

Faces & Places

APPOINTMENTS

TRIUMF announces new director

After a seven-month international search, on 18 March TRIUMF's management board announced that Jonathan Bagger would be the laboratory's next director. Bagger is Krieger-Eisenhower professor, vice-provost, and former interim provost at Johns Hopkins University and will lead TRIUMF for a six-year term starting from 1 July.

Bagger's research focuses on high-energy physics at the interface of theory and experiment, and together with Julius Wess he is the author of the monograph *Supersymmetry and Supergravity*. He has served on multiple committees, including chairing the International Linear Collider Steering Committee and being a member of

Jonathan Bagger will lead TRIUMF from 1 July (Image credit: JHU.)

the US National Research Council's Board on Physics and Astronomy.

He received his PhD from Princeton University in 1983, before taking a postdoctoral research position at the Stanford Linear Accelerator Center. From 1986 to 1989 he was associate professor at Harvard University, before joining Johns Hopkins University as a faculty member.

TRIUMF is Canada's national laboratory for particle and nuclear physics, focusing on probing the structure and origins of matter and advancing isotopes for science and



medicine. The appointment comes at an exciting time, when TRIUMF's new strategic plan has recently secured five years of core funding from the Canadian government.

AWARDS

EPS Accelerator Group announces 2014 prize winners

The European Physical Society Accelerator Group (EPS-AG) has announced the winners of the 2014 Accelerator Prizes, to be presented on 19 June at the International Particle Accelerator Conference, IPAC'14, in Dresden.

Mikael Eriksson, machine director of the Max-IV Laboratory in Lund, receives the Rolf Widerøe Prize for outstanding work in the accelerator field, with no age limit. He is rewarded for "outstanding leadership in the design, construction and commissioning of the MAX-lab synchrotron radiation facilities". For more than four decades, Eriksson has been the driving force behind all of the MAX-lab synchrotron radiation sources, at all stages, from design to performance. The design and implementation of the MAX IV storage ring is today paving the way for a new generation of extreme, low-emittance "ultimate storage rings" to achieve diffraction-limited radiation sources.

The Gersch Budker Prize, awarded for a recent, significant and original contribution to the accelerator field, with no age limit, recognizes Tsumoru Shintake, of the Okinawa Institute of Science and Technology Graduate University, for "leading the design, construction, commissioning and operation of the SACL X-ray free-electron laser

(FEL)". Shintake contributed to all aspects of the project, including the electron source, the C-band linac and the undulator alignment. The first lasing of the FEL in June 2011 (*CERN Courier* July/August 2011 p9) was a crowning achievement, made possible by numerous technological developments.

The Frank Sacherer Prize, for an individual in the early part of his or her career who has made a recent, significant and original contribution to the accelerator field, goes to Agostino Marinelli of SLAC, for "recent important, original contributions to accelerator physics, especially to the development of techniques that significantly improve parameters of free-electron lasers such as their spectrum and longitudinal coherence". Marinelli's achievements include the theoretical analysis and experimental demonstration of the gain-modulated FEL – a novel concept to generate two or more colours from one electron bunch, so enabling a new class of FEL experiments.

• For further information, visit www.eps.org/members/group_content_view.asp?group=85227&id=143442.



Top to bottom: Mikael Eriksson, Tsumoru Shintake, Agostino Marinelli. (Image credits: Johan Persson, Mayumi Nishioka/OIST, Gabriel Marcus.)

Faces & Places

CONFERENCE

'La Thuile' celebrates Bellettini's 80th

The week beginning 24 February saw 100 physicists gather for the 28th Rencontres de Physique de la Vallée d'Aoste – the annual “La Thuile” meeting – and to celebrate the 80th birthday of Giorgio Bellettini who, together with Mario Greco, started the series in 1987. At that time, first data were appearing from the Tevatron and there was exciting news from other fields, such as the supernova SN 1987A and high-temperature superconductors. Today, the La Thuile series is organized jointly with Giorgio Chialreli and Gino Isidori – and measurements of the recently discovered Higgs boson are among the hot topics.

