

FACES AND PLACES



Antonino Zichichi, left, hands the Science for Peace Erice Prize to the former federal chancellor of Germany, Helmut Kohl, right, with the president of the European Parliament, Hans-Gert Pöttering, centre. The ceremony was held in Strasbourg on 23 October. (Courtesy Photo Service European Parliament.)

AWARDS

Helmut Kohl receives Erice peace prize for his promotion of science

Helmut Kohl, Mikhail Sergeyevich Gorbachev and Pope John Paul II are the 2007 laureates of the Science for Peace Erice Prize.

This prize was instituted in 1988 by the Sicilian parliament at the request of the World Federation of Scientists (WFS) on the occasion of the 25th anniversary of the Ettore Majorana Foundation and Centre for Scientific Culture (EMFCSC). The prize is awarded to world leaders in science and scientific culture, and to those who have played an essential role in promoting and implementing the goals outlined in the *Erice Statement: Science for Peace*, written in 1982 by Paul Dirac, Pyotr Kapitza and Antonino Zichichi, the current president of the EMFCSC.

Kohl, the former federal chancellor of Germany, received his prize on 23 October at a ceremony at the European Parliament in Strasbourg, organized by the parliament's president, Hans-Gert Pöttering. Zichichi praised the value of scientific and cultural activities in an address at the ceremony, entitled: "Neither science nor civilisation could exist without memory". He outlined the role of the WFS in analysing global emergencies and emphasized the importance of political leaders to promote science for peace and progress. He also described the roles of the Erice Centre and CERN. In the spirit of the *Erice Statement*, Kohl helped promote international scientific

collaboration following the fall of the Berlin Wall, which allowed the countries of Central Europe to join CERN.

In his speech, Kohl reviewed the long journey from 1945 to German reunification and to the present. He underlined the role of Pope John Paul II, and that of Gorbachev and other political leaders, in overcoming barriers to allow Europe to become free and enlarged. He encouraged the European parliamentarians to continue their efforts to progress steadily in building a democratic Europe and to promote international scientific collaboration worldwide.

● For more information about the WFS, see www.federationofscientists.org/WFSHist.asp.

Italian Physical Society honours discoveries on weak interactions

Milla Baldo-Ceolin, Ettore Fiorini and Italo Mannelli have won the 2007 Enrico Fermi prize from the Italian Physical Society. The award is for their fundamental contributions to the experimental study of weak interactions, in particular at CERN.

Baldo-Ceolin, of the University of Padua, receives the prize for her early studies on K-mesons, in particular for her experimental evidence of K_L^0 as a mixture of K^0 and $\bar{K}^0$, and for the measurement of the mass difference $K_S^0 - K_L^0$. In addition, her further studies on neutrino physics (e.g. on neutral current interactions in muon-neutrino and antineutrino scattering off electrons with the NUC experiment at the PS) provided an essential step towards the initial confirmation of electroweak unification.

Fiorini, of the University of Milan Bicocca, receives the prize for contributing to the discovery of weak neutral currents using the Gargamelle bubble chamber exposed to neutrino and antineutrino beams from the PS. This finding paved the way for the unconfutable success of the electroweak



Left to right: Italo Mannelli, Franco Bassani (president of the Italian Physical Society), Milla Baldo-Ceolin and theoretician Luigi Radicati di Brozolo at the ceremony. (Courtesy André Martin.)

Standard Model. The prize also recognizes other work by Fiorini, including early studies on atmospheric and solar neutrinos with the underground experiments NUSEX at Mont Blanc and GALLEX at Gran Sasso.

Mannelli, of the Scuola Normale Superiore, Pisa, receives his share of the prize for his outstanding contribution to the demonstration of direct CP symmetry



Fiorini, absent from the ceremony, receives the prize for contributions to the discovery of weak neutral currents. (Courtesy CUORE Collaboration.)

violation in K-meson weak decays in the NA31 and NA48 experiments at the SPS. This almost imperceptible but basic effect of symmetry violation has enormous consequences for particle physics and cosmology. The foundations of Mannelli's work on CP violation extends back to his first experimental studies on parity violation in Λ^0 weak decays.

LABORATORIES

JINR looks to its future programme

The latest session of the Committee of Plenipotentiaries of the member-state governments of JINR took place in Dubna, Russia, on 27–28 November. JINR's director Alexei Sissakian presented his report on "Activities at JINR in 2007 and basic trends for strategic development of the Institute".

