CERN Bulletin

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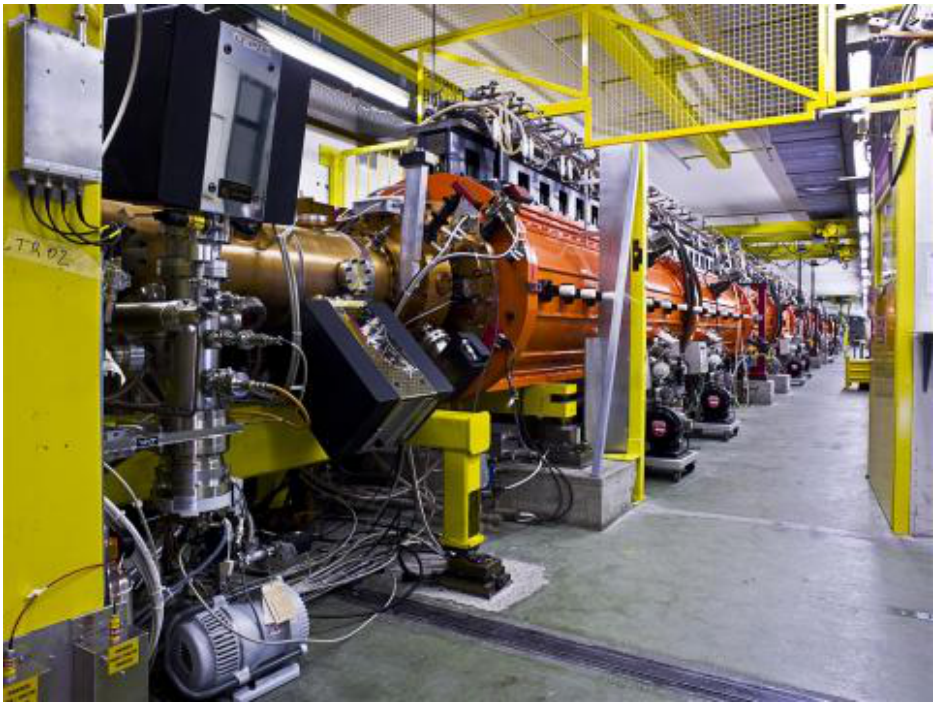
SO LONG, LINAC2, AND THANKS FOR ALL THE PROTONS

After 40 years of service, the linear accelerator has shut down and passed the baton to Linac4, which will take over as the first link in the accelerator chain



View of the Linac2 accelerator. (Image: Maximilien Brice/CERN)

At 3 p.m. on Monday, 12 November, Frédérick Bordry, Director for Accelerators and technology, switched off Linac2 for the last time. The accelerator will not be restarted after Long Shutdown 2 and has passed the baton to Linac4, which will take over as the first accelerator in the proton acceleration chain.

Since 1978, Linac2 has supplied all of the thousands of billions of billions of protons needed for CERN's experiments. No experiment requiring protons could have run without the 37-metre-long machine, the first link in the accelerator chain. Its availability, which exceeded 98% in recent years, was therefore more crucial than that of any other machine to the operation of the dozens of experiments supplied by the subsequent accelerators in the chain, the PS Booster, the PS, the SPS and the LHC.

As its name suggests, Linac2 replaced Linac1, which had a maximum beam intensity of 70 milliamps. Linac2 came into operation in 1978 and, like its predecessor, accelerated beams up to 50 MeV, but with a much greater intensity, ranging from 50 to 150 milliamps (mA).

(Continued on page 2)

A WORD FROM MARTIN STEINACHER

BE COURTEOUS, BE SAFE, WHEN YOU'RE ON THE ROADS

Next Sunday is the World Day of Remembrance for Road Traffic Victims, an initiative established in 1995 and since adopted by the UN to remember the millions of people who are killed and injured on the roads and to acknowledge the work of the emergency services. It's a good opportunity to reflect on how we use the roads at CERN. We all use CERN's transport arteries in one way or another: on foot, on two wheels or on four or more, and we all have the right to be safe and to be treated with courtesy by other road users when we do so.

(Continued on page 2)

In this issue

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A WORD FROM MARTIN STEINACHER

BE COURTEOUS, BE SAFE, WHEN YOU'RE ON THE ROADS

Thousands of us use the roads at CERN every day and the overwhelming majority of us do so politely and without incident. That's something in which we can all take pride, but there's always room for improvement. Since 2013, the number of vehicle accidents on the CERN sites has varied between 13 and 29 per year. Discourteous behaviour ranges from two reported cases in 2015 to 36 in 2017. One thing that has been steadily rising over the period is the number of near misses, which has climbed from 54 cases reported in 2013 to over 100 so far this year. Is that a sign that we're becoming more impatient and aggressive? Would it be good, perhaps, to slow down a little? Whatever the reason, it's a trend that we should actively try to reverse.

