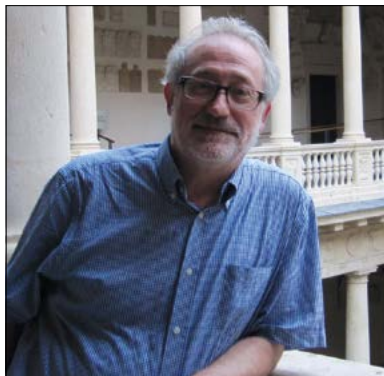


Faces & Places

APPOINTMENTS

New spokesperson for GERDA

The international GERmanium Detector Array (GERDA) collaboration has appointed physicist Riccardo Brugnera of the University of Padua as its next spokesperson. The GERDA experiment operates at Italy's Gran Sasso National Laboratory with the aim of detecting neutrinoless double beta decay – which, if observed, would provide a strong indication that neutrinos and antineutrinos are identical (Majorana) particles. GERDA, which is based on high-purity germanium detectors with almost zero background contamination, entered its second phase at the end of 2015 and will run until the end of 2019. Brugnera will be in charge of the experiment for the next three years, taking over from



Riccardo Brugnera takes the lead in GERDA's search for Majorana neutrinos.

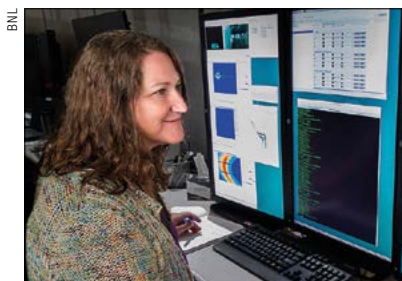
Berhard Swingenheuer of the Max Planck Institut für Kernphysik in Heidelberg.

GERDA is one of several experiments vying to be first to spot neutrinoless double beta decay, many of which use large-volume detectors filled with a suitable isotope. CUORE at Gran Sasso uses tellurium, SNO+ in Canada uses heavy water, while KamLAND-Zen in Japan and EXO in the US use xenon, among others. Current half-life limits for neutrinoless double beta decay are above 10^{25} years, setting the bar for the next generation of experiments.

EVENTS

Brookhaven light source passes two years of user operations

The National Synchrotron Light Source II (NSLS-II) located at Brookhaven National Laboratory has completed two years of providing users with ultra-bright X-rays for experiments. During the past year, NSLS-II passed significant milestones in beam stability and reliability and is heading towards its operational current of 350 mA. There are currently 20 beamlines in operation but, when completed, NSLS-II will have as many as 60 beamlines. Eight new beamlines were added to NSLS-II



Enzyme expert Joanna Krueger of the University of North Carolina was named the 1000th user at NSLS-II on June 28 this year.

during its second year, expanding the facility's reach into new fields of research.

In addition, NSLS-II's second year of operation saw several important results, including new cathode materials that could allow the mass production of sodium batteries and advances in our understanding of high-temperature superconductivity.

Physics at the festival frontier

Following a successful debut in 2016 that witnessed 4000 people happily packing themselves into a tent over three days in Charlton Park in the UK, CERN returned to the WOMAD festival this year with the Physics Pavilion. Featuring talks on theremins and electric guitars, the physics of the NA62 experiment, and the origins of creativity, the Pavilion was once again packed during a year with record attendance at the festival. Those who craved something more hands-on were not disappointed: The Lab, one of two new additions requested by the festival's management team, allowed participants to build their own cloud chamber, particle collision event, and more. CERN



virtual-reality headsets created a queue at a third location called Outside at The Lab, where people eagerly explored the CMS experiment, and Devovx4Kids allowed children to understand physics by modelling catapults in Minecraft code – perhaps inspiring the next generation of physics model-builders.

The team behind the Physics Pavilion

A packed Physics Pavilion watches on as Bryson Gore reproduces some of his best science demonstrations.

includes physicists from CERN, the UK Science and Technology Facilities Council, the Institute of Physics, and Lancaster University. The enthusiasm for science was clear to see, with proud parents asking for careers advice for their young Einsteins and Curies. "Can we visit?", "What if there are things smaller than quarks?", "What are you looking for now?" and "What can we use the Higgs boson for?" were just some of the tough questions asked by hungry minds at a festival that celebrates diversity and culture. With events like this, CERN and its partners are reaching out to a wide range of people, sharing knowledge and excitement, and showing that science is part of our common cultural heritage.