In addition to summing up the results of the institute's activities in 2007, Sissakian took the opportunity to cast a glance towards 2008 and beyond in the context of the "roadmap" – the strategic programme for development at JINR in fundamental science, innovation and education. Speaking about the main scientific trends at the institute – particle physics, nuclear physics



JINR's director, Alexei Sissakian, left, and the Russian Federation's minister of science and education, Andrei Fursenko, at the exhibition of JINR's achievements in innovation. (Courtesy JINR.)

and condensed-matter physics – he noted the success in the "home" experimental programme. He also spoke about the advanced plans for upgrading the basic facilities at JINR and the programme to

develop a new Nuclotron-based Ion Collider Facility at JINR's Nuclotron accelerator.

Sissakian also informed those at the session about a conference, "Innovation Activity in Special Economic Zones [SEZ]. Public-Private Partnership Technology", held in Dubna on 15–16 November 2007. This was the first event to discuss the SEZ "core". Sissakian also noted that having established an SEZ in Dubna, JINR would have a very profitable scheme for the application of scientific ideas in commodities production.

Introducing the general discussion, Andrei Fursenko, plenipotentiary of Russia to JINR, said: "All the reports presented today are aimed at the process of development, a new gulp of breath for Dubna – the centre that is and will be among leading world centres. We will, and I say it as a minister, support the development of JINR, both in innovation and fundamental trends."

APPOINTMENTS

Persis Drell takes the helm at SLAC

Persis Drell has become the fourth director of SLAC in the laboratory's 45-year history, stepping into the shoes of Wolfgang Panofsky, Burton Richter and most recently, Jonathan Dorfan. She has held a series of senior positions at SLAC since 2002 and has served as acting director from September 2007.

Drell's directorship is the result of an international search by a committee appointed by John Hennessy, president of Stanford University, which operates SLAC on behalf of the US Department of Energy (DoE). The committee began its work in March 2007, when Dorfan announced his plan to step down.

SLAC's activities have gradually changed with the times since 1962, when the laboratory was built to house the world's longest electron accelerator. The linac is now to become the



Drell joined SLAC in 2002. (Courtesy SLAC.)

injector for the world's first X-ray free electron laser, the Linac Coherent Light Source (LCLS), currently under construction. "The science delivered by LCLS, along with programmes in particle physics, photon science and

particle astrophysics and cosmology, will ensure frontier science from the laboratory for decades to come," said Drell on her appointment. "My goal as director is to position the laboratory to make a smooth transition to these exciting future scientific programmes and continue the tradition of outstanding scientific achievement at the lab." Since then, she has already had to confront a major funding crisis in the US (see p6).

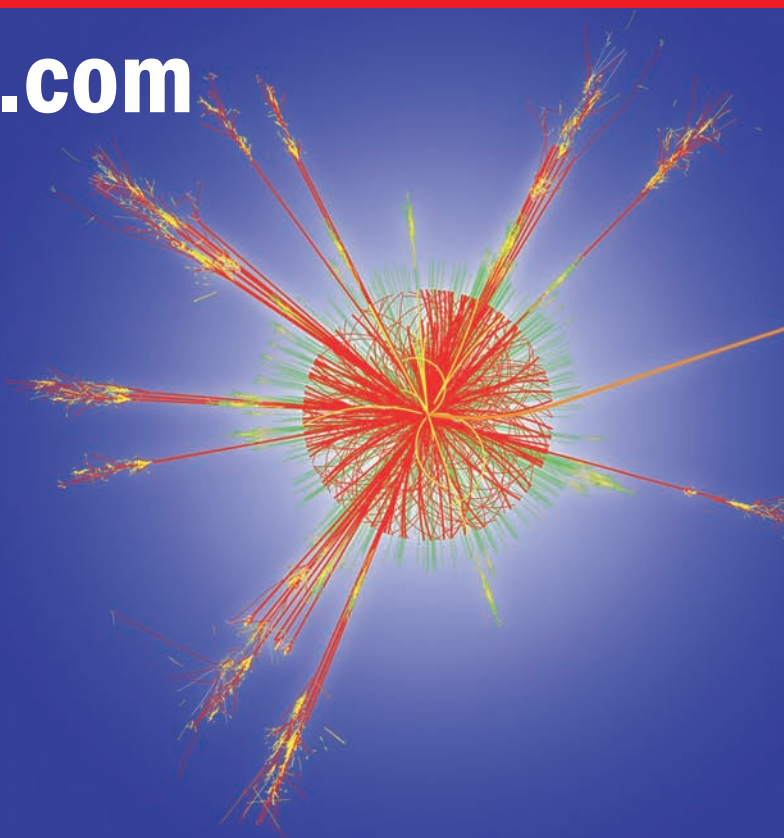
Drell has a long association with SLAC, Stanford and the DoE. As a physics professor at Cornell for 14 years, she studied the bottom and charm quarks to measure the parameters of the weak interaction. She also served as the deputy director of Cornell's Laboratory of Nuclear Studies and as chair of the Synchrotron Radiation Committee. She joined SLAC in 2002 as a professor and associate director for the research division, becoming a deputy director for SLAC and director for particle and particle astrophysics in 2005.

