

FACES AND PLACES

APPOINTMENTS

Martino takes over as director of IN2P3

Jacques Martino has been appointed director of the National Institute of Nuclear and Particle Physics (IN2P3) by the president of the Centre National de la Recherche Scientifique, Alain Fuchs. He succeeds Michel Spiro, who was elected president of the CERN council last December, and took over the role on 1 April.

Martino has been director of the Subatech laboratory (CNRS/Ecole des Mines de Nantes/Université de Nantes) since 2001, and director of the Arronax cyclotron public interest group in Nantes. At CNRS he was also leader of the SBADE (Signal Bruit Alerte Détection Environnement – Signal, Noise, Warning, Detection, Environment) interdisciplinary project from 2007.

An experimental nuclear physicist, his research has focused mainly on nucleon structure, first with the Saclay



Jacques Martino. (Courtesy Nicole Tiget, CNRS.)

Linear Accelerator, then at CERN where he coordinated the building of the muon polarimeter for the experiment of the Spin Muon Collaboration. He is currently participating in the Double Chooz experiment to measure the θ_{13} neutrino mixing angle and the Nucifer project for monitoring nuclear reactors through antineutrino detection for thermal power measurement and non-proliferation.

Martino graduated as an engineer from the Ecole Centrale de Paris in 1975 and gained his doctorate in nuclear and particle physics in 1982. From 1980 to 1993 he was a physicist at the Service de Physique des Hautes Energies of the French Atomic Energy Commission, before becoming head of the Service d'Instrumentation Générale from 1993 to 1996, and then head of the Service de Physique Nucléaire from 1996 to 2001.

McKeown becomes deputy director at JLab

The US Department of Energy's Thomas Jefferson National Accelerator Facility has announced the appointment of Robert McKeown from the California Institute of Technology to the position of deputy director for science. In addition to serving as deputy director, McKeown will become a Governor's Distinguished CEBAF Professor at the College of William and Mary in Williamsburg. He will begin his duties at the laboratory on 1 May.

McKeown's research interests have included studies of weak interactions in nuclei, neutrino oscillations, parity-violating electron scattering, and the electromagnetic structure of nuclei and nucleons. He first became interested in experimental nuclear physics as an undergraduate student at Stony Brook University, New York. He continued



Robert McKeown. (Courtesy R McKeown.)

his studies at Princeton University, where he received a PhD in 1979. After a year at Argonne National Laboratory, he took a position as assistant professor of physics at the California Institute of Technology, becoming an associate professor in 1986 and a professor in 1992.

McKeown has served on the Nuclear Science Advisory Committee, the editorial board for *Physical Review C* and on advisory committees for Brookhaven National Laboratory, Fermilab and Jefferson Lab, where he served as chair of the JLab Users Group Board of Directors in 1990–1991. He recently received the 2009 Tom W Bonner Prize in Nuclear Physics from the American Physical Society for his work using parity-violating electron scattering to study nucleon structure.



