, means that they can be used flexibly in automation technology, tool building and in mechatronic drive systems. For more details, visit www.maxonmotor.ch.

Narda Safety Test Solutions has extended the frequency range of its Area Monitors AMB-8057 up to 7 GHz, so that they can capture the electromagnetic radiation emanating from WiMax, WiFi, WLAN and other wireless services, and from industrial controllers. The probe makes a linear measurement of the electric field in the range 100 kHz to 7 GHz. A separate version allows selective capture of the field components emanating from mobile phone services at 900 MHz. For more details, e-mail support@narda-sts.de or see www.narda-sts.com.

PI has introduced a 2-axis digital controller for ultrasonic high-stability piezo motor stages, such as those used on the latest generation microscopes. The C-867 piezo motor controller is designed for closed-loop micropositioning systems equipped with piezo linear motor drives. It can be operated from a host PC either via a USB port or an RS-232 interface. For more details, e-mail info@pi-usa.us or visit www.pi-usa.us.

OBITUARIES

Jiří Niederle 1939–2010

Jiří Niederle, a prominent theoretical physicist who was professor at Charles University in Prague, a member of the CERN Council since 1992 and president of the Czech Committee for Co-operation with CERN, passed away on 22 August after a year of illness.

Jiří Niederle was well known for his contributions to particle physics and mathematical physics. He concentrated on theories unifying fundamental particle interactions, conformal theory and gauge formulations of gravitation. In mathematical physics, he solved problems in the field of the representations of Lie algebras, superalgebras and groups, integrable non-linear systems and the theory of contractions and deformations.

His activities extended beyond his contributions to theoretical physics, however, to the problems connected with the radical reconstruction of international co-operation and organization of science after the collapse of the communist regime in a number of European countries in November 1989. Such reconstruction was unavoidable in all of the scientific institutions in these countries. In the Czech Republic, this enormous challenge fell to Jiří, who was appointed president of the Council for International Co-operation of the Academy of Sciences for 12 years in the periods 1990–1997 and 2001–2005, being re-elected twice. Thanks to his initiative and efforts the Academy of Sciences has again become part of the global community of scientific organizations, despite the previous years of artificial isolation.

Jiří Niederle. (Courtesy his personal archives.)

Jiří was not only world renowned as an experienced lecturer for university and post-graduate students but also on popular science, including broadcast and televised popular science programmes. He covered topics such as abstract theoretical physics and subjects describing the construction and work of CERN's big machines, the Large Electron–Positron collider and the LHC. He gave much of himself to his outreach activities; this was particularly important in his home country, which is well known for its high level of industry. In these efforts he was continually mediating, encouraging and supporting contacts between Czech industry and CERN.

Science cannot manage without administration, but it may sometimes happen that more attention is given to administration than to science. It was our experience that Jiří always exerted all of his force, effort and authority to reaching the result that defended the interests of science.

Jiří will be severely missed not only as an excellent physicist, professor, international scientist and organizer of science, but also as a close friend and gentleman. His passing is a great loss for all of us as well as the for the worldwide mathematical and particle-physics community.

His colleagues and friends.

● For more about Jiří Niederle, see the article published in honour of his 70th birthday (*CERN Courier* June 2010 p28).

Jean Meyer 1925–2010

Jean Meyer, who was head of the Service d'expérimentation par les chambres à bulles (SECB) in the department for particle physics at Saclay, passed away on 23 September.

Jean Meyer was born in the territory of Danzig (now Gdańsk) in 1925. Confronted by the rise of Nazism, he fled and immigrated into France towards the end of the 1930s. As the Nazi threat extended, he fled again to Portugal from where he embarked for Brazil. Despite the factory work that was necessary to ensure his survival, he started to learn physics when he was 15 years old and this was to become his passion. In Brazil, he pursued his studies at the university of São Paulo, where he met several great physicists, among them Gleb Wataghin and Beppo Occhialini, one of the discoverers of the pion in 1947, as well as the theorist David Bohm.