As I've discussed in this column before, CERN's Mobility Working Group recommends measures to improve all aspects of mobility at CERN, including safety. Many of you have shared your thoughts through the mobility questionnaire and many initiatives to improve mobility are currently under way. These range from measures to improve traffic flow to the development of cycle paths and footpaths. All are designed to make our movements around the CERN sites smoother and more pleasant for all, and as a consequence I hope to see our good track record get even better.

One more thing to remember: when you're outside CERN, particularly with CD or green plates, you are an ambassador for the Laboratory. Your behaviour reflects on the Organization. So, wherever you are, on site or off, be safe, be courteous, and let's try to get those accidents and instances of discourteous behaviour, which are still too numerous, down to zero!

Martin Steinacher
Director for Finance and Human Resources

SO LONG, LINAC2, AND THANKS FOR ALL THE PROTONS

The accelerator underwent a major upgrade in 1993, when its first acceleration stage, a Cockcroft-Walton generator, was replaced with a radiofrequency quadrupole (RFQ) in order to increase the beam intensity. The aim of this upgrade was to supply higher intensity beams for the future LHC. From 1998 onwards, the accelerator thus provided beam intensities of 180 mA, the highest ever achieved by a proton linac.

Linac2 also underwent other renovations, including the replacement of its control system. But the heart of the accelerator, the three DTL (drift tube linac) RF cavities and their 120 quadrupoles, remained in place until the very end. Linac2 played a role in CERN's great triumphs, such as the discoveries of the W and Z bosons in 1984 and the Higgs boson in 2012 and the production of the first antihydrogen atoms in 1996.

Despite Linac2's performance, its energy was limited and in 2007 the decision was taken to replace it with an accelerator that could meet the needs of the future, particularly those of the High-Luminosity LHC. Linac4, which can accelerate protons to energies of 160 MeV, more than three times higher than Linac2, was designed for that purpose. The new accelerator was inaugurated in 2017 and will be connected to the PS Booster in 2020, during Long Shutdown 2.

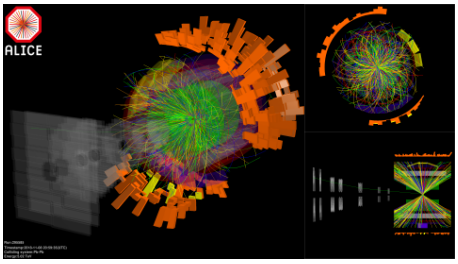
A more detailed article will appear in the December issue of the Courier.

Frédérick Bordry, Director for Accelerators and Technology, switching off the Linac2 on 12 November. (Image: Nathan Schwerdtel/CERN)

Corinne Pralavorio

LHC REPORT: MAKE WAY FOR THE HEAVY IONS

The first collisions of lead nuclei mark the start of a new LHC heavy-ion run



Particle showers in the ALICE detector during the first lead nuclei collisions of 2018 (Image: ALICE/CERN)

At 9.19 p.m. on 8 November, the four LHC experiments recorded the first collisions of lead nuclei since 2015. For three and a half weeks, the LHC will collide these nuclei, comprising 208 protons and neutrons, at a centre-of-mass energy of 5.0 TeV per colliding nucleon pair. This will be the fourth run of this kind since the collider began operation. Lead ions have also been collided with protons in the LHC.

Collisions of lead nuclei enable scientists to study specific phenomena, such as quark–gluon plasma. Previous runs with lead nuclei have already produced a vast amount of data on the properties of this substance. Evidence of many other phenomena, including light-by-light scattering, has also been found in these collisions.

The LHC team intends to rise to various challenges during the 2018 run. “We want to maximise the luminosity in order to generate as much data as possible and prepare for future runs, especially at the High-Luminosity LHC”, says John Jowett, the accelerator physicist in charge of the LHC heavy-ion runs. During the last run of this type, in 2015, the luminosity achieved was over three and a half times higher than the LHC's design luminosity. “We are aiming for even higher luminosity this time”, says John Jowett.

A new optics configuration has therefore been implemented and the magnets adjusted to reduce the β^* parameter in the experiments (50 cm for ALICE, ATLAS and CMS and 1.5 metres for LHCb). This parameter is an indication of the focusing of the beam at the collision point: the smaller it is, the more compressed the beams and the greater the probability of interactions. The next step will be to reduce the time interval between the bunches of nuclei from 100 to 75 nanoseconds, thereby increasing the number of bunches circulating in the accelerator. The accelerator experts have been preparing for this run for several months. Numerous analyses and measurements have been carried out to improve the performance of the injectors (Linac3, LEIR, the PS and the SPS).