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LABORATORIES

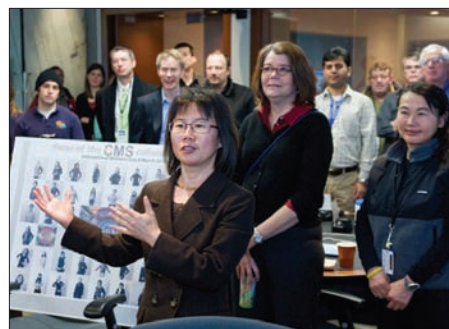
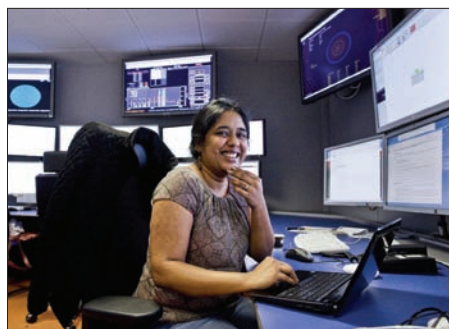
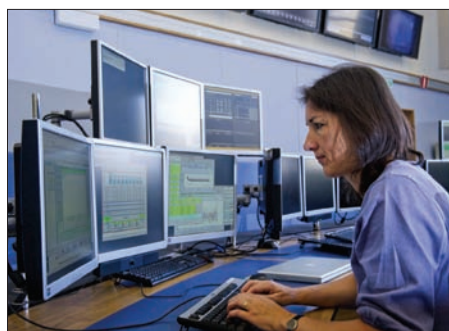
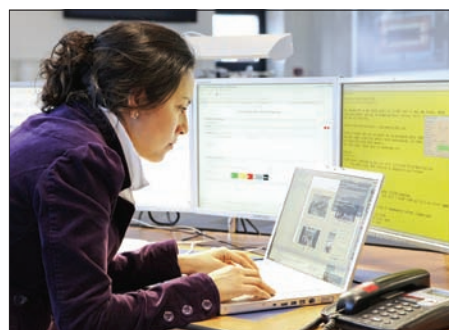
CERN and Fermilab celebrate International Women's Day

The control rooms at CERN may have resounded to cheers for the first collisions of 3.5 TeV beams on 30 March, but earlier in the month they had witnessed a different kind of celebration. On 8 March both CERN and Fermilab chose to mark International Women's Day for the first time by honouring the past and current contributions of women at the two laboratories.

CERN encouraged its staff and users to enable as many women as possible to be on shift on the day in the control rooms of the experiments and accelerators, and to staff the IT helpdesk and guide official visits. Poster exhibitions also highlighted the presence of women scientists at the laboratory both now and in earlier decades. At Fermilab, women took the lead in certain control rooms and led special guided tours focusing on how women have contributed to the experimental facilities at the laboratory's intensity frontier.

At 15.30 CET a video conference linked the CMS Centre at CERN with the LHC Remote Operations Center at Fermilab for a live discussion about the contributions of women in physics. In this way, CERN's director-general, Rolf Heuer, and the co-ordinator for external relations, Felicitas Pauss, joined Fermilab's director, Pier Oddone, and deputy-director, Young-Kee Kim, for the celebrations, together with Fabiola Gianotti and Guido Tonelli, the spokespersons of the ATLAS and CMS experiments, respectively.

The idea for these celebrations began at CERN, with Pauline Gagnon from Indiana University, a scientist on the ATLAS experiment. Gagnon hopes that spotlighting women physicists at CERN will send an encouraging message to young women interested in science. In the experiments, in all of the departments and in the management, women are increasingly represented at CERN. In the CERN Control Centre, for example, half of the engineers in charge, who take responsibility for operating



Scenes on International Women's Day. Lower right, colleagues at Fermilab, with deputy-director Young-Kee Kim, talk via video conference to the CMS Centre at CERN. (Courtesy Fermilab Visual Media Services.) Women at work in the control rooms at CERN, clockwise from lower left: CMS at Point 5; the CERN Control Centre; ALICE at Point 2; ATLAS at Point 1; LHCb at Point 8.

the LHC, are women.

At Fermilab, Women's Day formed part of a month-long Women's History Month celebration, during which weekly lunchtime discussions focused on the experiences of women during various decades at the

laboratory.

• For more details about the event as well as video interviews with women at CERN discussing why celebrating International Women's Day is important to them, see <http://cern.ch/womensday>.

LABORATORIES

The JINR committee appoints Alexei Sissakian for a second five-year term

The Committee of Plenipotentiaries of the governments of the member states of the Joint Institute for Nuclear research (JINR) held a regular session in Dubna on 25–26 March. Discussions centred on the main outcomes of the institute's activities over the past seven-year period, together with plans of the JINR community for 2010–2016.