Faces & Places

R Hahn, Fermilab



Eclipse captures world's attention

Hundreds of millions of people witnessed a rare total solar eclipse as it cast its shadow across 14 states in the US on 21 August – possibly the biggest audience for any natural event in history. CERN's James Gillies caught the spectacle while holidaying in Oregon, describing it as one of

the most amazing things he's ever seen. "As you approach 100%, you see what looks like a tiny flash before totality begins, then the white corona appears. It brings it into focus that you are in a vast universe witnessing the alignment of three celestial bodies, one of which is your home. It only lasted for one minute and 16 seconds, but it left me wanting more!" The last time a total eclipse took place over the entirety of the US was 1918, and those who missed this summer's event will have to wait until April 2024 until the next total eclipse is visible from the US mainland.

(Above left) The clouds over Fermilab, located roughly 500km north of the totality region, thinned just enough to capture this moment during the solar eclipse on the afternoon of 21 August.

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EXHIBITIONS

Accelerating science in Turkey



Accelerating Science has been touring the world since 2009 and to date has been seen by an estimated 800,000 people in 11 countries.

From 23 March to 23 July, Bilgi University in Istanbul was host to CERN's travelling exhibition "Accelerating Science". The exhibition was visited by more than 20,000 people, nearly half of which were group visits from high schools, and the event played an important role in raising public awareness about CERN and its objectives, with 141 press items on various Turkish media channels. Turkey became an associate member of CERN in 2015 and is strengthening its scientific, industrial and educational relations with CERN at an increasing pace.

H Altemir

CONFERENCES

Strangeness in quark matter



P. van Dorp, Van Vliet, Utrecht University

More than 210 participants attended 2017 Strangeness in Quark Matter in Utrecht.

The 17th edition of the International Conference on Strangeness in Quark Matter (SQM 2017) was held from 10 to 15 July at Utrecht University in the Netherlands. The SQM series focuses on new experimental and theoretical developments on the role of strangeness and heavy-flavour production in heavy-ion collisions, and in astrophysical phenomena related to strangeness. This year's SQM event attracted more than 210 participants from 25 countries, with 20% of attendees made up of female researchers. A two-day-long graduate school on the role of strangeness in heavy-ion collisions with 40 participants preceded the conference.

The scientific programme consisted of 53 invited plenary talks, 70 contributed parallel talks and a poster session. Three discussion sessions provided scope for the necessary debates on crucial observables to characterise strongly interacting matter at extreme conditions of high baryon density and high temperature and to define future possible directions. One of the discussions centred on the production of hadron resonances and their vital interactions in the partonic and hadronic phase, which provide evidence for an extended hadronic lifetime even in small collision systems and might affect other QGP observables. Moreover, future astrophysical consequences for SQM following the recent detection of gravitational waves were outlined: gravitational waves from relativistic neutron-star collisions can serve as cosmic messengers for the phase structure and

equation-of-state of dense and strange matter, quite similar to the environment created in relativistic heavy-ion collisions.

Representatives from all major collaborations at CERN's Large Hadron Collider and Super Proton Synchrotron, Brookhaven's Relativistic Heavy Ion Collider (RHIC), and the Heavy Ion Synchrotron SIS at the GSI Helmholtz Centre in Germany made special efforts to release new data at this conference. Thanks to the excellent performance of these accelerator facilities, a wealth of new data on the production of strangeness and heavy quarks in nuclear collisions have become available.

New results

Among the highlights presented at the conference, the ALICE collaboration reported new results on strange and multi-strange hyperon production in heavy-ion collisions with a collision energy of 5.02 TeV per nucleon–nucleon pair and the first measurement of charm baryons (Λ_c and Ξ_c) in proton–proton and proton–lead collisions at the LHC. Furthermore, ALICE performed the most precise measurement of the hypertriton lifetime, an exotic nucleus composed of a proton, a neutron and a Λ particle. The CMS collaboration reported progress in understanding the different energy losses for charm and beauty quarks in the hot QCD medium, while the STAR experiment at RHIC gave an update on global Λ polarisation, which reveals that

the curl of the fluid created at RHIC is much higher than that in any fluid ever observed. Enhanced strangeness production in small systems, as reported by the HADES, NA61/SHINE and ALICE collaborations, has also reignited the discussion surrounding strangeness production as a signature of the quark–gluon plasma.