From the start, the meetings were organized around in-depth reports on current work in particle physics and a few special topics from related fields. During the years they have featured either a session on physics and society or a round-table discussion about future directions in particle physics. This year it was “Which facilities to understand neutrinos?”, featuring a theoretical picture of the field by Francesco Vissani and reports from CERN, the Institute of High Energy Physics (IHEP) in Beijing, INFN, Fermilab, SNOLAB and the Institute for Cosmic-Ray Research, Tokyo.

The La Thuile meetings are also a base for outreach to the Province of Aosta, which takes pride in the fact that the region is now well known to physicists worldwide. On the Wednesday, the president of INFN, Fernando Ferroni, gave a public lecture to high-school students and teachers in Aosta on “Higgs e dopo Higgs” (“Higgs and after the Higgs?”). The La Thuile series is also unique in providing, through the Young Scientists Forum, an opportunity for physicists who are just starting out to present their current work.

On the Thursday afternoon, there was a special session to commemorate Bellettini's contributions to the field in his early career



Giorgio Bellettini, left, with Pier Oddone, then director of Fermilab, in 2008. (Image credit: Fermilab Today.)

(e.g. at CERN's Intersecting Storage Rings) and the significant impact he had on the physics climate of Fermilab during the Tevatron era – “the Italian Invasion”. Among the scheduled and impromptu speakers were Sergio Bertolucci, now director of research at CERN, who started his career as Bellettini's student; and Chiarelli, now co-organizer of the La Thuile series, who was one of the first beneficiaries of the programme that Bellettini started to bring summer students from Italy to experience physics in US laboratories. This programme, which began with only four students in 1984, is currently recruiting about 20 students a year.

During this session, people also remarked on the usefulness of the traditional La Thuile format. As Nicola Khuri pointed out, concentrated exposure to a broad survey of the latest developments in the field is very stimulating to theorists, with its overview of current progress. In recent years the long-running Moriond meeting series has moved to the same La Thuile venue, with help from Greco and Bellettini.

The Saturday morning session, rather than being a traditional wrap-up, included in-depth reports on the ongoing LHC refurbishments by Gianluigi Arduini, and on the prospects for high-energy physics beyond the LHC by Michelangelo Mangano. This led to plenty of discussions, which will probably continue until next year's meeting.

● For more information, visit <https://agenda.infn.it/conferenceDisplay.py?confId=7102>. Sebastian White, Rockefeller University.

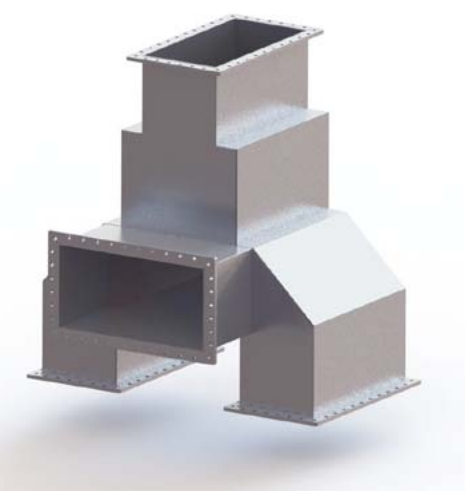
MEETING

ISC'14, the 2014 International Supercomputing Conference, will take place at the Leipzig Conference Center on 22–26 June. The comprehensive five-day programme consists of half-day and full-day tutorials on 22 June, followed by a four-day conference that includes four keynote talks, the ISC Research Paper and Poster sessions, and various topics and interest-specific

sessions. The prestigious PRACE-ISC and Gauss Awards will be presented for the best research papers. The ISC exhibition, which is a three-day event, will again feature exhibits from leading high-performance computing companies and research organizations. Early registration fees are available until 15 May. For further information, visit www.isc-events.com/isc14/.



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WORKSHOP

Testing quantum mechanics 50 years after Bell's theorem

Experts and young researchers from around the world converged on the European Centre for Theoretical Studies in Nuclear Physics and Related Areas – ECT* – in Trento on 24–28 February for an international workshop on Quantum Mechanics Tests in Particle, Atomic, Nuclear and Complex Systems: 50 Years After Bell's Renowned Theorem. This workshop was also funded by the EU COST Action "Fundamental Problems in Quantum Physics" MP1006, which is building up an international network to explore the foundations of quantum theory (*CERN Courier* June 2011 p32).