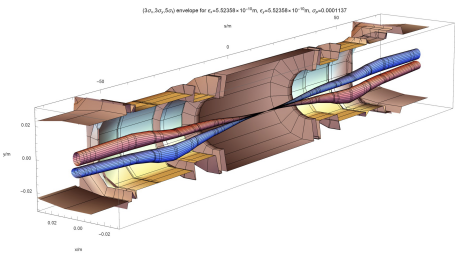
Nevertheless, on Monday, 29 October, the lead ion source failed. The cause of the problem was discovered the next day: one of the five solenoid coils had stopped working. Physicists and technicians took apart the source to replace the defective coil; this complex work required all of the equipment to be dismantled and was carried out in only three days. On Friday, 2 November, the source was ready to be recommissioned. The first beam was sent to LEIR that Saturday and, the next day, lead ions reached the PS and then the SPS, before being extracted towards the transfer lines to the LHC. Despite this spectacular comeback, it took a few days to recondition the source and achieve the required beam properties (intensity and stability).

In parallel, so as not to lose time, the accelerator physics specialists and operators used proton beams to set up the new LHC configuration. “Although we had planned these steps very carefully, we had to make some last-minute adjustments. We also adapted our strategy in the light of the ion source failure by making as much progress towards commissioning as possible using protons”, explains John Jowett.

The first lead nuclei circulated in the LHC on Monday, 5 November. The radiofrequency acceleration system was adjusted to enable the beams to be intercepted: the particles injected into the ring are thus synchronised with the accelerating fields in order to keep the beam stable. The RF frequencies are then synchronised with the fields in the magnets to ensure that the beam remains on the correct path while being accelerated. The operators then produced beam loss maps, which are more complex than those produced for protons. With the new optics, collimators were set more tightly around the beams and delicate adjustments had to be found in order to protect the machine from losses in various locations.

Test collisions were carried out on 6 November. After several days of intense preparations in order to achieve a high level of luminosity during the three and a half weeks of the run, the first stable beams for collisions were declared at 9.19 p.m. on Thursday, 8 November. The beam intensity and accumulated luminosity increased quickly, from 64 bunches per beam on the first day to 260 on the second day and 648 on Monday, 12 November. The beam size at the ALICE collision point is larger than it should be but measures to compensate this problem have been introduced while investigations continue.

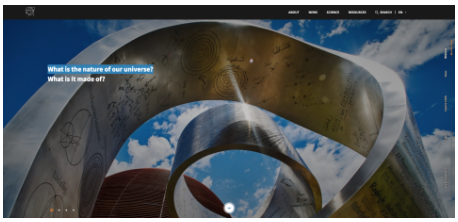
The lead-lead run will continue until 6 a.m. on 3 December, when the beams will be stopped. A week of LHC magnet training tests for operation at a future proton collision energy of 14 TeV is then planned. The second long shutdown will begin on 10 December.



A computer visualisation of the beam optics in the ALICE experiment, where the new heavy-ion run optics focuses the colliding beams more strongly than ever before (b=0.5 m). The image shows the two beams inside the beam pipe over a distance of 70 m on either side of the collision point at the heart of the ALICE detector. Bunches of Beam 1 move from left to right inside the blue envelope (an indication of their orbit and transverse size as the beam is manipulated by the LHC's bending and focusing magnets). Bunches of Beam 2 travel from right to left inside the red envelope and collide with the bunches of Beam 1 at the collision point, where the beams are focused strongly to a tiny spot to maximise the luminosity. (Image: John Jowett/CERN)*

WELCOME TO THE NEW CERN WEBSITE

CERN has launched its new home.cern website, presenting a different way of finding out about the Organization



Responding to requests from online users, CERN's new homepage provides more content upfront, with a long scroll to appeal to mobile users.

CERN has launched its new home. cern website, giving online users the chance to find out about the Organization in a new way. As well as a change of design, site navigation is now content-based instead of audience-based.

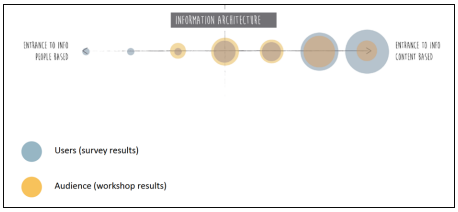
Taking feedback from a 2017 workshop of CERN stakeholders as well as an online survey of more than 2000 website users, CERN's scrolling homepage now includes more information. A new megamenu takes visitors deeper into the website quicker than before, not only for news but also for background information about the Laboratory itself, including new lists of frequently asked questions and a new science section with reference material about CERN's research.

CERN's previous website, launched in 2012, asked users to identify themselves as either the public, CERN community, scientists or students and educators. The dilemma was that many visitors identified as more than one of these audiences.

Now visitors can choose different ways to navigate the site, with content grouped into seven topics: physics, accelerators, engineering, computing, experiments, knowledge sharing and at CERN. More audiences have been added to the existing audiences: industry, policymakers and the media, with news items now tagged for multiple audiences to help users find relevant content faster, including news, announcements, opinion pieces and more.