Experimentally, the prospects in the field are good for future measurements at the Facility for Antiproton and Ion Research in Darmstadt (CERN Courier July/August 2017 p41), NICA at JINR Dubna, and at CERN (namely detector upgrades at the LHC during Long Shutdown 2 and the AFTER programme). On the theory side, new developments and vigorous research efforts are taking place towards a full understanding of strangeness production and open heavy-flavour dynamics in heavy-ion collisions. Global polarisation in heavy-ion collisions is also a current topic of interest, since it allows the study of the vorticity of the medium and the initial magnetic field.

Four young scientist prizes, sponsored by the *European Physical Journal A*, were awarded to the best parallel talk and poster presenters: Heidi Schultes (Goethe University Frankfurt, Germany), Christian Bierlich (Lund University, Sweden), Yingru Xu (Duke University, US) and Vojtech Pacik (Niels Bohr Institute, Denmark).

The next edition of the SQM conference will take place in Bari, Italy, in June 2019.

● sqm2017.nl

Faces & Places

Rethinking dark matter in Vietnam

Dark matter poses an immense challenge for experts who are trying to detect it in a variety of ways, with all sorts of techniques, in every corner of the world. An event titled Exploring the Dark Universe, held from 23 to 29 July at the International Center of Interdisciplinary Science Education in Vietnam, witnessed an emerging buzz around new paradigms needed to discover the particles that dark matter is made of.

Running since 1993, the Rencontres du Vietnam is a series of conferences that builds on the success of the Rencontres de Moriond (which has been active since 1966) and Rencontres de Blois (since 1989). Exploring the Dark Universe was attended by 75 people from various institutes around the world and, more importantly, from various fields of physics across theory and experiment.

Limits on supersymmetric particles coming from the accelerator sector, particularly from the LHC, were discussed in the context of the cosmological constraints coming from satellite and ground observations, with theorists and phenomenologists presenting their best performing models. Neutrino experts from various experiments reviewed their different results and analyses, including information about non-atmospheric neutrinos from IceCube, while XENON IT presented its latest results and constraints on direct



The ICISE centre in Quy Nhon, which has hosted the Rencontres du Vietnam since 2013.

dark-matter detection.

Popular puzzles got the audience's attention and triggered several discussions: FERMI's gamma-ray excess at GeV energies; the possible existence of sterile neutrinos; the long-standing seasonal modulation observed by DAMA-LIBRA; the AMS-02 antiproton anomalies; and the numerous secrets hiding in the galactic centre. In particular, there were lively exchanges about how easy, in principle, it would be to rule out cold dark matter made from axions and neutralinos by looking at the Einstein ring that is formed when the light source (a galaxy that we want to observe) is aligned with a lens (other galaxies) and the Earth (observer). By studying such rings, argued Carlos

Frenk from the Institute for Computational Cosmology in Durham in the UK, one can predict how many dark-matter halos should be found in the galaxy and test warm- versus cold-dark-matter hypotheses against observations, although this requires complex analysis.

Another emerging idea is to get away from WIMPs (weakly interacting massive particles) and to focus instead on searches for light dark-matter particles, whose mass would be below 1 GeV. Such searches can be carried out in cosmic-ray experiments or at fixed-target experiments at low-energy electron accelerators, such as JLAB in the US or the secondary electron beamline from the SPS at CERN. Several experiments are reorienting their analyses to target this particular type of dark matter.

While the mystery of dark matter is clearly still with us, exploring the dark universe opened our eyes to new horizons in this fast-changing field. A keynote presentation by Nobel laureate Gerard 't Hooft of Utrecht University also described some of the latest thinking surrounding quantum black holes – another dark mystery that could lead us to a quantum theory of gravity. The next conference in the Rencontres du Vietnam series will be held in Moriond in 2019 and then again in Vietnam in 2021.

● vietnam.in2p3.fr/2017/dm.