In 1964, John Stewart Bell, a theoretician at CERN of world renown, published a paper on a field he considered to be a hobby: the foundations of quantum mechanics. He came up with an experimentally testable theorem that must be fulfilled for any local realistic theory, but is in contradiction to the predictions of quantum theory. In simple terms, Bell's theorem gives a device-independent toolbox to prove when quantum systems outperform systems that can be described with classical theories. This seminal work initiated a new line of research, far beyond his expectations, which has led to novel applications such as quantum cryptography, or might lead to a possible quantum computer.

The recent workshop was devoted to Bell's heritage and brought together theoreticians and experimentalists from many different fields. Happily, these researchers succeed in finding a common language to address fundamental problems, working out the respective advantages and disadvantages of distinct physical systems and developing approaches that might lead to a unified picture.

Superposition and entanglement seem to be the basic ingredients for an explanation of various quantum phenomena for physical systems at different energy scales and of different complexity. There were talks dealing with neutral K-mesons, which are entangled in their strangeness property. This system, which oscillates between



Left to right: Reinhold Bertlmann, Catalina Curceanu, Beatrix Hiesmayr and GianCarlo Ghirardi. (Image credit: Johann Marton.)

the particle and antiparticle state, has been shown to be a unique laboratory for fundamental studies. In particular, Bell's theorem is violated because of a tiny violation of the matter–antimatter symmetry – CP violation, which was found experimentally in 1964, the same year that Bell published his seminal paper. Theoreticians have since shown that the generator of time (the Hamiltonian) is not symmetric with respect to time-reversal symmetry, for a certain toy model of the universe, and that this tiny difference measured in meson systems has a huge impact on a cosmological scale.

There were also talks dealing with biological systems. These included topics such as light-harvesting complexes in photosynthesis, radical-pair creation in navigation in birds, and charge separation in organic solar cells, discussing whether genuine quantum effects could be responsible for high efficiency.

Given that all experiments are so far in agreement with the predictions of (standard) quantum theory, it is tempting to think that this is the fundamental theory. However, this leads immediately to the problem of how to explain the absence of superpositions in the macroscopic world. Collapse models provide a mathematical framework that explains the transition from a quantum to a classical world, and provide new predictions for the regime in between. Some talks dealt with these predictions for different physical systems. It was noted that it is not only massive interfering systems that might provide new experimental results in the near future. On the theoretical side, discussions

focused on whether dark matter/energy could provide an explanation for the collapse.

Several talks referred to condensed-matter systems, showing that genuine multipartite entanglement plays an important role in understanding the physical properties of these systems. The orbital angular momentum of entangled photons provides a highly controllable system, which can reveal the power of entanglement in multipartite and multidimensional space.

On 25 February there was a panel discussion on the role of superposition or entanglement in the universe. The panel and the active participants had different views, the only agreement being that there is still not enough known about quantum theory to capture the underlying picture.

Last but not least, Reinhold Bertlmann and GianCarlo Ghirardi gave talks on their personal encounters with Bell. Bertlmann, a particle physicist, told the story of how "Bertlmann's socks" became a subject of physics, and how this brought him to the foundations of quantum mechanics. GianCarlo Ghirardi, one of the three founders of the collapse models, emphasized how Bell realized from the beginning the importance of his contribution to the foundations of the subject, which are currently under extensive investigation. The workshop certainly benefited from the presence of these two researchers, who had experienced the exciting half-century since Bell's seminal paper.

● The workshop was organized by Beatrix Hiesmayr (University of Vienna), Catalina Curceanu (LNF-INFN) and Andreas Buchleitner (University of Freiburg).

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SCHOOL

Itep hosts winter school of physics

The 17th International Moscow School of Physics (the 42nd ITEP Winter School) took place on 11–19 February near Moscow. The ITEP Winter School of Physics, which dates back to 1973, became international in 1994 and attracts participants from leading research centres and universities. This year the programme included lectures on Higgs-boson physics, flavour physics and new results from the LHC, as well as cosmology, dark matter, quarkonia and neutrino physics. In addition, there were talks on higher-spin gauge theories and the status of the International Linear Collider.