On returning to France, Meyer joined the Atomic Energy Commission (CEA), in Saclay. There, in 1958, he designed the first bubble chambers, as the French groups did not yet have any experience in this field, and he quickly became the head of the service for bubble-chamber experiments (SECB). He then left for CERN, where he was offered a permanent position, and became a member of the committee for the construction of the Big European Bubble Chamber. He participated in kaon physics and the checking of SU(3) symmetry with a series of experiments on kaon-nucleon scattering with, in particular, Roland Barloutaud, Antoine Lévêque and P Granet. He also participated in committees for the future of particle physics together with Murray Gell-Mann.

At the request of the Brazilian government, Meyer went back to Brazil in the middle of the 1970s, and created the Wataghin Institute in São Paulo, where he became director, before becoming director of the Brazilian national centre for scientific research.

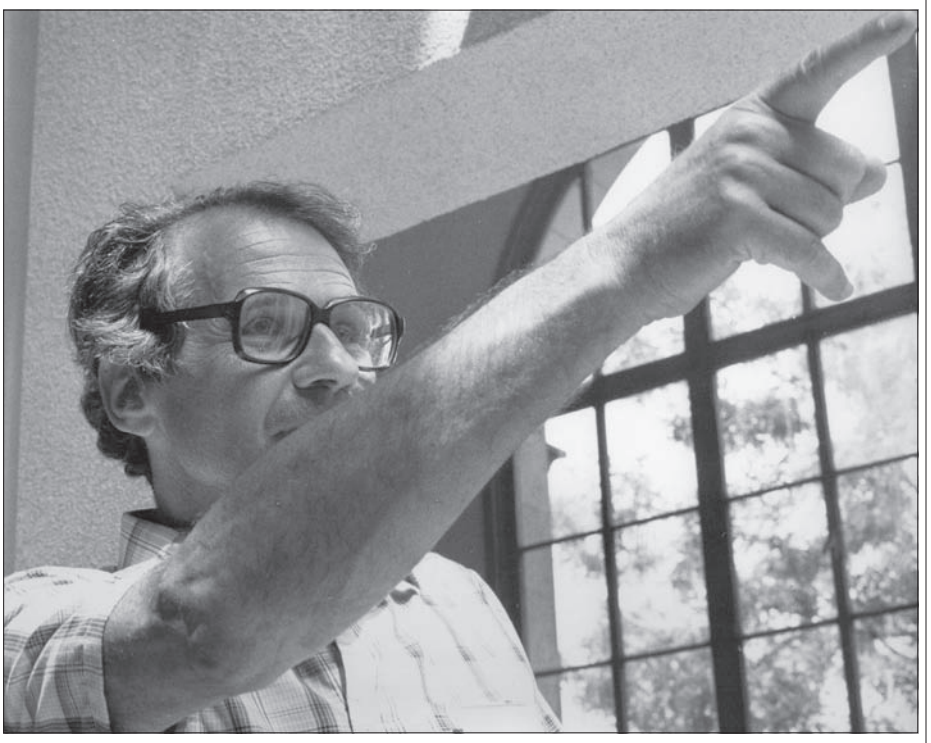
Meyer returned to France in 1980 and was again employed by the CEA, managing the SECB once more in 1982. In 1984 he became head of the Laboratoire de Physique Nucléaire et de Hautes Energies (LPNHE)

(now the Laboratoire Leprince-Ringuet) at the École polytechnique. He made a big reorganization of the laboratory, introducing topics such as plasma acceleration – an activity that continues there successfully today. He remained director until 1990.

Retirement did not mark the end of Meyer's activities, as he took care of extending recruitment at the École polytechnique throughout Europe, his network of relations enabling him to welcome young foreign students. Together with Guy Aubert, director of the Ecole Normale Supérieure (ENS) of Lyon, and Bernard Bigot, director of studies, Meyer continued the "Europeanization" of the ENS, knowing how to attract brilliant European students in collaboration with many European universities.