Press releases are incorporated into the new website, with press.cern now pointing to dedicated press room for media. Upcoming events and webcasts are now more prominently featured and a new resources section showcases images, videos and publications such as the annual report, *CERN Courier* magazine and the *Bulletin for the CERN community*.

The main CERN website has undergone several changes in its past. By 1998, there was a public website under www.cern.ch. By 2005, this changed to public.web.cern.ch before the 2012 evolution to home.web.cern.ch, whose url changed to home.cern in 2015. In this latest evolution, the toolbar at the top of the website has remained, allowing the CERN community easy access to the directory page for useful links. Content will continue to evolve over time; for now, we wish you an enjoyable new online experience.



A workshop of CERN stakeholders as well as an online survey of more than 2000 website users both called for content-based rather than audience-based navigation (Image: Everis)

Kate Kahle

CERN COMMEMORATES HISTORY OF PENSION-FUND-OWNED BUILDING

CERN hosts unveiling of a plaque recalling the history of a building in Berlin now owned by the CERN Pension Fund

Joanne Intrator, granddaughter of Jakob Intrator, and Charlotte Warakaulle, CERN's Director for International Relations, standing in front of the commemorative plaque. (Image: CERN)

On 26 October, CERN hosted, together with the *Aktives Museum* in Berlin, the unveiling of a plaque describing the history of a building purchased by the CERN Pension Fund in 2015.

Number 16 Wallstrasse is an attractive building constructed in 1908 and acquired by cousins Jakob Berglas and Jakob Intrator in 1920. Today, it is the property of the CERN Pension Fund. Intrator's granddaughter, Joanne, a New York based psychiatrist, contacted the Pension Fund to explain what happened after her grandfather and uncle acquired the building, and to ask that a commemorative plaque be placed to highlight the history of the building.

Berglas and Intrator were Jewish, and although they escaped the Nazis, their building was one of many taken from Jewish people in 1930s Berlin. Some years later, it was home to a printing company that produced Jewish Stars there in the summer of 1941: the infamous symbols sewn onto the clothes of Jewish people in the Third Reich.

Joanne Intrator and several members of the wider Intrator family took part in the

ceremony, together with representatives of the German and Israeli governments, and senior representatives from CERN and its Pension Fund.

"The history of CERN is closely connected with that of the Second World War," said CERN's Director for international Relations, Charlotte Warakaulle, at the ceremony. *"Our laboratory"* was created as a reaction and as a contrast to what happened in Europe in the 1930s and 40s. We owe our existence to the foresight and determination of scientists and politicians from many nations, who shared a vision of reconciling a war-torn continent through culture, including science. We continue to live by this vision and to be inspired by it.

James Gillies

SHARING KNOWLEDGE: THE FIFTH CERN-UNESCO SCHOOL ON DIGITAL LIBRARIES

The fifth CERN-UNESCO School on Digital Libraries brought together 35 library professionals from African countries in Nairobi, Kenya

CERN-UNESCO School on Digital Libraries took place in Nairobi, Kenya, from 8 to 12 October 2018 (Image: Jean-Yves Le Meur, Guillaume Lastecoueres/CERN)

CERN's dedication to training and international collaboration in fields beyond physics research is thriving, with its education activities being exported to developing countries. One recent example is the CERN-UNESCO School on Digital Libraries that took place in Nairobi, Kenya, from 8 to 12 October 2018. Aimed at improving access to information for African researchers and increasing the global visibility of African research, the School represents an important contribution to international knowledge-sharing from CERN.

After Rwanda, Morocco, Senegal and Ghana, Kenya was the fifth host country of the School on Digital Libraries. About 35 librarians and library system managers from Kenya, Cameroon, Somalia, Tanzania, Uganda, Zambia and Zimbabwe convened at the University of Nairobi to acquire new skills for running digital library systems and a better insight into the technologies that facilitate the circulation of academic production within libraries. The programme was a mixture of theory, practical exercises and active participation, with contributors coming from CERN's Scientific Information service and Technology department, the National Library of Uganda, TIND, Elsevier and EIFL.

The training focused on open access and open knowledge, with the clear goal of facilitating libraries' access to a more comprehensive body of literature, as well as getting African repositories well-stocked with all the local academic production. Participants were introduced to different approaches to running the open-source digital repository platform Invenio, which was born at CERN. Complementary hands-on sessions were on offer, one using the service Zenodo and the other using Open Access Africa (OAA). OAA was deployed and launched for this workshop by the CERN spin-off TIND, which will make the platform available free of charge for two years. Six libraries have already signed up to test it with real data.