The main topics included the considerable progress in upgrading the Nuclotron-M/ NICA accelerator complex, the DRIBs cyclotron complex, the IBR-2M reactor, the development of the IREN pulsed neutron source and the success of the JINR community in the synthesis of element 117. The successful development of partnership programmes with member states and with international and national scientific organizations was also discussed, in particular, the agreements concluded with CERN, Brookhaven National Laboratory and Fermilab, the Budker Institute of Nuclear Physics, and the National Research Nuclear University (Moscow Engineering Physics Institute). The session also considered further support of JINR's educational programmes, the implementation of a broad programme of innovation activities that take advantage of the special "Dubna" economic zone, and information about the establishment of the International Innovation Centre for Nanotechnology of the Commonwealth of Independent States.



Alexei Sissakian, is re-elected for a second term as director of JINR. (Courtesy JINR.)

The election of the JINR director was also held at the session, which unanimously approved the appointment of Alexei Sissakian for a second five-year term. Well known in the fields of elementary particle physics, theoretical physics and mathematical physics, Sissakian is the author of fundamental papers on multiparticle production, approximation methods in quantum field theory, and the physics of strong interactions at high temperature and density. He is also the initiator of the NICA project based on the JINR accelerator complex for the studies of phase transitions and critical phenomena in nuclear matter (*CERN Courier* January/February 2010 p13).

VISIT



Kasit Piromya, Minister of Foreign Affairs of the Kingdom of Thailand, left, visited CERN on 3 March. During his visit he toured the LHC superconducting magnet test hall with Felicitas Pauss, CERN co-ordinator for external relations, right, and Frédéric Bordry, head of CERN's technology department. The minister also visited the ATLAS visitor centre.

LETTER

Galilean science

The letter of Peter Schmid (*CERN Courier* January/February 2010 p34) is a mixture of semantics and a lack of knowledge of the three levels of Galilean science. I refer him to the paper where the problems mentioned in my short note are discussed in full, for which the reference was given in my Viewpoint article (*CERN Courier* October 2009 p42).

Colleagues and friends who understood the purpose of my intervention, namely not to ignore questions of interest to the general public and tax payers, who fund our labs, have reacted to my article by encouraging me to organize – before the end of this year – an interdisciplinary seminar on the topic at the Ettore Majorana Centre for Scientific Culture. Following the credo of the greatest Galilean scientist of the 20th century, Enrico Fermi, participation will be on the basis of results achieved in terms of scientific discoveries and/or technological inventions. According to Fermi, physicists who have never been able to get something out of their work in terms of technological inventions and/or scientific discoveries should first solve this problem before trying to become involved in problems that are apparently more easily understood. Antonino Zichichi.

MEETINGS

The **12th International Workshop on Radiation Imaging Detectors (IWORLD12)** will be held at Robinson College, Cambridge, on 11–15 July. The workshop covers all aspects of detectors, including detector materials and device processing, front-end electronics and readout, imaging theory, and applications in physics and biology. The deadline for abstracts is 11 May. For further information see <http://iworid2010.mrc-lmb.cam.ac.uk/>.

The **4th International Workshop on Charm Physics (Charm 2010)** will take place at the Institute of High Energy Physics, Beijing, on 21–24 October. The workshop will cover recent results in the field of charm physics, including its impact on and from theory, as well as projections for results to be expected from upcoming facilities. The registration deadline is 1 July. For further programme and registration details, see <http://bes3.ihep.ac.cn/conference/charm2010/>.

PHYSICS SCHOOL

ITEP hosts winter school at Otradnoe

The 38th ITEP Winter School of Physics (the 13th International Moscow School of Physics) took place at the Otradnoe resort on the outskirts of Moscow on 13–20 February. The lectures covered many subjects in elementary particle physics and closely related areas.

The school was a success, attracting more than 70 students representing 14 nationalities from all over the world. The students reported their scientific results at special sessions, and the best experimental and theoretical presentations received special diplomas.