Students from eight countries – Belgium, Belorussia, France, Germany, Kazakhstan, Russia, Ukraine and Vietnam – enjoyed the Russian winter and presented their results at the Young Scientists Forum, where Alexander Novikov and Max Zoller received diplomas for the best experimental and theoretical presentations.



Zhi-zhong Xing, who lectures on neutrino physics, in the school's traditional ski competition. (Image credit: ITEP.)

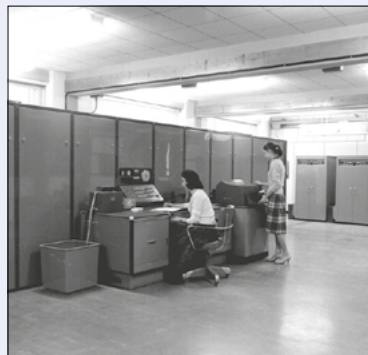
● For a list of lecturers and their presentations, see http://ws.itep.ru/?page_id=169.



There is a sense of calm and spaciousness in these images of CERN's central computing facilities in 1958 (top) and 2013 – but there is little else in common. The first “central” computer was a large, vacuum-tube-based Ferranti Mercury, installed in Building 2 on 30 June 1958. Its clock speed was a modest 1 MHz; and it had a RAM capacity of 2000 20-bit words. “Mass” storage was provided by four magnetic drums, each holding 32,000 × 20 bits – insufficient to hold the data from a single proton–proton collision in the LHC. It was replaced in 1960 by an IBM 709, which was installed in the first computer building (B510), and so the inexorable growth of computing at CERN began.

The modern computing centre in Building 513 now has responsibility for vast amounts of data from the LHC experiments. By 14 February 2013, the day the LHC's first three-year run ended, the centre's mass-storage systems had surpassed 100 million gigabytes of physics data.

While the bulk of the data is archived on more than 50,000 tapes, the rest is stored on a disk-pool system that is optimized for fast access by many concurrent users.



(Image credits: CERN-CO-1269 and CERN-CO-1302162 – 06.)

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VISITS

When the Swedish minister for enterprise, **Annie Lööf**, centre, visited CERN on 3 March, she toured the LHC tunnel with **Malika Meddahi**, left, deputy head of the Accelerator Beam Transfer Group in the Technology Department, accompanied by **Richard Jacobsson**, a senior physicist on the LHCb experiment. (Image credit: CERN-PHOTO-201403-042 – 10.)



On 4 March, the Macedonian minister of foreign affairs, **Nikola Poposki**, visited CERN. After signing the guestbook, accompanied by the director-general, **Rolf Heuer**, he was taken on a tour of the CMS underground experimental area. (Image credit: CERN-PHOTO-201403-043 – 01.)



The Lithuanian minister of education and science, **Dainius Pavalkis**, right, visited CMS on 13 March, accompanied by **Rytis Paulauskas**, permanent representative of the Republic of Lithuania to the United Nations Office and other international organizations in Geneva. During his visit, the minister also met Lithuanian teachers taking part in CERN's teachers' programme. (Image credit: CERN-PHOTO-201403-048 – 17.)



Olman Segura Bonilla, left, the Costa Rican minister of labour and social security, visited CERN on 21 March. He was shown the ATLAS underground experimental area by the deputy spokesperson of the ATLAS collaboration, **Thorsten Wengler**. (Image credit: CERN-PHOTO-201403-057 – 06.)

LETTERS

Who invented quarks?

The official story (*CERN Courier* March 2014 p37) is that they were invented by Murray Gell-Mann and George Zweig, in that chronological order: Gell-Mann's published paper was received by *Physics Letters* on 4 January 1964, while Zweig's unpublished work is a CERN Yellow Report dated 17 January of the same year. But, as Napoleon is said to have said: "History is the version of past events that people have decided to agree upon."

This official story might be wrong in its dates, since Gell-Mann's paper, at least according to the same hardly trustable source of the previous quote (i.e. the internet) was, shamefully, rejected by *Physical Review Letters*. That would not change the chronological order, which is irrelevant anyway, because the dates were so close. Concerning dates, it must also be recalled that Gell-Mann wrote: "These ideas were developed... in March 1963; the author would like to thank Professor Robert Serber for stimulating them."