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CONFERENCE

Slovakia hosts successful unified conference on hadron structure



Conference participants pose for the traditional photo. Hadron Structure '07 attracted around 50 physicists from 13 countries. (Courtesy S Dubnicka.)

Around 50 physicists from 13 countries participated in the latest Middle European Hadron Structure Conference, held last year in Slovakia. This conference series goes back 35 years; the first meeting was held in 1973 at Smolenice Castle, Slovakia. It arose from the earlier well known Vienna–Budapest–Bratislava “triangle meetings”, organized in the late 1960s. Now it has come together with the Hadron Structure and QCD Conferences organized by the Petersburg Nuclear Physics Institute of the Russian Academy of Sciences in Gatchina, which were previously held in Repino (2004) and St Petersburg (2005). This “unification” was agreed and unambiguously welcomed by more than 30 particle-physics authorities around the world after being first proposed by the physicists at Gatchina.

Hadron Structure '07, the first of the “unified” Hadron Structure International Conferences, was organized by the Institute of Physics of the Slovak Academy of Sciences in Bratislava together with the

Comenius University in Bratislava, the PJ Safarik University in Košice, the Institute of Experimental Physics of the Slovak Academy of Sciences in Košice and the Petersburg Nuclear Physics Institute. The conference took place on 3–7 September at the Comenius University Study and Congress Centre in Modra-Harmonia, some 35 km north of Bratislava, at the foot of the Little Carpathian Mountains. It was also supported by JINR in Dubna, the German Physical Society and the Slovak Physical Society.

From the start, the Hadron Structure Conferences consisted of presentations of invited lectures and short communications, mixed with theoretical talks and experimental reviews. Hadron Structure '07 was no exception, with presentations of new results from almost all of the experimental centres around the world, including Brookhaven, CERN, the DAΦNE facility at Frascati, DESY, Dubna, Fermilab and Protvino. The programme included: talks on the Higgs and beyond the Standard

Model at the Tevatron and ATLAS at the LHC; results on φ radiative decays into scalar and pseudoscalar mesons at the KLOE experiment at DAΦNE; new results from the NA48/2 experiment at CERN; the research programme of the NIS–GIBS spectrometer at the JINR Nuclotron; heavy-quark production at HERA; top and electroweak results from the Tevatron; diffraction and vector meson production at HERA; antibaryon to baryon production ratios at LHC energies; jet studies with the H1 experiment; results from the HERMES experiment; and pion polarizabilities in COMPASS.

Hadron Structure Conferences will be organized every year; the odd years in the Slovak Republic, and in St Petersburg and its surroundings on the even years. The Petersburg Nuclear Physics Institute is already planning Hadron Structure '08, scheduled for the second half of June 2008.

• Contributions to the conference are to be published in an upcoming special issue of *Fizika B* (Zagreb).

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FACES AND PLACES

Georgian physics conference provides a warm welcome

Georgia's capital Tbilisi is probably best known to particle physicists as the host city of the 1976 International Conference on High Energy Physics, in the Rochester Conference series. What is perhaps less well known is that since then, Georgia has matured to become an enthusiastic player in both experimental and theoretical particle physics, as the 4th International Conference on Physics at the Future Colliders revealed.

This biannual conference, held most recently in 2007 at Tbilisi's I Javakhishvili State University on 22–26 October, aims to bring the community of Georgian particle physicists together with international representatives, with an emphasis on the participation of physicists working at JINR in Dubna and at CERN. Under the substantial support of the Ministry of Education and Science of Georgia and the university administration, some 60 conference participants attended from Armenia, Austria, Azerbaijan, the Czech Republic, Finland, Georgia, Greece, Hungary, Russia, the UK and the US – resulting in informative and lively scientific discussions.

While several review talks highlighted recent achievements in fields as diverse as neutrino physics, energy production and transmutation in subcritical nuclear fission reactors and black holes at the LHC, the conference's main focus was on reports on the readiness for physics at the LHC, due to start operating in 2008. The local authorities noted with satisfaction the strong involvement of Georgian teams in the construction of the ATLAS and CMS detectors. It also stimulated reports by local news media, and the conference chair, Djemal Khubua, found



Gia Dvali during his presentation entitled "Black holes at the LHC". (Courtesy University of Tbilisi.)

himself busily giving interviews and answering questions from journalists.