More than 70% of the participants took part in the traditional cross-country ski competition where many prizes were awarded: from the absolute winner to the fastest professors. JoAnne Hewett of SLAC and Valerii Rubakov of the Institute for



Fastest professors: JoAnne Hewett (left) and Valerii Rubakov. (Courtesy ITEP.)

Nuclear Research of the Russian Academy of Sciences, Moscow, succeeded in beating the competition to claim these accolades.

● For further information about the school and the slides of the lectures, see www.itep.ru/ws/2010/?info.

NEW PRODUCTS

Eurotech has launched the Aurora Au-5600, a next-generation supercomputer for green petascale computing. Based on the latest Intel 32 nm processors (the Xenon 5600) and relying on the liquid-cooled Aurora design, the new Aurora Au-5600 brings the efficiency and power of the 32 nm architecture to the high-performance computing domain. The liquid cooling brings important savings in power requirements. For more information tel +39 0433 485411; e-mail welcom@eurotech.com; or see www.eurotech.com.

Future Technology Devices International has announced its new Vinculum VNC2 user-programmable dual USB 2.0 host/slave intelligent controller. The VNC2 introduces the capability for designers to develop their own application firmware and to program the host controller themselves. It comes with the royalty-free software-development environment that includes a compiler, linker and debugger. The software toolkit is based on the C language and provides a comprehensive suite of object files to provide support for USB host functionality. For further details, contact Daniel McCaffrey, tel +44 141 429 2777; e-mail sales1@ftdichip.com; or see www.ftdichip.com.

Highland Technology has launched two new products, the T750 and T760 high-voltage pulse drivers. Both feature fast, low-jitter, transformer-isolated pulse outputs, which are user adjustable from +5 V to +100 V into a 50 Ω load, with rise and fall times typically 2 ns. The T750 has four channels, each with a logic-level input and an isolated HV pulse output, while the T760 has two channels with fibre-optic inputs and isolated HV electrical outputs. For more information, tel +1 415 551 1700; e-mail info@highlandtechnology.com; or see www.highlandtechnology.com.

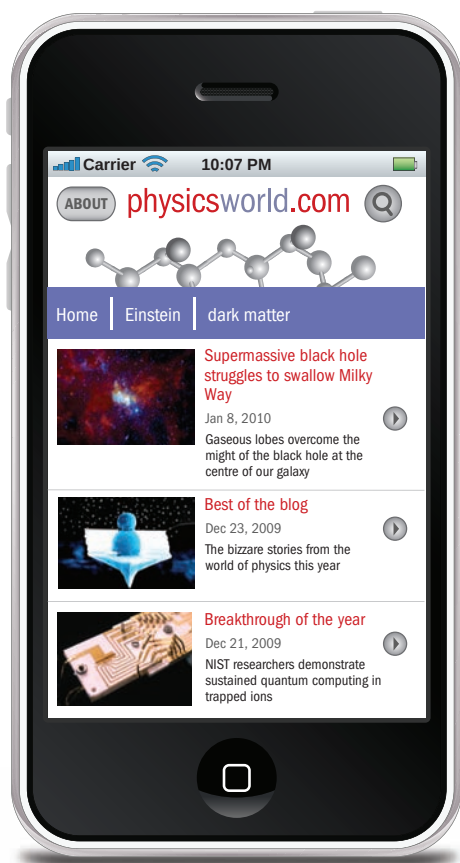
Kepco has introduced the BOP 6-125MG as part of its 1 kW bipolar operational amplifier (BOP) series. The new model enables the user to source or sink up to 125 A using a single 3U module with accuracy and read-back in current mode of 200 ppm. Up to five units can operate in parallel providing a source-sink capability of up to 625 A at 0–6 V. Kepco has also announced its new RMW series of 300 W switch-mode, DC power supplies. Overvoltage, overcurrent and short-circuit protection, an auxiliary 12 V fan output and remote error sensing are among the standard features. For further details, contact Oscar Roza or Veena Rao,

tel +1 718 461 7000; or e-mail oroza@kepcopower.com.