In addition to implementing what they learned during the workshop in their home institutions, the participants showed a keen interest in sharing their expertise with others, networking being one of the key benefits of the school. "We shall share the knowledge about CERN with other colleagues in our country and those of the Central African sub-region so that they can also benefit from this enriching programme in the future", said Cameroonian participants Atabeh Uta-Rein and Tangmo Norbert.

To further enhance their skills, six of the attendees will be invited to CERN in June 2019 to meet experts and receive more in-depth training.

The CERN-UNESCO School on Digital Libraries is an education and outreach project within the CERN & Society Foundation. The 2018 school in Kenya was made possible thanks to a generous donation from Ms Margarita Louis-Dreyfus.

To learn more about the CERN & Society Foundation's activities and how you can be involved, visit the dedicated website (*http://giving.web.cern.ch/*).

Esra Ozcesmeci

CERN'S IT CONSULTANCY TEAM CAN HELP

CERN IT experts provide advice on IT and computing for all CERN communities

CERN's IT Consultancy team (Image: Liviu Valsan, Eduardo Alvarez Fernandez/CERN)*

Created in 2016, CERN's IT Consultancy team provides a point of contact to help people understand the landscape of IT activities and services at CERN. The team helps with the architecture and design of computing systems and services in order to optimise the use of resources across the Organization.

The team also helps to define requirements and assess their impact on security, data privacy protection, software and licences, including the cost of cloud licences, particularly when the requirements span several different services or the requests go beyond the scope of the computing services currently offered.

Since 2016, CERN's IT Consultancy team has addressed over 90 requests spanning a large number of IT fields. "We have one objective: to avoid reinventing the IT wheel, so that different teams don't replicate existing services", says Jaroslava Schovancová, IT consultant. "We want to suggest solutions that can be easily integrated into the existing computing infrastructure."

The consultants* are experts in various fields from the CERN IT department. They collaborate closely with the CERN IT service managers, as well as the Computer Security, Data Privacy Protection, Software Licence and Cloud Licence Offices.

Do not hesitate to contact them by submitting a request to the "IT Consulting Service" service element in the CERN Service Portal or by sending an e-mail to it-consulting@cern.ch.

The CERN IT Consultancy team

* Eduardo Alvarez Fernandez (IT-CDA), Vincent Bippus (IT-CDA), Xavier Espinal Curull (IT-DI), Arash Khodabandeh (IT-DB), Véronique Lefébure (IT-CS), Sebastian Łopieński (IT-DI), Ignacio Reguero (IT-CM, Coordinator), Jaroslava Schovancová (IT-CM), Bruno Silva de Sousa (IT-CDA) and Liviu Vâlsan (IT-DI).

25 YEARS OF SERVICE AT CERN

In 2018, 45 staff members have achieved 25 years of service at CERN

(Image: Ordan, Julien; Lavy, Rachel/CERN)

The 45 staff members having achieved 25 years of service at CERN in 2018 were invited by the Director-General to a reception in their honour on 25 October 2018. We thank them for their continued commitment and wish them all the best!

Corsini Roberto BE-ABP-LAT
Gourber-Pace Marine BE-CO
Roux Eric BE-CO-APS
Ludwig Michael BE-ICS-FD
Albert Markus BE-OP-LHC
Follin Fabio BE-OP-SPS
Brunner Olivier BE-RF-MK
Karppinen Mikko BE-RF-SRF
Wilbers Maarten DG-LS-OO
Hay David EN-ACE-OSS
Rousseau Bertrand EN-EL-CCS
Glaude Didier EN-MME-MM
De Man Sven EN-STI-TCD
Dell'Acqua Andrea EP-ADE-MU
Ellis Nicolas EP-ADT-TR
Janot Patrick EP-CMG
Auffray Hillemanns Etiennette EP-CMX-DA
Perez Gomez Francisco EP-DT-CO
Onnela Antti EP-DT-CO
Ropelewski Leszek EP-DT-DD
Danielsson Hans Olof EP-DT-EF
D'Auria Andrea EP-DT-FS
Martinengo Paolo EP-DT-TP
Joos Markus EP-ESE-BE
Lichard Peter EP-ESE-FE
Ruf Thomas EP-LBD
Funk Wolfgang EP-LBD
Dobrovicova Ivica FAP-AIS-FP
Leuzzi Pascale HR-CB-SAS
Forkel-Wirth Doris HSE
Fassnacht Veronique HSE-OHS-ME
Weiss Kurt HSE-RP-CS
Tsesmelis Emmanuel IR-REL-NMS
Le Meur Jean-Yves IT-CDA-DR
Barriere Paula SMB-DI
Gaudillet Herve TE-ABT-EDS
Borburgh Johannes TE-ABT-SE
Balhan Bruno TE-ABT-SE
Knoops Sigrid TE-CRG-ML
Coupat Christophe TE-EPC-OMS
Siemko Andrzej TE-MPE
Giloteaux David TE-MSC-MM
Baglin Vincent TE-VSC-VSM
Giudice Gian TH-SP