The conference was complemented by a noteworthy social programme that included a flavour of Georgia's rich cultural heritage, which dates back to several thousand years BC. The contrast between the newly built Cathedral of the Holy Trinity in the centre of Tbilisi and the impressive preserved remains of the ancient city Uplistsikhe, entirely carved out of rock, will long remain in the memory of many participants. Even stronger memories will remain in the minds of foreign visitors of the warm welcome and Georgian hospitality, which spared no effort despite the difficulties that Georgia faces on its path towards a bright and prosperous future.

MEETING

The 3rd CERN–Fermilab Hadron Collider Physics Summer School will be held on 12–22 August at the Fermi National Accelerator Laboratory. The target audience for the school is young postdocs and advanced graduate students with a strong interest in hadron-collider physics. Theorists

and experimentalists alike are encouraged to apply. Applications and references should be received no later than 29 February.

For more information, see <http://hcpss.fnal.gov/hcpss08>; or contact Cynthia Sazama, fax +1 630 840 4102; or e-mail sazama@fnal.gov.

VISITS



Ronald Plasterk, centre, minister of education, culture and science from the Netherlands visited CERN on 25 October and toured the LHC tunnel with CERN's chief scientific officer, **Jos Engelen**, left, and **Herman Ten Kate**, right, ATLAS magnet project leader.

He also visited the ATLAS experiment and met with Dutch researchers who are currently contributing to CERN projects.

Senior vice-minister of the Commission of Science Technology and Industry for the National Defence of China, **Chen Qiufa**, centre, visited CERN on 1–2 November. He toured the AntiMatter Spectrometer detector with spokesperson, **Samuel Ting**, left, and a staff member of the Aerospace Industrial Development Corporation (Taichung) in a special cleanroom for this space-qualified detector.



On 14 November, CERN held a meeting of EIROforum, the partnership of Europe's largest intergovernmental research organizations. Members touring the ATLAS cavern with **Peter Jenni** (left), spokesperson for the ATLAS experiment, included, from right to left, **William G Stirling**, director-general of the European Synchrotron Radiation Facility (ESRF); **Peter Timmins** from the Institut Laue-Langevin; **Manuel Rodriguez Castellano**; and **Jean Susini** from ESRF.

PUBLISHING

CERN chooses *JINST* for the final technical reports of the LHC

CERN has decided to publish the final technical reports of the LHC machine and detectors in *Journal of Instrumentation* (*JINST*), from the International School for Advanced Studies (SISSA) Medialab and IOP Publishing. These reports are all scheduled to appear in April.

The choice reflects confidence in the endeavours by SISSA Medialab – which date back to 1996, more recently in collaboration with IOP Publishing – to provide the scientific community with high-quality journals. The first of these to appear was the pioneering *Journal of High Energy Physics* (*JHEP*); this was followed by the *Journal of Cosmology and Astroparticle Physics* (*JCAP*), the *Journal of Statistical Mechanics* (*JSTAT*), and more recently, *JINST*.

These journals are firmly grounded in the principle that scientific publishing should be run by scientists, with the most-advanced technology available, the smallest-possible impact on the budgets of research institutions and a liberal copyright

policy. The editorial boards of distinguished scientists are entirely responsible for carrying out the peer-review process, for selecting reviewers and for making the final editorial decisions. The crucial role played by the rigorous peer-review system has been decisive in the journals' rapid ranking among the highest impact-factor journals in each of their respective fields.

Collaboration with CERN goes back a long way, and has recently involved participation in a task force on open-access publishing. As a result, all accepted papers – experimental and theoretical – submitted to *JHEP* and *JINST* from CERN are now published according to an open-access scheme. Similar arrangements are also being implemented with the Max Planck Institutes, IN2P3, DESY, Fermilab and SLAC.

● For more information on *JINST*, see <http://jinst.sissa.it>. For scientific matters, please contact *JINST* director and assistant director, Amos Breskin and Peter Krizan, respectively (jinst-eo@jinst.sissa.it).

CORRECTION

Apologies to our German readers for the missing accents in the poem reproduced in the "Archive" section in December 2007. Also, in the Compiler's Note the poem's author, Gertrude Weisskopf, was inadvertently given an additional surname, von Desch. This was in fact the name of the publisher of the book *Das Wunder der Wissens*. Here is the corrected version:

DIE GROSSE LAMENTEI

Schönheit vergeht:

Denn neben jedem Veilchen
wächst schon sein Gegen-Veilchen.

Zeit auch verweht:

Denn neben jedem Weilchen
bläst schon sein Gegen-Weilchen.

Raum auch zergeht:

Denn neben jedem Meilchen
läuft schon sein Gegen-Meilchen.

Ding auch zerweht:

Denn neben jedem Teilchen,
Ach Gott, da hockt sein

Gegen-Teilchen.