In recent years, Alzheimer's disease overshadowed the end of his life, and distanced him more and more from the memories of his friends. However, his dynamism and kindness remain in the thoughts of all those who knew him.

His colleagues and friends.



Jean Meyer. (Courtesy Albert FITOUSSI, Jocanal France Services (Paris).)

Joaquim Prades Hernández 1963–2010

Joaquim (Ximo) Prades passed away on 31 August in Granada, after a long battle with cancer that he conducted in his characteristic quiet and optimistic fashion. He maintained his excellent scientific activity until the very end.

Ximo was born in Castelló de la Plana, Spain, on 3 February 1963. He received his degree in physics in 1986 at the University of Valencia, where he continued his studies, obtaining a doctorate in 1991. As a postdoctoral researcher he worked in the Centre de Physique Théorique in Marseille (1991-1993), Nordita and the Niels Bohr Institute in Copenhagen (1993-1995) and Valencia (1996), before becoming an associate professor at the University of Granada in 1997.

He worked in many international and national collaborations, often visiting Valencia, Lund University and CERN, where he recently spent a sabbatical year. An active participant in the European research training networks Eurodaphne, Euridice and Flavianet, he was also the leader of the project "Flavour Physics and QCD" of the Spanish National Programme for Particle Physics.

Ximo Prades. (Courtesy his friends.)

Ximo made notable contributions to particle physics through some 50 publications in journals, as well as many workshop reports and conference proceedings. He began his career working on the kaon bag parameter (B_K), using hadronic duality, and on light-Higgs physics. His scientific research was focused on the interplay of QCD in electroweak processes, most of his work being in non-leptonic matrix elements and determinations of Standard Model parameters. His contributions on the muon anomalous magnetic moment, the $\Delta I=1/2$ rule and CP-violation in the kaon system were particularly relevant, together with the determination of the mass of the strange quark and the Cabibbo angle from the hadronic spectral functions measured in τ decays. Ximo also contributed to the physics of rare kaon decays and many other aspects of hadronic physics.

We are deeply saddened by this tragic loss of a young life. Ximo was an exceptional person, both at the human and professional levels. We will miss him greatly, but his memory will always remain with all of us who had the privilege of interacting and working with him.

We offer our condolences to his wife, Blanca Biel, and family.

Johan Bijnens, Fernando Cornet, Elvira Gámiz and Antonio Pich for his many friends and collaborators.

VISITS

Minister of education, science and technology for the Republic of Korea, **Lee Ju-Ho**, centre left, visited the ALICE surface exhibit at CERN on 22 September with **Jurgen Schukfraft**, ALICE spokesperson, far right, and **In-Kwon Yoo**, Korean contact physicist for the ALICE experiment and professor at Pusan University, centre right. The Korean party also toured the CMS control centre.

Georg Schütte, centre, German state secretary, federal ministry of education and research, toured the LHC superconducting magnet test hall on 23 September. He was accompanied by **Susanne-Corinna Langer-Greipl**, left, a member of the CERN finance committee and a member of the German federal ministry of education and research, and **Rüdiger Schmidt**, right, deputy head of CERN's machine protection and electrical integrity group. The minister also saw the ATLAS visitor centre and met German scientists working at CERN.

On 23 October, UNESCO's director-general, **Irina Bokova**, centre, was welcomed to CERN by the director-general, **Rolf Heuer**, here demonstrating a gift of CERN's special temperature-sensitive coffee mug that illustrates the history of the universe, and **Sergio Bertolucci**, the director for research and scientific computing, left. During her visit she toured the LHC superconducting magnet test hall, the ATLAS visitor centre, and the *Universe of Particles* exhibition.

In a rather more unusual visit, a delegation from Singapore came to CERN on 18 October. The visitors are involved in planning a vast Underground Science City housing R&D laboratories and IT data centres. They came to learn from civil engineers and safety experts about how CERN plans and constructs its underground facilities. They visited the CMS site at Cessy, including the above-ground control room and the Underground Service Cavern.