Swiss and Austrian physical societies meet at CERN

This year's joint annual meeting of the Swiss and Austrian Physical Societies (SPS and ÖPG), in collaboration with the Swiss Institute of Particle Physics and the centre on Computational Design and Discovery of Novel Materials, took place from 21 to 25 August at CERN and at the Centre International de Conférences Genève (CiCG). With more than 500 registered participants and around 350 scientific contributions across eight parallel sessions, CERN could not host the full event on site. Thus, before moving to the CiCG, the first two days at CERN were dedicated to the executive board meetings of the participating societies and to plenary meetings, as well as offering guided tours to participants.

Physical societies play an important role



Discussions taking place during coffee breaks at CiCG.

in supporting physics in research, academia and industry. Opening the meeting, CERN's Director-General Fabiola Gianotti also highlighted the role played by CERN in uniting people across countries and cultures, while pushing technologies and training young scientists and engineers. Following addresses by the presidents of the SPS, ÖPG and the European Physical Society (EPS),

plenary talks covered a variety of topics including an introduction to CERN and its accelerator complex. The importance of accelerators in other fields of science and industry was discussed, followed by a talk on gravitational waves and the latest news in the quest to find exoplanets. An evening lecture concluded the "CERN day" with a theoretical view on the outstanding questions in high-energy physics.

As non-profit organisations, national physical societies such as the SPS and ÖPG pursue non-economic interests. Through publications and by organising conferences and contributing to scientific events, the societies promote the transfer of knowledge within the scientific community and open a window to physics for all who are interested, especially young scientists. This helps to strengthen physicists' networks beyond their main research focus by enabling the exchange of knowledge across solid-state physics, plasma physics, particle physics, soft-matter physics, quantum optics, nanotechnology, bio- and medical physics, history, education, and also physics in industry. Such exchanges

also increase the interaction between those working in “big science” and those active in table-top experiments.

The goal of physical societies is to provide a fruitful ground for physics to flourish in their home country as well as beyond borders via links with sister societies. Societies such as SPS and ÖPG actively support students

from high school to university and beyond, for example through programmes such as the physics Olympiad and by awarding prizes sponsored by industry and academia to boost the careers of promising physicists. Whether student, professor or teacher, whether active in academia or in industry, physical societies address all who are interested in physics.

Everyone can become a member and support the activities of their society to help physics to flourish further in their country.

By hosting this year’s joint SPS and ÖPG annual meeting, CERN has contributed to promoting the role and relevance of national physical societies in their home countries as well as in our international community.

Updates from the Higgs sector

The 8th Higgs Hunting workshop took place in Orsay and Paris on 24–26 July, attracting 120 physicists for lively discussions about recent results in the Higgs sector. The ATLAS and CMS collaborations presented results based on more than 35 fb^{-1} of data recorded at an energy of 13 TeV, which corresponds to almost all the data that has been taken so far at the LHC. The uncertainty on some measured properties of the Higgs boson discovered at CERN in 2012, such as the production cross-section, is already half the size with the 13 TeV data than it was after LHC Run 1 at 7 and 8 TeV – in particular in cases where the measurement is dominated by statistical errors.



Participants at the July Higgs Hunting 2017 event.

Several searches for phenomena beyond the Standard Model, in particular for additional Higgs bosons, were presented. No significant excess was reported.

The next Higgs Hunting workshop will be

in Orsay and Paris from 23 to 25 July 2018. A day will be devoted to future prospects at the high-luminosity LHC and possible future colliders, in view of the upcoming European Strategy for Particle Physics.

HASCO school reports from Göttingen

This year’s Hadron Collider Physics Summer School (HASCO 2017) took place from 16 to 21 July in Göttingen, Germany, marking the sixth consecutive year that this dynamic and international school has been offered.

This year, 60 undergraduate students from 28 different institutes in 15 countries came together for a week to learn about hadron-collider physics. The 12 lecturers also came from a variety of institutes throughout the world. Students learnt about the foundations of quantum field theory and hadron-collider physics, particularly in the context of CERN’s Large Hadron Collider.

At the HASCO school, numerous relevant research topics are discussed, among them quantum chromodynamics, jet physics, statistical methods in data analysis, accelerator physics, detector physics, top-quark physics, and searches for supersymmetry or exotic models and particles. This year’s focus, however, was on the physics of the Higgs boson and the new challenges that come with the high-statistics data sample being recorded during the LHC’s 13 TeV run.