Yokogawa Electric Corporation has launched its new Yokogawa GS200, a programmable DC voltage/current source with high accuracy, high stability and high resolution. The GS200 generates low-noise DC voltage and current signals for a range of device-driving and test-and-measurement applications. It acts as a voltage source up to ± 32 V and a current source up to ± 200 mA. Typical accuracy is $\pm 0.016\%$ (on the 10 V range) and high resolution is provided by a $5\frac{1}{2}$ digit display with a display count of $\pm 12\,000$. For more information, contact Terry Marrinan, tel +31 88 464 1811; e-mail terry.marrinan@nl.yokogawa.com; or see www.yokogawa.com/ea.

CORRECTION

An error crept into a name in the article about recording *The Particle Physicists' Song* (CERN Courier March 2010 p33). This should have thanked Martin Gatehouse and Mary Stuttard of the CERN Choir for their hospitality. Apologies in particular to Mary.



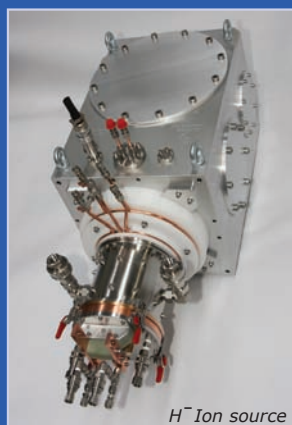
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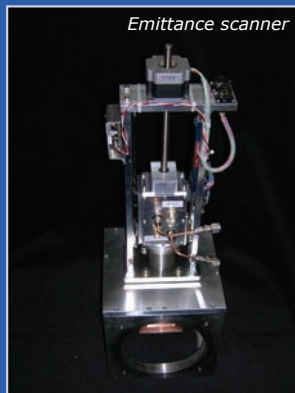
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H⁻ ION SOURCE

D-Pace, Inc. has licensed H⁻ volume-cusp ion sources from TRIUMF. The 15 mA, 30 keV H⁻ ion source, featured here, has 4 rms normalized emittance <0.8 mm•mrad. This TRIUMF type DC volume-cusp H⁻ ion source, model IS•15mA•30keV•H⁻ produces stable and reproducible H⁻ ion beams with low emittance and high brightness.

EMITTANCE SCANNER

Shown here is an Emittance/Phase Space Scanner, which D-Pace, Inc. has licensed from TRIUMF. The emittance scanner provides the phase space characteristics of a low energy charged particle beam, such as the phase space distribution, (x,x', intensity) or (y,y', intensity) and a detailed characterization of low energy charged particle beams.



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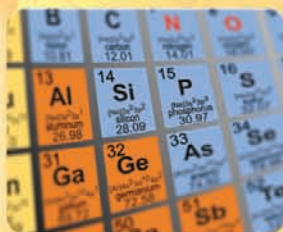


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CONFERENCE

Vienna meeting looks at detector progress

The 12th Vienna Conference on Instrumentation was held at the Vienna University of Technology on 15–20 February. About 300 participants from 30 countries gathered to listen to the 60 talks and discuss the 110 presented posters. While the number of participants remains constant in this conference series, the number of submitted abstracts continues to increase. The task of the international advisory committee to select talks and posters was therefore very difficult and the decisions certainly disappointed some potential contributors.

A significant proportion of the contributions were from the large LHC experiments. Participants were relieved to see the first results of real LHC collisions, which have been used to study the performance of the detectors. The experiments made efficient use of the unforeseen delay of the LHC start-up by commissioning and calibrating their detectors with cosmic rays. The results obtained only a few days or weeks after the first LHC collisions in autumn 2009 are remarkable. Detector parameters, such as resolution, efficiency and alignment precision, are already close to specifications. The preliminary π^0 mass reconstruction obtained with the CMS electromagnetic calorimeter after only a few days of data taking is within a few per cent of the Particle Data Group's mass value, to mention just one example.