The official story is demonstrably wrong on one point: André Petermann published a paper (in French!) in *Nuclear Physics* that was received on 30 December 1963, shortly before the dates quoted in the first lines of this letter, although not published for some time (A Petermann 1965 *Nuclear Physics*

B63 349). In that paper, perhaps delayed by yet another sceptical referee, Petermann discussed mesons as made of a "spinor/anti-spinor pair" and baryons as "composed of at least three spinors". Concerning the delicate issue of their charges, Petermann delightfully writes: "If one wants to preserve charge conservation, which is highly desirable, the spinors must have fractional charges. This fact is unpleasant, but cannot, after all, be excluded on physical grounds."

There are other unofficial issues concerning this gorgeous chapter in the history of science. Who rejected Gell-Mann's paper? Was Zweig forbidden to give a talk at CERN at the time? If so, by whom? I am only allowed to write up to 300 words, that's it. Thou shalt not know the answers.

● *Álvaro de Rújula, CERN, and IFT/CSIC/UAM, Madrid.*

UA2's inner silicon detector

I read with interest the article "Microelectronics at CERN: from infancy to maturity" in the March 2014 issue (pp 26–29).

Reading the caption to the first figure ("Two decades of microelectronics at CERN – enabled by the LAA project."), it might be believed that the LAA project contributed to the successful operation of the detector made of 3072 small silicon pads, which fit just around the beam pipe in the UA2 experiment

at the CERN proton–antiproton collider.

In fact, the proposal to build the UA2 inner silicon detector was submitted to the SPS Committee at CERN by the UA2 Collaboration in March 1987, and was approved at the Research Board on 3 June 1987. As the article indeed mentions, the contributions of Erik Heijne and Pierre Jarron were crucial to the detector's success. Jarron designed and supervised the construction of the AMPLX chip – using CMOS technology, which allowed the detector to fit in the 9 mm space around the beam pipe. The detector was financed by the institutes collaborating on the UA2 experiment and was already operational in 1988 for the first run of the collider with the upgraded antiproton accumulator.

Also, this detector's main purpose was not "to solve the difficulty of identifying the single electron that comes from a decay of a W boson close to the primary interaction vertex" (W decays to electrons had already been seen by UA1 and UA2 at the end of 1982). Its purpose was to identify single electrons of energies as low as 15 GeV, which were expected from the decay $W \rightarrow tb$, $t \rightarrow b\gamma$ (at the time, nothing was known about the t-quark mass, and the decay chain would have been observed if the t-quark had been lighter than the W boson).

● *Luigi di Lella, University of Pisa.*

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OBITUARIES

Alick Ashmore 1920–2014

Alick Ashmore, a highly regarded former director of Daresbury Laboratory and a major figure in the development of research facilities in the UK in the 1960s and 1970s, passed away on 28 February.

Alick was born in Cheshire, England, and graduated in physics from Kings College, London, in 1941. After working at the Radar Research Establishment, Malvern, in 1947 he joined the physics department at Liverpool University, where he led a research group working on the 156 inch synchrocyclotron – a machine that was also used by CERN staff before the first CERN accelerator came into operation.

In 1960 he was appointed by Queen Mary College, London, to lead a user group on Nimrod, the 7 GeV proton synchrotron that was under construction at the Rutherford High Energy Laboratory (RHEL). He continued research begun at Liverpool on the spin-dependant parameters in proton–proton scattering using the 50 MeV proton linear accelerator at RHEL, and also spent time at CERN, measuring proton–proton total cross-sections at the new Proton Synchrotron. Together with Eric Taylor of AERE Harwell, he proposed the first approved experiment on Nimrod: small-angle proton–proton elastic scattering.

Alick was promoted to professor in 1964, and during 1965–1966 spent a sabbatical year at Brookhaven, where he participated in experiments on pion–proton, kaon–proton and proton–proton scattering with a Brookhaven–Cornell group. In 1968 he became head of department at Queen Mary College.

In 1970 he was appointed director of Daresbury Nuclear Physics Laboratory, where the 5 GeV electron accelerator, NINA, supported a mature particle-physics programme. Additionally, synchrotron radiation was also being used on two embryonic beamlines for molecular and



Alick Ashmore. (Image credit: Daresbury Laboratory.)

atomic research on a range of materials. Alick enthusiastically pursued funding for the expanded use of NINA by installing a new experimental area for using synchrotron radiation in material and life sciences. When the Science Research Council closed NINA in 1977 to concentrate UK resources at CERN, Alick was instrumental in organizing the particle-physics users from Daresbury and several northern UK universities in two collaborative projects: the Omega spectrometer and the European Muon Collaboration, both of which had highly successful programmes at CERN.