Gegenteilchen

enteil-chen

Teilchen

Eilchen ...

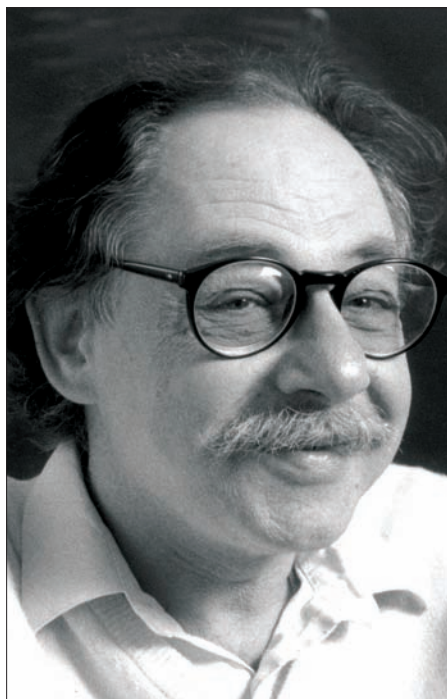
OBITUARIES

Sidney Coleman 1937–2007

Robert Schumann is said to have once remarked about Johann Sebastian Bach: “Let *The Well-Tempered Clavier* be your daily bread, and you will surely attain good musicianship.” Particle physics theorists feel similarly about Sidney Coleman, who died on 18 November, aged 70.

Sidney was a brilliant theoretical physicist. He graduated from the Illinois Institute of Technology in 1957 and went on to graduate school at Caltech, where he studied with Murray Gell-Mann. In the early 1960s, he was a leader in the application of Gell-Mann’s revolutionary idea of approximate SU(3) symmetry of the strong interactions. His work on scale invariance and renormalization in the late 1960s and 1970s paved the way for QCD, leading to the discovery by his student David Politzer and others of asymptotic freedom as well as to his idea of dimensional transmutation. In the late 1970s and 1980s, the results and the techniques from his work on vacuum decay were crucial for the beginnings of quantitative cosmology. Throughout his life, he was the leader in educating high-energy theorists about the field-theoretic and symmetry tools that revolutionized the field in the 1970s and led to the development of the Standard Model.

For 40 years, Sidney was the guru of relativistic quantum field theory. He had about 40 PhD students, many of whom became leaders in the field of high-energy theory. However, his influence extended far beyond his academic progeny. Many hundreds of students from all over the Boston area were inspired by his courses



Coleman was well known for his wit and classic papers. (Courtesy Stu Rosner Photography.)

on quantum field theory, and his notes were used in courses throughout the world. Many more high-energy theorists, both aspiring and established, pored over his classic papers and summer-school lectures. Like the works of Bach, these were simply perfect. Sidney laboured over them until no word was out of place and no explanatory or pedagogical opportunity was missed.

While his first love was the teaching of graduate-level quantum field theory, Sidney

also gave brilliant undergraduate lectures. This was a personal sacrifice, because he was renowned for doing his best work in the wee hours of the morning, and it was never clear whether he was better off getting a few hours of sleep before a late morning undergraduate class, or simply staying up for it. Some of these lectures survive as recordings, such as his colloquium-level lecture, “Quantum Mechanics in Your Face”. His lectures were not only clear, beautifully constructed and delivered, they were always very funny. His sharp wit also shone through in the titles of some of his classic papers, such as *Why There Is Nothing Rather Than Something...* and *Black Holes as Red Herrings...*

Sidney’s wit could be as biting as it was brilliant, and his friends bore the brunt of this – and loved it. They could count on him to keep their head-sizes under control. “Courtesy”, Sidney argued, “is for strangers. Kindness is for friends.”

Not a cloistered academic, Sidney was also a public intellectual in the best sense. He had a deep interest in science fiction, and wrote and published science fiction criticism himself. He served behind the scenes as a science advisor to a number of movies and programmes for Nova.

Health problems bedevilled the end of Sidney’s life and deprived the world of what would surely have been an affectionately irreverent elder statesmanship. He is survived by his wife of 25 years, Diana Coleman, his brother, Robert Coleman, and his many friends around the world.

Howard Georgi, *Harvard University*.

Philippe Meyer 1925–2007

A prominent figure of French theoretical physics, Philippe Meyer, passed away on 9 November 2007.

Meyer was born in Paris on 22 April 1925. However, at the beginning of the Second World War, his father, the banker André Meyer, left for the US. Philippe was admitted to Harvard in 1941, at the age of 16, but in 1943 he interrupted his studies, went back to

Europe and joined the Free French Forces. He was part of the army that landed in Provence and fought for the liberation of France. He was very discreet and never mentioned that he was decorated with the Croix de Guerre (avec Médaille Vermeil) for his war service.