Gaseous detectors are traditionally an important field at the conference, and this time many new ideas, prototype tests and operational experiences with large systems were presented. Classical wire chambers are being replaced by micropattern gas detectors in many applications. In particular, structures such as the gas electron multiplier (GEM) and Micromegas are already being used in experiments for large-area detectors. Many other structures have been prototyped, some of them in combination with silicon readout chips. After the elimination of wires in wire chambers, will the next coup be the elimination of the gas? Harry van der Graaf of Nikhef discussed new structures of detectors working in vacuum and using electron emission foils.

The conference also reviewed the full variety of silicon detectors. While standard



Participants at the 12th Vienna Conference on Instrumentation. (Photos courtesy M Hoch.)



Jelena Ninkovic (centre) and Gabriella Gaudio (second left) receive the NIM young scientist award from Luca Franco (second right), representative of Elsevier, Robert Klanner (right), editor of NIM A, and Manfred Krammer, chair of the conference.

planar strip detectors are the workhorses of vertex and tracking detectors, there are many new and sophisticated structures of monolithic devices, combining detection and readout in one structure. Examples are the depleted p-channel field effect transistor (DEPFET), silicon on insulator (SOI), monolithic active pixel sensor (MAPS), column parallel CCD (CPCCD) and spot-coated CCD (SCCCD). Amos Breskin of the Weizmann Institute of Science, who gave the summary talk, asked for a dictionary of acronyms for these devices.

Talks and posters describing calorimeters, detectors for particle identification and astroparticle physics experiments on

satellites and deep underground completed the programme. Finally, the last day was devoted to applications of detectors in medicine and biology.

Elsevier, the company that will publish the proceedings of the conference in *Nuclear Instruments and Methods A*, sponsored two prizes for young scientists: one for the best poster and one for the best talk. The criteria for the awards were the scientific value and originality of the work, the quality of the presentation and the knowledge that the presenter showed in the discussion. The awards were given to Jelena Ninkovic of Munich for the best talk and Gabriella Gaudio of Pavia for the best poster.

OBITUARIES

Alexis C Pappas 1915–2010

Alexis Pappas, an early pioneer and acknowledged giant of nuclear chemistry for over half a century, died peacefully in his Oslo home on 12 February. He was the Norwegian delegate to CERN Council from 1968 to 1983, and vice president in 1976–1978.

Alexis Constantin Georg Pappas was born in London of exiled Greek parents before the family moved to Norway shortly after the end of the First World War. He studied natural science at the University of Oslo, where he did his graduation work on uranium radiochemistry under Ellen Gleditsch. She was a pioneer in the field, having worked with the Curies in Paris for five years around 1910, and remained a personal friend of Marie Curie. These contacts allowed Pappas as a young graduate to visit the Institut de Radium and the Collège de France to study with leaders such as M Haissinsky, Frédéric Joliot and Irène Joliot-Curie. He then went on to the US to join the group headed by CD Coryell at the Laboratory of Nuclear Science at the Massachusetts Institute of Technology. His doctoral work on radiochemical studies of fission yields placed Pappas at the forefront of a fast growing field.

After returning to Norway and establishing a nuclear chemistry group at the University of Oslo, Pappas was appointed to a chair in radioisotope chemistry, which in 1962 was transformed into a permanent chair in nuclear chemistry, the first in a Scandinavian country. He remained in office until retirement in 1985.

Because of his unique expertise Pappas was frequently called upon to be a consultant for or member of governmental advisory boards in matters of ionizing radiation and



Alexis Pappas as vice-president of Council in 1977.

nuclear safety. He supervised a 15-year long project in the 1950s and 1960s, studying the uptake of radioactive strontium in people and grain from fallout after the testing of Soviet nuclear devices in the Arctic.