Alick also led the development of the Nuclear Structure Facility at Daresbury – a tall, tandem Van de Graaff accelerator. This delivered outstanding nuclear physics, including the discovery of nuclear super-deformation, providing a new insight into the dynamics of atomic nuclei. Following this success, Alick initiated construction in 1975 of the Synchrotron Radiation Source (SRS), which became

the world's first dedicated facility for X-ray synchrotron radiation research. During its 28 years of operation, the SRS supported cutting-edge research in physics, chemistry, materials science, medicine, geological and environmental studies, structural genomics and archaeology. It played a critical role in supporting Sir John Walker's research on solving the structure of an enzyme that opened the way for new insights into metabolic and regenerative disease, and resulted in a share of the Nobel Prize in Chemistry in 1997.

In this way, Alick led the transformation of Daresbury Laboratory from a high-energy physics laboratory into an international centre for nuclear physics and synchrotron radiation. He also saw significant growth in scientific computing there, through the inclusion of work related to applications of computing to structural chemistry, X-ray crystallography and atomic physics.

Alick was awarded Commander of the Order of the British Empire for services to science in 1979, and retired in 1981. His leadership was shaped by his benign, sympathetic and gentle character, and was strongly driven by an awareness of social fairness. He was highly regarded and widely admired by the staff at Daresbury and by his colleagues and students at Queen Mary, where the group he started more than 50 years ago has now evolved into the QMUL Particle Physics Research Centre.

Alick enjoyed a long and healthy retirement with his wife Eileen in Cumbria, where he was deeply involved in local events and organizations. He enjoyed walking in the Lake District and travelled extensively to visit family, for relaxation and education. He is survived by Eileen, who he married in 1947, his five children, 13 grandchildren, and seven great grandchildren.

● *Peter Kalmus, Queen Mary University of London (QMUL).*

Erich W Vogt 1929–2014

TRIUMF lost a dear member of its family when Erich Vogt, co-founder, visionary leader and father to all, passed away on 19 February. He was 84.

Erich Wolfgang Vogt and TRIUMF have been inseparable since 1966, when the

Canadian federal government entrusted a three-university consortium of academics to build a meson factory at the University of British Columbia (UBC). Erich believed that co-operation would pave the way for Canadian scientists to play a leadership role

in nuclear and particle physics worldwide. This defined his management style and the laboratory work ethic.

Erich was born in the centre of Canada and received his undergraduate education at the University of Manitoba, earning his PhD at

Princeton in 1955 in nuclear-reaction theory under Eugene Wigner. He worked for 10 years at the Chalk River Laboratory, then one of the world's premier nuclear-physics laboratories. He joined the physics department at UBC in 1965, and quickly established himself as the champion of a bold project to replace UBC's 3 MeV Van de Graaff accelerator with a 500 MeV cyclotron. The brainchild of Reg Richardson of University College Los Angeles, it was a challenging, high-intensity machine incorporating many innovative technologies, such as H^- injection, multiple extraction, energy variability and separated turn extraction. By the late 1970s, the TRIUMF cyclotron reached its design intensity with a broad science programme in full swing, competing with the other meson facilities at Los Alamos and what is now PSI. Strong collaborations were built with Japan and the University of Tokyo, with Japanese physicists providing a muon beamline. Israeli collaborations enhanced the proton and pion-nuclear programme, and collaboration with UK groups provided the best study on the nucleon-nucleon phase shifts in the 200–500 MeV region.

Erich became director of TRIUMF in 1981, serving until 1994, and foresaw the importance of broadening the science programme beyond nuclear and particle physics. He supported a material-science and chemistry effort using polarized muons, and pushed a radiochemistry programme to support medical imaging diagnostics. He nurtured a collaboration with AECL (now NORDION) to produce and deliver radioisotopes worldwide, yielding more than 50,000 patient doses of short-lived radioisotopes delivered each week to hospitals worldwide for the past 35 years. Erich envisaged the importance of developing small cyclotrons capable of producing radiotracers in hospital environments and initiated



Erich Vogt. (Image credit: Alex Waterhouse-Hayward.)

a transfer of cyclotron technology from TRIUMF to a local manufacturer. The TR series of mini-cyclotrons were developed, and soon acquired a reputation for reliability and performance.