All participating students passed the



The school not only provides lectures but allows students to make valuable connections at the outset of their careers.

written examination at the end of the school and received three European Credit Transfer System points, for which they can obtain course credits at their home universities. The students were inspired by the intense HASCO programme,

which allowed them to engage deeply in the dynamic field of particle physics while being exposed to an international team where diverse ideas and creative solutions thrive.

● hasco.uni-goettingen.de.

L. Fayard

C. Mehlert

Faces & Places

VISITS

J. Jordan/CERN



State secretary for international financial matters in the Swiss Confederation, **Jörg Gasser**, came to CERN on 10 August. He visited the CERN Control Centre, ATLAS and the LHC superconducting magnet assembly hall before signing the guestbook (pictured).

J. Jordan/CERN

Juraj Podhorsky, ambassador and permanent representative of the Slovak Republic to the United Nations in Geneva, visited CERN on the morning of 30 August during which he signed the guestbook and visited the synchrotron.



H. Chemli/CERN



On 24 August, **Farukh Amil**, ambassador and permanent representative of the Islamic Republic of Pakistan to the United Nations in Geneva, came to CERN. After signing the guestbook with CERN's Emmanuel Tsismelis and Charlotte Warakaulle (pictured), he visited the Globe of Science and Innovation and the CMS experiment.

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OBITUARIES

Bjørn Jacobsen 1961–2017

Norwegian delegate to the CERN Council and previous chair of the CERN Finance Committee, Bjørn Jacobsen, passed away on 13 June after a few months of illness.

Jacobsen studied physics at the University of Oslo, where he obtained his PhD in space physics in 1991. He spent the next 12 years in research in Norway and abroad, in particular two years at the European Space Research and Technology Centre (ESTEC) at Noordwijk in the Netherlands. In 2003 he joined the Research Council of Norway (RCN) where he worked until his death.

After joining the RCN he immediately connected with CERN, first as adviser to the Norwegian delegation and member of the Finance Committee. In 2008 he became Council delegate. He was chair of the Finance Committee 2011–2013 after having served as the committee's vice chair 2009–2010. In his capacity as chair of the Finance Committee he also served as chair of the CERN Standing Advisory Committee of Audits (SACA) and, more recently, he was member of the external review committee set



Jacobsen was Norwegian delegate to the CERN Council.

up in April 2016 to optimise CERN's use of financial and human resources.

Jacobsen's leadership of the Finance Committee was conducted with calmness and wisdom. He managed to balance firmness and flexibility, and was met with general acclaim and respect. Always attentive and consensus-oriented, he smoothly steered the committee through waters that sometimes got rough, remaining

thoughtful and balanced. He was a modest and conscientious person who treated everybody with respect and friendliness.

Bjørn played an important role as a source of contact and inspiration for the small Norwegian community at CERN and the high-energy physics community at large in Norway. He was also instrumental in our successful programme to recruit Norwegian technical students to CERN. His assistance to the Norwegian research community was not limited to high-energy physics, though. Bjørn co-ordinated the support of all physics programmes of the Research Council of Norway. More recently he served as a special adviser of the Norwegian contribution to large international infrastructure programmes such as the European Spallation Source, the European Incoherent Scatter Scientific Association and the Nordic Optical Telescope.

Bjørn Jacobsen was a colleague, science policy adviser and friend that we could not afford to lose. We will miss him dearly, and his memory will stay with us.

● *His colleagues and friends.*

Guido Petrucci 1926–2017

Guido Petrucci, one of the engineers who contributed to the reputation of CERN as a centre of technological excellence, passed away on 9 July after a long illness.

Born in Trieste on 27 September 1926, Guido obtained a degree in electro-technical engineering from the University of Rome in 1951 and was awarded a prize for the best thesis of the year. After working for a private electronics company in Rome, in 1954, together with other Italian engineers and physicists, Guido was recruited to CERN by Edoardo Amaldi, then CERN Secretary-General, to provide scientific and technical staff to the newly created European laboratory. Guido joined CERN in April 1954 and was assigned to the PS magnet group. Shortly afterwards, he joined the CERN–Manchester group involved in cosmic-ray experiments using a cloud chamber in a magnetic field at the Jungfrau laboratory (there were no accelerators yet in operation at CERN in those years). In this environment he developed a keen interest for physics that shaped his career. He became one of the



Guido Petrucci liked to define himself as an atypical engineer.

leading engineers in the CERN physics research divisions and he always worked in close contact with physicists.