Pappas' involvement with the "embryonic CERN" started very early. Experiments on spallation and fission were performed with the new 170 MeV Uppsala synchrocyclotron, in a fruitful collaboration with the Gustaf Werner Institute involving the Swedish chemist G Rudstam and A Kjelberg, Pappas' first graduate student. In 1953 Niels Bohr, on the behalf of the CERN Theoretical Study Group then located in Copenhagen, wrote to Pappas inviting him to join the group as consultant. This arrangement continued until 1957. It was therefore logical that the director of the CERN Synchrocyclotron (SC), Wolfgang Gentner, asked Pappas to help build up CERN's nuclear-chemistry laboratory and to extend the research that had started in Uppsala to higher energies. The laboratory

was ready in 1958 with Rudstam as its first leader.

An important extension to the experimental facility came 10 years later with ISOLDE, the online isotope separator at the 600 MeV SC. Again Pappas was active in the planning stage, notably together with Rudstam, G Andersson from Gothenburg, R Bernas from Orsay and K O Nielsen from Aarhus. When the future of the aging SC was hotly debated in the early 1970s, and the question was raised in the Scientific Policy Committee whether CERN should concentrate on high-energy physics and exclude medium- and low-energy physics from its activities, Pappas was among those in the Council and the Finance Committee who most strongly advocated that CERN must maintain a broad scientific programme to serve the needs of a large body of users in the Member States. In later life he enjoyed following the extraordinary success of ISOLDE, which is now by far the longest-lasting experiment at CERN.

Alexis Pappas – Aleco among friends and colleagues – was a kind person, always positive and in good spirits despite an often-fragile health. He was an excellent lecturer and good communicator of popular science. He leaves behind a legacy of more than a hundred graduates in nuclear chemistry, of whom quite a few have gone on to spend part of their later careers at CERN.

He will be missed very much by all those who learnt to know him, and he will be remembered for all his engagements in the science he loved.

His students, colleagues and friends.

Marcel Vivargent 1923–2010

Marcel Vivargent, a leading figure of French high-energy physics, passed away on 31 January 2010 in his 87th year.

Marcel Vivargent started his scientific career at the French Centre National de la Recherche Scientifique (CNRS) in 1951, joining the group of Frédéric Joliot-Curie in the Laboratoire de Physique et Chimie du Collège de France in Paris. After his thesis, in 1958,

he contributed to the start of the cyclotron of the Institut du Radium in Orsay.

He came to CERN in the early 1960s to pursue his research at the new Proton Synchrotron. First by himself, and then with a small team from the Institut du Radium, he started collaborating with European colleagues to perform "electronic experiments", which provided important results in the production

of identified hadrons and in kaon physics. His experimental skill was soon recognized, in particular in the field of Cherenkov counters.

In 1968 Marcel took over as head of the High-Energy Physics Division of CNRS, which included particle physicists at the Institut de Physique Nucléaire Orsay and the Faculté de Paris Jussieu. Meanwhile he contributed to the CERN–Hamburg–Orsay–Vienna

experiment at CERN's Intersecting Storage Rings, studying elastic and diffractive processes in proton–proton interactions at the highest energies then available. It was also at this time that, together with physicists and engineers in Orsay and Saclay, he worked on the design of a 45 GeV accelerator project in France, which never saw life.

In parallel, together with some colleagues from Orsay working at CERN, he proposed and convinced the director of the newly created Institut National de Physique Nucléaire et de Physique des Particules (IN2P3) to set up a new laboratory near CERN. In 1976, with the support of local authorities, the Laboratoire d'Annecy-le-Vieux de Physique des Particules (LAPP) was opened, with Marcel as its first director; he remained in charge until 1982.