Meyer returned to Harvard in 1945, obtaining a BS in 1946 and an MS in Physics in 1947. The following year, he

returned to France with his wife and entered CNRS. There were no organized graduate studies in France in those days, and young scientists had to learn modern physics by themselves. He joined the Theoretical Physics Laboratory at the École Normale Supérieure (ENS) in 1953, which had been founded a year earlier by Maurice Lévy. Meyer worked on theoretical nuclear physics and

obtained his Doctorat d'État in 1955 with a study of "Exchange Currents in Deuteron Photodisintegration". He continued work on nuclear physics and published a series of papers on the scattering of fast nucleons on light nuclei. In 1957, he moved to CERN and started working on particle physics, collaborating mainly with Jacques Prentki and Yoshio Yamaguchi on the properties of strange particles. He refused an offer to become a staff member in the TH Division and returned to France where, in 1960, he opted for a faculty position – first at the University of Bordeaux and a year later at the University of Paris at Orsay, where in 1959 the entire theory group from ENS, led by Lévy, had founded a new laboratory.

Together with Claude Bouchiat, Meyer established a very active research group which attracted many young physicists, some of whom became well known theorists and played an important role in building a French school of theoretical physics. The subjects studied included current algebras and K-decays, higher symmetries, dual models, deep inelastic scattering and the parton model, as well as the establishment of the Standard Model. The paper on the anomaly cancellation mechanism among leptons and coloured quarks is a milestone in this field. Meyer directed the Orsay laboratory from 1966 to 1969 after Lévy's departure for Paris. In 1974, he and Bouchiat were invited by Jean Brossel, director of the physics department of ENS, to establish a new laboratory of theoretical physics, which remains a great international success.



Philippe Meyer was a strong patron of the arts, music and literature. (Courtesy J Iliopoulos.)

Meyer never sought positions in the ministry or government. The only exception was a brief period after May 1968 when he became an advisor to Edgar Faure, minister of education. He was at the origin of the law allowing foreigners to become professors in French universities, eliminating a very retrograde French rule.

He was a gifted and dedicated teacher, and a remarkable lab director. Under his leadership, the School of Graduate Studies in

the Paris area, which was initially restricted to high-energy physics, expanded to cover many areas of fundamental physics. Generations of young physicists owe their solid education to his broad and modern views. Occasionally, he helped some of them financially, although he never let them know. He always had a vision of the international role of science and took various initiatives in this direction, many of which survive to the present day. In particular, a yearly Summer Institute gathered the stars of theoretical physics from around the world to Paris every August, and the "Triangular Meetings" initially between the Universities of Paris, Rome and Utrecht, have now become a regular international conference series.

Meyer also patronized art museums in France, following the example of his father who made gifts to the Metropolitan Museum of Art in New York. He helped to buy masterpieces that are now in several museums – in particular the Musée d'Orsay – and donated an entire collection a few years ago. His naturally reserved character did not allow for his name to appear anywhere, and it is only now, after his death, that the Musée d'Orsay plans a special exhibit under his name.

Those of us who knew Meyer well, will remember his natural elegance, charm, and warm and friendly behaviour. His vast cultural good taste in literature, art and music, made him an outstanding person. We are sorry that he left us, but he will not be forgotten *His friends at CERN and École Normale Supérieure.*

Vladimir Murzin 1927–2007

Vladimir Murzin, a pioneer of calorimetry in high-energy physics, and the principal researcher and professor of the Skobeltsyn Institute of Nuclear Physics of Lomonosov Moscow State University (SINP MSU), passed away on 12 June after having a heart attack. Up to his final days he was working actively on textbooks for students and scientists on modern particle physics, cosmic rays and astrophysical phenomena. At celebrations for his 80th birthday on 30 May, he showed copies of the 4th edition of his classic textbook *The Physics of Cosmic Rays*, dedicated to the 250th anniversary of MSU.

Vladimir graduated from the physics faculty of MSU in 1950. His diploma thesis was based on pioneering measurements of the cosmic-ray latitude effect, which he made while on a research ship travelling around the equator. Three years later, he received his PhD and became a senior scientist at SINP MSU. It was while continuing his studies of cosmic rays that he made a significant contribution to particle physics by proposing the ionization calorimeter method for measuring the energy of relativistic particles. Vladimir developed the method together with colleagues Natan

Grigorov and Ilya Rapoport, and produced an analytic description of the nuclear cascade in dense matter and in the atmosphere within the context of the passage of particles through matter. The first such calorimeter was installed in July 1957, in the Pamir mountains, to measure the energy of cosmic-ray particles. Vladimir's skilful analysis of the features of events recorded with the calorimeter allowed the separation of cosmic pions and nucleons as well as the observation of the leading properties of charged and neutral pions in pion–nucleon interactions, similar to the leading effect in

nucleon–nucleon interactions. With these results he became a full doctor of sciences in physics and mathematics in 1967.