TRIUMF was then well established and well regarded for its scientific output. However, Erich had a much more ambitious plan to move the laboratory to another level in international science. The KAON proposal would raise the proton beam energy to 30 GeV at a healthy 100 μ A intensity. Erich convinced Europe, the US and Japan (which had developed similar projects) to join KAON. The Canadian government invested in a study to better define the technical aspects, cost estimates and partners for the facility. Erich became a travelling salesman and advocate, rallying the world to his cause. He expanded on the so-called "HERA model" of co-operation, whereby Canada joined DESY's HERA project with accelerator and detector contributions to gain access to the nationally operated facility.

Erich always encouraged TRIUMF's

scientific staff to take a more visible role in international experiments, at labs such as SLAC, DESY, CERN, Brookhaven and KEK, bringing TRIUMF into the big league of particle-physics research and establishing the reputation and competencies of the laboratory staff. By the time of his retirement from the TRIUMF directorship, and after the decision by the Canadian government not to proceed with KAON, Canada was able to join the LHC programme, push a rare kaon-decay programme at Brookhaven, establish a neutrino group, and generally support its particle-physics community to access foreign facilities. KAON was not to happen on Canadian soil, so Erich passed the baton to the Japanese JHF team and followed with proud interest the construction and first operation of the Japan Proton Accelerator Research Complex – J-PARC.

Erich was a fantastic educator and motivator. More than 5000 students enjoyed the three 8.30 a.m. honours physics lectures he gave each week for 45 years until he turned 80. He would always adjust his travel schedule to minimize missed lectures, and the TRIUMF student programme always managed to survive budget trimming.

The TRIUMF family will continue to build on his legacy of excellence, strength, collaborative spirit, and above all, friendship. Perhaps the recent announcement of a federal-funding commitment for TRIUMF from 2015 to 2020 (p31), a full year ahead of expectation, was recognition of his sweeping vision for the lab that he let go knowing TRIUMF would continue to prosper.

Thank you Erich for the many lessons and for your trust.

● *Jean-Michel Poutissou and Ewart Blackmore, senior scientists emeriti at TRIUMF.*

NEW PRODUCTS

Hidden Analytical has announced the compact Hiden HPR-30 differentially pumped mass spectrometer, which enables real-time measurement and control of gas composition in vacuum processes in the pressure range 1 mbar to 10^{-4} mbar. The system is fully PC controlled and programmable for automatic operation and data reporting. Multiple input channels enable process data such as process pressure, temperature, etc to be fully integrated with the acquired mass spectra. For further information, e-mail info@hiden.co.uk or visit www.HiddenAnalytical.com.

Pfeiffer Vacuum has introduced the world's

first ATEX-certified Roots pumps with a magnetic coupling. The tried and tested Roots pumps principle has been developed further for this certification and named OktaLine ATEX. These pumps are ideal for evacuating explosive gases according to the ATEX directive (94/9/EC). The hermetically sealed pumps have very low leakage rates of less than 1×10^{-6} Pa m³/s. The complete series of pumps covers pumping speeds from 280 m³/h to 5190 m³/h. For more details, visit www.pfeiffer-vacuum.com.

Siemens has announced two new product lines for industrial wireless LAN. With the compact Scalance W761-1 RJ45 access

point and the Scalance W721-1 RJ45 client module, users can implement wireless machine-networking out of the cabinet, with cost and space savings, for example, in conjunction with the Simatic ET 200SP distributed I/Os. The components support transmission rates of up to 150 Mbit/s. The second product line comprises the Scalance W774-1 RJ45 access point and the Scalance W734-1 RJ45 client module and is designed for transmission rates up to 300 Mbit/s. These devices are enclosed in a compact and robust aluminum housing. For further information, contact Peter Jefimiec, tel +49 911 895 7945, e-mail peter.jefimiec@siemens.com or visit www.siemens.com/iwlan.