During the same period, he contributed to the start of the European Muon Collaboration, which was later to bring important results on proton-structure functions. As president of the European Committee for Future Accelerators from 1978 to 1980, he also played a key role in the preparation of the Large Electron-Positron (LEP) collider at CERN.

Marcel initiated the participation of the LAPP and the Institut de Physique Nucléaire Lyon groups in L3, one of the four LEP



Marcel Vivargent, then president of ECFA, right, with Jean Teillac, then president of CERN Council, during the Council meeting in June 1978.

experiments, and he was their representative from 1981 to 1991. He was responsible for the conception, building and testing of a new type of electromagnetic calorimeter in L3, which used about 10 000 crystals of bismuth germanate oxide (BGO) and was developed through a worldwide collaboration. This detector performed exceptionally well and was used successfully during the whole period of LEP running (1989–2001).

At the end of his career Marcel contributed effectively to the setting-up of the Crystal Clear Collaboration that performed key R&D work on new types of scintillating

crystals. One of these (lead tungstate) is now used in the CMS experiment at the LHC and elsewhere. After his retirement, he still followed the developments in physics as an emeritus research director, with a special interest in the ALICE experiment at the LHC.

Besides his qualities as a physicist and a leader, Marcel Vivargent was a most courageous, open and critical man, never hesitating to engage himself and serve the community. In 1944 he interrupted his studies to join the French Resistance. After his retirement he was active in a project to transport freight in a dedicated railway tunnel under Mont Blanc. He was also involved in solar energy and he managed to set up in Dakar an International Center for Study and Training in Solar Energy, CIFRES, which was inaugurated in 2003 by the president of Senegal. In 2009 he was made Chevalier de la Légion d'Honneur by the president of France.

Marcel was held in high esteem by his colleagues of all ages. He will be remembered for his strong personality, his talents and his outstanding ability to tackle difficult challenges and to lead them successfully.

We offer our condolences to his wife, daughter and granddaughter.

His friends and colleagues.

Albert Nikiforovich Tavkhelidze 1930–2010

On 27 February, academician Albert Nikiforovich Tavkhelidze passed away in his 80th year.

Albert Nikiforovich Tavkhelidze was an outstanding physicist and scientific organizer and a laureate of the Lenin prize and State prize. One of the most active founders of the colour-quark theory, he was the initiator of a number of scientific trends at the Joint Institute for Nuclear Research (JINR) in Dubna. He was the Georgian Plenipotentiary to JINR, a member of the JINR Scientific Council, and one of the establishers and a scientific supervisor of the Russian Academy of Sciences' Institute for Nuclear Research, Troitsk. He was also president of the Georgian Academy of Sciences (1986–2006) and a member of the presidium of the Academy of Sciences of the USSR for many years.

The predictions made by Tavkhelidze and his colleagues in the dynamic theory of colour quarks lie at the basis of modern



Albert Tavkhelidze, with a photograph of Nikolai Bogoliubov behind. (Courtesy JINR.)

understanding of the origins of nuclear matter origin and they are verified nowadays at the accelerators of large research centres including CERN, Brookhaven, Fermilab and JINR. The new Nuclotron-based Ion Collider Facility (NICA) under construction at JINR

will continue research in this field. The facility is being developed in Dubna where Tavkhelidze began his scientific career as a brilliant member of the scientific school founded by the great physicist–theorist and mathematician Nikolai Bogoliubov.

Tavkhelidze had an utter devotion to science. He was notable for his rare sense of purpose and working capacity, as well as for his ability to unite people to implement ambitious goals. He was demanding both of himself and of his colleagues, but at the same time he was a kind and sympathetic person. His passing is an irretrievable loss to science, and brings great sorrow to his numerous pupils and followers.

We express our deep and sincere condolences to the family members and others close to Albert Nikiforovich Tavkhelidze. The bright image of a remarkable scientist and person will stay forever in the memories of those who knew him.
JINR directorate.