At the beginning of the 1970s, Vladimir moved to high-energy physics for studies with large bubble chambers (the 2 m propane bubble chamber, the Mirabelle liquid-hydrogen bubble chamber, and the SCAT and 15 ft heavy-liquid bubble chambers at Protvino and Fermilab, respectively) in collaborations with CERN, JINR and the Institute for High Energy Physics, Protvino. He was an authority among the physics community, with a deep understanding of particle interaction dynamics and a skill in explaining the effects. He was also interested in diffraction processes.

Valdimir's main interest, however, was in neutrinos – both in high-energy physics and cosmic rays. While working with neutrino bubble-chamber projects, he developed the proposal for the BATISS experiment, which was to use a neutrino beam from Fermilab to Lake Issyk-Kul in Asia, passing through the Earth close to its centre. The project was started in 1980 with SINP MSU and the Kazakh University and Nuclear Physics Institute, but later stopped due to dramatic changes in the USSR. He also developed light



Valdimir Murzin. (Courtesy Nikita Murzin.)

but robust gaseous detectors for the neutrino experiment GINES for the planned UNK collider in Protvino.

During the 1990s, Vladimir worked with the E-632 neutrino collaboration on the 15 ft bubble chamber at Fermilab and took part in experiments in SLAC and DESY. He participated in conferences on deep inelastic scattering and wrote books that followed the fast progress of particle physics. He is also a founder of the Laboratory for Neutrino Physics in SINP MSU, and many of his former PhD students are working now on the LHC and other large projects around the world.

Being devoted to physics, for many years Vladimir used his vacations for his other scientific interests – entomology and ecology. He created a large collection of butterflies, and was lucky to find new types, some of which were named after him. He was a member of the Russian Entomological Society and the Moscow Society of Nature Research.

Vladimir had many friends around the world. He was respected for his deep and wide professional knowledge, devotion to scientific research, scientific vision, teaching talent and warm relationships with colleagues. Many of them went to him for clarification, advice and guidance and always received his attention and clear explanations. He was a charming person. We miss him greatly.
His friends and colleagues.

Alexei Zamolodchikov 1952–2007

The theoretical physicist Alexei Zamolodchikov passed away on the night of the 18–19 October 2007.

Alexei was born on 18 September 1952 in Novo-Ivankovo, near Dubna. After finishing high school in 1969, he studied at the Moscow Institute of Physics and Engineering until 1976, and he then worked successively at the JINR, Cybernetics Counsel, and ITEP, Moscow. From 1990 he held a senior CNRS position in the University of Montpellier-2.

His extraordinary journey in theoretical physics was marked by several major discoveries that influenced the work of a whole generation of physicists active in the different domains of quantum field theory and mathematical physics. In particular, he was the first, together with his brother Alexander, to construct exact scattering matrices in two-dimensional quantum field theory. Moreover he demonstrated how these scattering matrices allowed the building up of



Alexei Zamolodchikov contributed to Liouville string theory. (Courtesy Alexander Zamolodchikov.)

a systematic approach to integrable models at finite temperature. He regularly contributed to the development of Liouville string theory – the key model for understanding the most fundamental aspects of string theory and two-dimensional quantum gravity.

Alexei judged his own work by unusually high standards and his published papers reflect only a tiny part of his work. The papers he wrote carried both powerful ideas and mathematical elegance. He left behind a mass of unfinished projects, most of them now lost forever.

All those who knew Alexei closely will remember not only his immense talent as a physicist and the depth of his thought, but also the warmth of his friendship, his radical non-conformism and complete absence of vanity – and finally his incomparable sense of humour, sometimes bitter and fatalistic, but never malicious.
His friends and colleagues.

Turkish air crash is a great loss for physics

The news of the untimely deaths of six Turkish physicists, Engin Arik, Berkol Dogan and Engin Abat from Bogazici University, and Senel Boydag, Iskender Hikmet and Mustafa Fidan from Dogus University, was a shock for many in the physics community. The physicists were killed when their flight from Istanbul to Isparta crashed on 30 November. They were travelling to a workshop on the Turkish Accelerator Centre, a project involving a collaboration of 10 Turkish universities.

Some of those who passed away were world-renowned, while others were young,

talented and just starting their careers. All had connections with CERN. Arik, in particular, was a nuclear physicist with a worldwide reputation. She pioneered Turkish involvement at CERN in experiments such as the Spin Muon Collaboration, the CERN Axion Solar telescope (CAST) and ATLAS. She was also fully engaged in promoting particle physics in Turkey and in getting her country more involved in European science projects.