HR Department

COMPUTER SECURITY: WHEN “FREE” IS NOT FREE

Protect CERN, protect yourself! Using applications without a valid licence will lead to repercussions

“Academic freedom” is one of the values held in high regard by CERN. Freedom in terms of open and unbiased research, free communication, free opinions and free discussions. In the digital world, this also includes the freedom to choose which hardware to buy, which operating system to install, which programming language to employ and which applications to use. However, there are also limits and sometimes it is better to choose a mainstream option: coordinating hardware purchases saves money; deploying centrally provided operating systems enables excellent support; aligning programing languages benefits long-term maintenance and collaboration; and refraining from “free” applications avoids licensing troubles. And we know all about licensing troubles!

Protect CERN, protect yourself! Using applications without a valid licence will lead to repercussions (see our *Bulletin* article on “Do you have 30 kCHF pocket money?”). Deliberately downloading pirated licences is professional misconduct, and might lead to financial penalties. But the innocent installation of “free” applications can also have unexpected consequences: “free software” or “free version” does not necessarily mean that something is free to use at CERN. For example, “free” might imply that a private individual can use the software at home without charges, or a small team of people can use it together without being billed. In the context of CERN, however, neither applies: applications are supposed to be used in a professional context and, very often – in collaborations with big teams – the term “free” is invalid. It is therefore very important to check the Terms and Conditions prior to the first use of any software and to understand under which circumstances “free” really means “free of charge”.

But the word “free” can also have another connotation: “provided for free by my home institute”. CERN's academic freedom means that CERN is acting as an Internet Service Provider (ISP), providing network connections to the Internet for many of our users. The corresponding hardware, including laptops etc., is sponsored by their home institute and comes loaded with a stack of applications provided by the institute – not by CERN. While these institutes are expected to have purchased those applications under a valid licensing scheme, this scheme and the associated Terms and Conditions might not permit any usage of those applications abroad. Location is key and licences might be valid only when the applications are used at the home institute's premises! Care must also be taken here. Once more, it is very important to check the Terms and Conditions prior to the first use of any software. In cases of abuse, CERN will decline any responsibility and refer the matter to the user's home institute.

Therefore, if you need a specific application for CERN-related professional business, please first check CERN's portfolio of centrally provided software via CMF for Windows PCs, LXSOFT for Linux systems and the CERN/Apple Mac Self-Service. Dedicated licences are also available for engineering software and for control software. If these do not suit your needs, or if you are in doubt as to whether the licence conditions of your applications are compliant with usage at CERN, please contact the CERN Software Licence Officer to check your options and, if needed, agree to make a central purchase. And for your private/personal usage, please refrain from installing such software on CERN-owned PCs and laptops and use your private, non-CERN e-mail address to register. Otherwise, any costs that arise will be billed to you.

Do you want to learn more about computer security incidents and issues at CERN? Follow our Monthly Report. For further information, questions or help, check our website or contact us at Computer.Security@cern.ch.

The Computer Security Team

Announcements

DON'T MISS THE TEDXCERN PRE-EVENT

Two panel discussions will be held in the Globe of Science and Innovation on Monday 19 November from 17:00

For all those who won't be able to attend the TEDxCERN event scheduled on Tuesday 20 November 2018 at Bâtiment de Forces Motrices in Geneva on the theme " *An Elephant in the room*, **two panel discussions will be held in the Globe of Science and Innovation on Monday 19 November from 17:00**.

This event will feature key speakers from TEDxCERN who will address topics such as the digital human rights in a data driven world and the ethics behind evolving humans - from DNA manipulation to human cyborgs.

The short presentations (in English with simultaneous interpretation into French) will be followed by a questions and answers

session with the public and a cocktail reception.

Limited number of seats. Mandatory registration on voisins.cern/en/events

Can't make it? Follow the evening on the live webcast!

SHUTDOWN OF THE CERN SHUTTLE CIRCUIT 3 DURING THE LS2 PERIOD (2018-2020)

According to the LS2 planning, we schedule to stop the shuttle circuit 3 by Monday 17 December at 08:32

According to the LS2 planning, we schedule to stop the shuttle circuit 3 by Monday 17 December at 08:32.

This shuttle service shutdown is effective during the LS2 period. The service will be reactivated during year 2020; exact date and time will be defined later.

Many thanks in advance for your understanding.

The Mobility service (SMB-SIS)

NEW PUBLIC TRANSPORT LINES

The public transport lines connecting the Pays de Gex and CERN are changing

As of 9 December 2018, the Y bus line, which currently links Ferney-Voltaire (Avenue du Jura) and Thoiry (Val-Thoiry), via CERN, will cease to exist and will be replaced by lines 66 and 68. For more information, visit the TPG website (*http://www.tpg.ch/nouveautes-du-9-decembre-2018*).