One of Guido's first contributions to the CERN research programme was the design of the magnet for the 2 m hydrogen bubble chamber, of which he supervised the construction and tests. At the same time, under the guidance of Simon van der Meer, he quickly learnt about beam optics and designed

a large number of beam transport lines at the PS. Among his contributions, two are worth mentioning: a method to select particles in electrostatically separated beams using two small magnets, known as the Petrucci magnets; and the splitting of the slowly extracted proton beam to the PS East Area into three branches by means of a special magnet with two septa, providing a high degree of flexibility in the East Area beam layout.

In the second half of the 1960s Guido designed the storage ring for the third muon g-2 CERN experiment: a 7 m-radius ring consisting of 40 adjacent sector magnets excited by two all-around circular coils, with uniform magnetic field and focusing provided by a pulsed electrostatic quadrupole field. At the end of the experiment, in 1976, under Guido's leadership, this ring was transformed into a strong-focusing synchrotron for the Initial Cooling Experiment (ICE). The ICE experiment demonstrated that stochastic cooling, and later electron cooling, can increase the phase space density of 3.5 GeV/c antiprotons produced by the PS by the

Faces & Places

required factor of around 10^8 , marking a crucial step to the 1978 approval of SPS operation as a proton–antiproton collider.

Guido then worked on the design and construction of the magnet for the UA1 experiment, a dipole with a horizontal field of 0.7 T perpendicular to the beam axis over a volume of $3.5 \times 3.5 \times 7 \text{ m}^3$. The UA1 magnet had a second life during the 1990s as the magnetic spectrometer of the CERN NOMAD neutrino experiment, and it is now used in Japan as part of the near neutrino detector in the T2K experiment at J-PARC. After designing the UA1 magnet, Guido went on to design the magnetic structures of the ALEPH and DELPHI solenoidal spectrometers at LEP.

Guido retired from CERN in 1991, but he continued to work on a number of projects. These include: the ELETTRA synchrotron light source in Trieste, for which he contributed to the magnet design and construction; the hadron therapy project of the TERA foundation; the mechanical design of the tracking system for the KLOE experiment at the electron–positron collider DAΦNE in Frascati; and the PVLAS experiment at the Legnaro INFN laboratory to measure the birefringence of vacuum induced by a strong magnetic field, for which he contributed to the design of a system to rotate at a frequency of 0.3 Hz a 5 T superconducting dipole disconnected from its power supply.

Guido was an exceptionally bright

engineer, always able to find simple and elegant solutions to difficult technical problems, and always willing to provide advice to his colleagues.

However, his personality was not only confined to his professional talents: he loved beauty in all its forms and had deep and broad cultural interests, covering all aspects of the arts, such as music (he held a piano diploma from the Rome conservatory), architecture and painting. He had many interests and was always willing to learn new subjects: a discussion with Guido was always an enriching experience, and he will be sorely missed by all those who had the privilege of being among his collaborators and friends.

● *His colleagues and friends.*

Peter Sonderegger 1935–2017

Peter Sonderegger, an outstanding all-round physicist, left us on 9 August at the age of 82. Peter mastered theory as brightly as he did instrumentation, a domain in which he drove much innovation. His intellectual power and knowledge were amazing, allowing him to go boldly off the beaten track on several topics, and he also had linguistic and musical talents.

After graduating from ETH Zürich, he started at Saclay in around 1960 before coming to CERN and obtaining a permanent position in 1971. In the 1960s, a period dominated by Regge poles and duality, Peter's activities concerned two-body hadronic reactions, notably charge exchange and polarisation measurements. Responsible for physics at the Omega Spectrometer, he pursued them, mostly on backward and large transverse momentum scattering, including the search, until 1999, for narrow objects, as the elusive baryonium states. He also performed original searches and a systematic study of soft photons which, according to first principles, must appear in hadronic reactions. His rigour prevented him from drawing premature conclusions. In the 1976 Ω charm search, motivated by the J/ψ discovery, a presumed signal was reported that caused turmoil, threatening to disrupt the CERN programme, but Peter's clairvoyance (he was convinced that the



Peter Sonderegger was an all-round physicist.

signal was fake) and courage avoided that.