Arik joined the ATLAS Collaboration early in its beginnings some 15 years ago. With her enthusiasm for physics, she motivated

several generations of young physicists, who worked hard and successfully on the project. Engin Abat and Berkol Dogan were among these young, bright students.

Arik and Dogan were also members of the CAST Collaboration, with Boydag and Hikmet. While Senel and Iskender supported CAST from afar, Arik and Dogan had a strong presence in the work at CERN, active in both data analysis and in the preparation and running of the experiment. Indeed, Berkol had spent two long periods at CERN where he proved himself absolutely sound and 100% reliable.

NEW PRODUCTS

AMS Technologies Ltd has announced the availability of a line of precision, enhanced power supplies – the “E” Series from UltraVolt. The “E” Series operates from 0–1 kV through 0–15 kV at 4 W, 15/20 W, or 30 W. The modules offer a high-resolution, programmable, high-voltage DC output optimized for bias or power applications. AMS has also introduced the new USB interface option for the “HV Rack” system, which enables users to control and monitor the system via a PC. For more information, see www.ams.de; tel +44 145 555 6360; or e-mail press@ams.de.

Infolytica Corporation has unveiled new MagNet 2D and MagNet 3D low-frequency electromagnetic-field simulation software. Benefits include: faster runtimes for automated mesh refinements in 2D; improved modelling to calculate the dynamic mechanical effects of any two spring-connected components; and vector-controlled circuitry support using the MagNet Plug-In for Simulink. For more information, see www.infolytica.com; or contact Chad H Ghalamzan, tel +1 514 849 8752 ext 300; fax +1 514 849 4239.

Pfeiffer Vacuum has announced the new HeptaDry line of dry pumps, well suited for low and medium vacuum applications in which oil-free vacuum is required. These pumps offer pumping speeds from 100 to 600 m³/h and are suitable for use as stand-alone pumps for processes up to

10⁻¹ mbar. When used in combination with Pfeiffer Vacuum Roots pumps, they supply an ultimate pressure of up to 5 × 10⁻³ mbar. For more information, see www.pfeiffer-vacuum.net or contact Sabine Trylat: tel +49 6441 802 169; fax +49 6441 802 883; or e-mail Sabine.Trylat@pfeiffer-vacuum.de.

PI (Physik Instrumente) LP has extended its S-330 family of piezo tip/tilt platforms, adding new large-angle models for mirrors up to 50 mm diameter with optical beam deflection to 20 mrad. Applications include image stabilization, laser scanning/beam steering and optical communications. For more information, see www.physikinstrumente.com.

Princeton Lightwave and **id Quantique** are developing the world's first single-photon counting module optimized for 1064 nm by combining an optimized avalanche photodiode with integrated biasing and quenching electronics. For more information, see www.princetonlightwave.com. Alternatively, contact Leonard Widmer at id Quantique, tel +41 22 301 8371, e-mail Leonard.widmer@idquantique.com; or Bruce Nyman at Princeton Lightwave, tel +1 609 495 2560, e-mail bnyman@princetonlightwave.com.

Rubis-Precis/Micropierre Group has developed a wide range of new products based on specific customer service. These ultra-hard materials offer properties of surface finish, wear resistance, thermal

and electrical insulation, and chemical resistance against corrosive products. The components can be mounted according to various technologies, such as brazing, laser welding, press-fitting or crimping. For more information, see www.rubis-precis.com, or e-mail rubis@rubis-precis.com.

Unitemp has introduced a new range of temperature and humidity chambers, to allow an object to be stressed with a steep temperature change. The four models from ESPEC – designated SML/U/S/G – are designed to provide 5 °C/min or more with a capacity of 1800 l. The operating temperature range is –40 ° to +180 °C with the SML and SMU models, and –70 ° to +180 °C with the SMS and SMG models. The SML and SMS models also have a humidity facility for testing from 20 to 98% rh. For more information, see www.unitemp.co.uk; or contact Paul R Brown, tel +44 1628 850 611, e-mail paul@unitemp.co.uk.

Yokogawa has announced the Yokogawa AQ6375, the world's first optical-spectrum analyser to combine a wide wavelength range of 1200–2400 nm with high resolution between 50 pm and 2 nm and a high sensitivity of –70 dBm or better. This new analyser is aimed at supporting the R&D with new-generation, high-performance optical laser sources. For more information, see www.yokogawa.com/tm; or contact Terry Merrinan, tel +31 33 464 1856, fax +31 33 464 1859, e-mail terry.merrinan@nl.yokogawa.com.