Since September, *Transports de l'Ain* has been offering on-demand transport services in the Pays de Gex, including one connecting Léaz and CERN. These lines operate at fixed times and travel **must be booked in advance**. For more information, visit the *Transports de l'Ain* website (*http://www.transportsdelain.fr/transport-a-la-demande-du-pays-de-gex/*).

FOR YOUR SAFETY, WEAR REFLECTIVE CLOTHING

Switzerland's 12th annual Day of Light is an opportunity to remind pedestrians and cyclists that wearing reflective clothing could save their lives

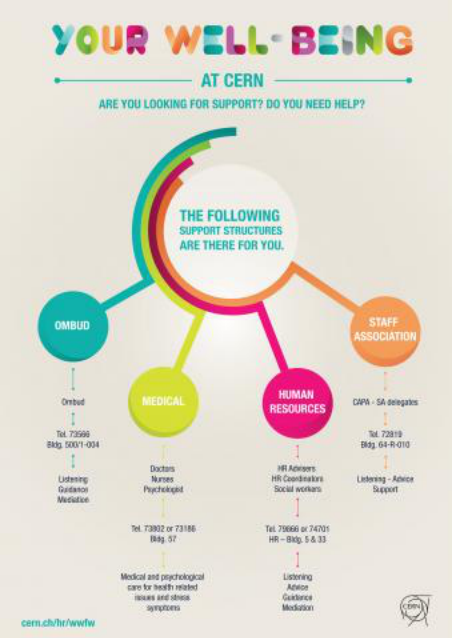
Switzerland's 12th annual Day of Light will take place on 15 November. The authorities will use this opportunity to remind the public that the risk of road accidents increases as the days get shorter, particularly for pedestrians and those travelling by bicycle or scooter, because they may not be seen until it is too late.

Indeed, road users wearing dark colours can be seen only at a distance of 25 metres. Visibility increases to 40 metres for light and fluorescent colours and to 140 metres for reflective clothing and accessories, giving other road users more time to react.

The *MADE VISIBLE* campaign, launched by Touring Club Suisse (TCS) and the Swiss Council for Accident Prevention, aims to promote enhanced visibility on the road, notably through information about reflective clothing and accessories on the market.

So, for your safety, stock up on reflective gear!

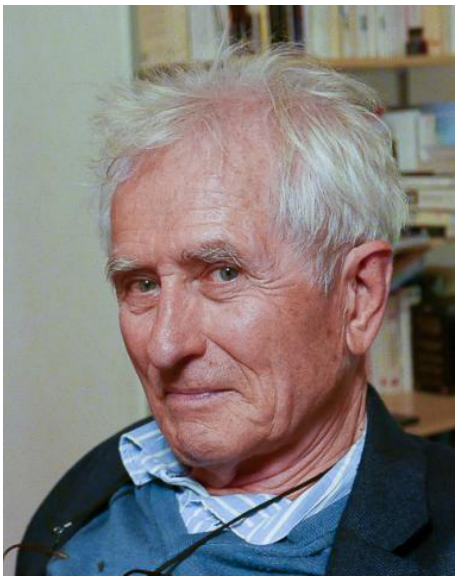
YOUR WELL-BEING AT CERN



Obituaries

PAUL BAILLON (1938 - 2018)

It is with great sadness that we announce the death of our colleague, Paul Baillon, on 2 October 2018



After studying at the *École normale supérieure*, Paul Baillon quickly moved on to the laboratory of the *École polytechnique* and then to CERN, where he became a member of the personnel in 1966.

Paul's career was notable for the sheer variety of his scientific output.

Firstly, he was a pioneer in bubble-chamber physics. In 1961 and 1962, as a member of the CERN- *Collège de France* collaboration, he participated in an experiment that recorded 750 000 antiproton annihilations at rest in the liquid hydrogen of the 81 cm Saclay Bubble Chamber. In 1965, he defended his thesis on the study of these annihilations "with production of at least one visible neutral K", before a prestigious jury composed of Francis Perrin, Jean Meyer and Louis Leprince-Ringuet. The thesis presented a new determination of the mass and width of the K and announced new resonances, in particular the first pseudoscalar meson in the 1400-1500 MeV mass region. Paul remained interested in this subject because this meson could be interpreted as being made up of gluons (a "glueball").

Twenty years after the data was recorded, Paul even carried out a new analysis, looking for baryonium, a pioneering exercise in data preservation!

From 1974 to 1982, Paul took part in electronic experiments at the PS, which focused on the study of two-body hadronic reactions, and then spent a period at SLAC, where he participated in the DELCO experiment at the e+e PEP ring, studying in particular the charm quark and the tau lepton.