Drell–Yan dilepton production was one of his interests. The Omega Beam Dump, proposed in 1976, gave the first publication of the SPS era, measuring J/ψ production by various incident hadrons on hydrogen at 39.5 GeV/c. Peter's suggestion of an innovative centrality calorimeter allowed NA38 to pursue such studies with ions.

Peter devoted much work to HEP instrumentation, especially calorimetry, but also pixel detectors (such as NA60). He inspired a seminal 1983 NIM paper on fibre calorimetry, which led to lead scintillating fibre calorimetry and culminated with the “spaghetti” hadron calorimeter proposal

of 1987. Highly active in the relevant R&D programmes (LAA, RD34), motivating and helping many young physicists, Peter was naturally involved in the genesis of the ATLAS tile calorimeter.

Peter developed an early interest and activity in heavy-ion physics, and was a major actor in a series of experiments from NA38 to NA60. He initiated the original and masterfully performed NA51 experiment and is co-author of the ALICE LOI (1993) and of the 2003 LHC safety study group report, addressing supposedly dangerous events in LHC collisions. He played a major role in initiating the popularisation of particle physics, as in Aix Pop 1973, and, with José Gago, in the development of science in Portugal, including the field of astroparticle physics. NA38 was the first experiment with official Portuguese participation.

Besides being a great physicist, he was always asking what science could bring to society and was a courageous “alert launcher” about certain aspects of the nuclear industry. However, the greatest memory of Peter will be his extraordinary humanity – his moral rectitude, lack of personal ambition concerning career and honours, and great solicitude and generosity for others. It was a privilege and a pleasure to know Peter Sonderegger.

● *His friends.*

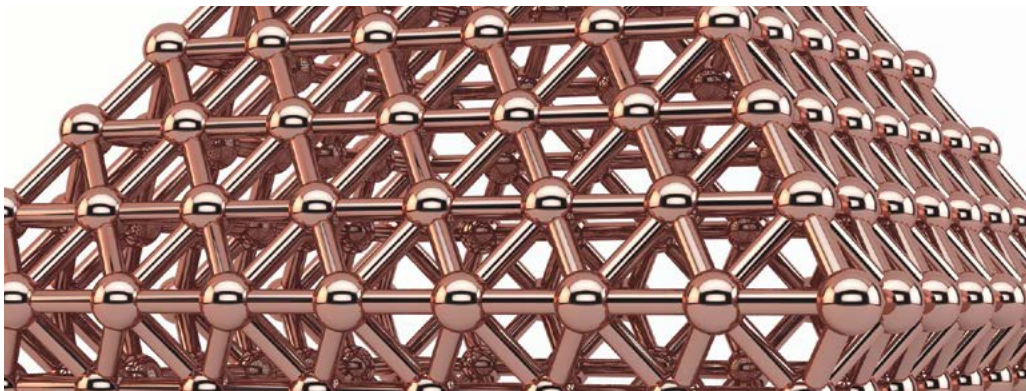
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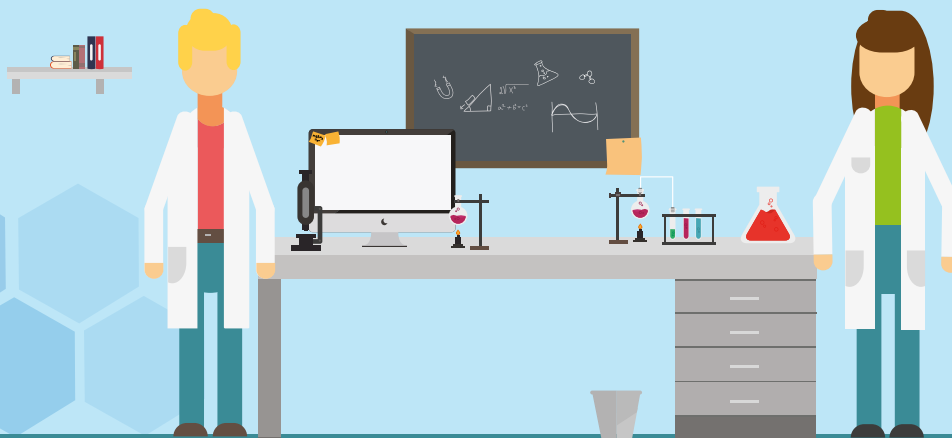
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