Throughout his career, in parallel with his work at CERN, Paul managed to continue to collaborate with his French colleagues, often in his spare time. He was passionate about astrophysics and was one of the originators of gamma astronomy in France through his involvement in the Themistocle

experiment, carried out from 1988 to 1994. This experiment cleverly reused the infrastructure of the Themis solar power plant, which had been shut down in 1986, to detect cosmic gamma-ray showers by concentrating the Cherenkov light from the showers onto photomultipliers. The studies were particularly focused on the Crab nebular and pulsar. Later, Paul participated in the design of the CAT experiment.

He was also involved in the search for dark matter in the cosmos, aimed at detecting dark objects through the gravitational microlensing effect, an amplification of the luminosity of a star when such an object passes between it and the observer. He contributed to two experiments carried out using telescopes at the Observatoire du Pic du Midi: AGAPE and then the POINT-AGAPE pixel-lensing survey of the Andromeda galaxy.

Upon his return from the United States, Paul joined CERN's major programmes again, first LEP and the DELPHI experiment, where he become a key member of the team that designed and built the complex and innovative RICH Cherenkov detector. Paul worked on all aspects of the barrel part of RICH and was responsible for its full simulation and for the particle analysis and identification code. He was also a major player in the production of the detector's 300 highly-reflective mirrors.

Moving on to the LHC, Paul joined CMS and made essential contributions to the design of the scintillating crystal electromagnetic calorimeter, which played a key part in the discovery of the Higgs boson in 2012. Using the skills he developed at DELPHI, Paul worked with André Braem t o develop a reflective protective film to coat the interior of the cells containing the crystals. But most importantly, Paul was one of the designers of the system to stabilise the temperature, to within a few hundredths of a degree, of the crystals, which are located just a few centimetres away from electronics emitting a considerable amount of heat. Thanks to this design, the temperature of the crystals has been kept at exactly 18 degrees since 2007.

With a very solid foundation in classical physics and instrumentation, as well as mathematics, Paul could be as passionate about the construction of a detector as about the most abstract ideas of mathematical physics. Many still remember, for example, his highly informative class on the use of tensor calculus at the Herceg Novi school in 1968. In his retirement, he wrote and published a book entitled: “Differential Manifolds, A Basic Approach for Experimental Physicists”. He was writing a second on the basics of quantum field theory.

When faced with a problem, Paul had the knack of approaching it from an unexpected angle. It was a sign of brilliance, of true originality and even of a certain taste for the paradoxical... but it always produced results.

He was gifted and daring in his intellectual pursuits, but also in sporting ones, as an accomplished skier and mountaineer. Beyond science, Paul was interested in history and religion, and found time to get involved in politics and local affairs.

We will treasure the memories of our discussions with Paul, memories that will constantly remind us of our deep admiration for this exceptional scientist and man.

His colleagues and friends

Ombud’s corner

COME AND SEE THE OMBUD: WHAT'S THE RISK?

Julien* was recruited three years ago on a limited-duration contract, and he hopes to apply for an indefinite contract post next year. However, he's in the midst of a dispute with his supervisor. He's thought about contacting the Ombud to talk about it, but he's hesitant and decides to talk to his colleague and friend David*. *“Won't the Ombud want to meet my supervisor afterwards? How independent is he? Can he really remain neutral?”* I don't want to be seen as a trouble-maker: won't it come back to haunt me later? David reassures him: *“Going to see the Ombud can never count against you. It's a completely safe environment and he won't take any action without your prior consent.”*

David is completely right.

Any conversation with me has an inviolable guarantee of professional **secrecy**, just like a conversation with your doctor or lawyer. For example, if I discover during a conversation with Julien that he has flouted a procurement rule, my position prevents me from taking any action on my own initiative. It will be up to Julien to correct his behaviour.

I am here to **listen** and, in my office, you can speak freely and with no subjects off limits: whatever I hear, I never make judgements. I don't take sides, no one is wrong or right; I just see two parties caught up in a dispute that I must try to resolve in the interests of all concerned.

Even though I am a CERN employee, I am completely **independent** in the work I do. I am not answerable to the Management, nor is it my job to defend the interests of the personnel; other bodies are responsible for that. My position gives me the freedom to take any action I judge necessary to help resolve the disputes that people bring to me, without there being any consequences for me. The only limit is your prior consent. At the end of my mandate, I will leave CERN.

Finally, coming to see me is an **informal** act: there are no deadlines or protocols to be followed and no reports to write. Everything remains between us and I will destroy my notes once the problem is resolved. A consultation with me puts you under no obligation to do anything against your will: at all times you decide what happens next.

In summary, the Ombud's office offers every guarantee of confidentiality, neutrality, independence and informality that you could reasonably expect in helping you to effectively resolve your disputes.

Pierre Gildemyn

If you'd like to comment on any of my articles or suggest a topic that I could write about, please don't hesitate to e-mail me at Ombuds@cern.ch .

**Names have been changed*