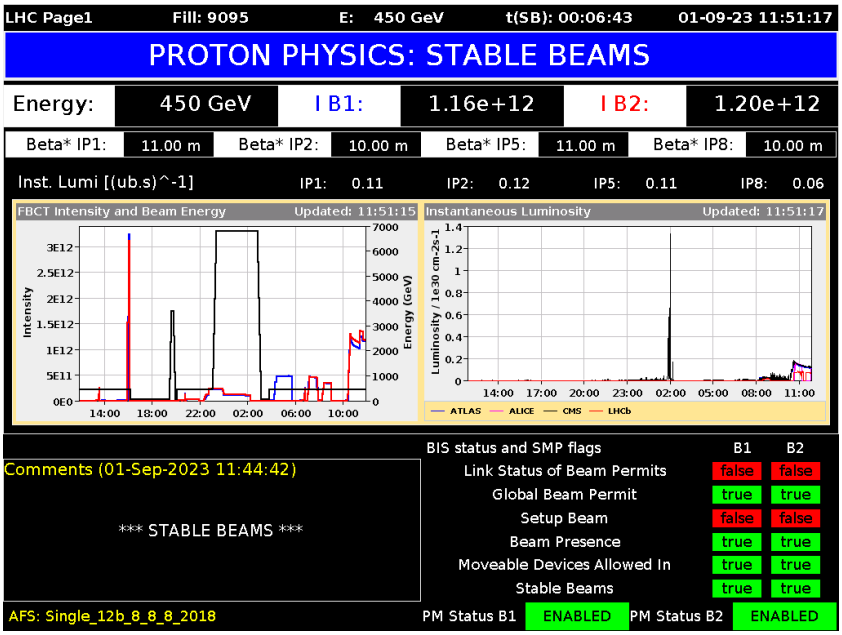
CERN Bulletin

Issue No. 35-36/2023 – 1 September 2023
http://home.cern/cern-people

Accelerator Report: Beams injected into the LHC ahead of heavy ion collisions

The LHC resumes beam production, following the repair of the inner triplet vacuum leak, and gears up for heavy ion collisions



Beams are once again being injected into the Large Hadron Collider, with the status noted in real-time on LHC Page 1.

On 30 August, beams were once again injected into the Large Hadron Collider (LHC), slightly ahead of the revised schedule. A few days will now be required to recommission the machine with the beam, to revalidate the machine's safety systems, and to fine-tune all the machine parameters to ensure it's ready to deliver beams for physics research once more.

Following the repair of the inner triplet vacuum leak on 1 August, the LHC completed its cooldown on 22 August. This allowed for powering tests, a sequence of predefined assessments of the LHC equipment to revalidate their readiness for regular operation. Usually, magnet quench training is part of the powering test following a warm-up and cooldown cycle. However, on this occasion, when the nominal cycle was executed and a current of up to 11 600 A flowed through the dipole magnets, none of them experienced a quench. This outcome wasn't entirely unexpected, given that most of the machine was kept cold, and the temperature of the arc 7-8 remained below 80 Kelvin. This temperature threshold is crucial, as it marks the point beyond which the alteration in mechanical stresses within the magnets becomes significant.

>>> Continued on page 3

A Word from Joachim Mnich

The joy of summer conferences

After the online conferences of the past years, there is something all the more special about coming together face-to-face, to share and discuss a wealth of results this summer.

Contents

A Word from Joachim Mnich

The joy of summer conferences

After the online conferences of the past years, there is something all the more special about coming together face-to-face, to share and discuss a wealth of results this summer.

It goes without saying that all eyes were on the Muon g-2 experiment this summer, as Fermilab announced[1] the latest results on 10 August. I warmly congratulate Fermilab and the experiments on this impressive result with such breathtaking precision.

Muon g-2 had been a hot topic at summer conferences even before the Fermilab announcement. I was fortunate to join physicists, primarily from Asia and Australasia, at the 31st International Symposium on Lepton Photon Interactions at High Energies from 17 to 21 July in Melbourne, Australia. Here, we discussed how interpretation of this experimental result would need a coordinated effort from theorists to achieve the most precise theoretical prediction possible, in order to interpret a possible discrepancy with the Standard Model. The experimental results themselves are a marvellous achievement, and their interpretation will require a common international effort.

Returning to Europe, the experiments at CERN set their sights on the EPS-HEP 2023 conference for their latest findings. The conference has just taken place, from 21 to 25 August, in Hamburg, Germany and showcased another bumper year of results, as the LHC experiments probe the Standard Model at the highest energies ever created.

The plethora of presentations covered topics ranging from precision measurements at different centre-of-mass energies to searches for new phenomena. FASER, as well as the North Area experiment NA62 both presented their latest results on dark matter seraches. Notable highlights from ATLAS[2] included analyses of their complete Run 2 data set to present their latest limits on supersymmetric dark matter and on magnetic monopoles. CMS[3] highlights included how machine-learning techniques are improving both muon and jet flavour studies. LHCb results featured the observation of hypertriton in proton–proton collisions, building on the 2022 results from ALICE and providing important input for astrophysics and the study of neutron stars. The ALICE collaboration is now looking ahead to the Quark Matter conference in Texas, USA from 3 to 9 September.

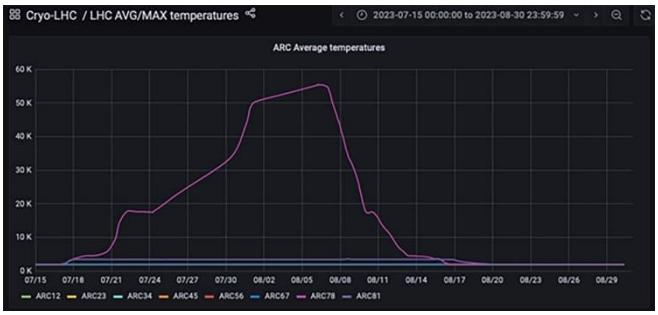
These summer conferences are not only a chance to find out the latest news in particle physics in the talks themselves, but also allow for more spontaneous discussions, where a chance meeting over coffee can lead to new collaborations and new research directions.

We return refreshed and inspired, looking ahead to the planned LHC heavy-ion run, the first since 2018, five years ago. This run will be important not only for ALICE, but also for the heavy-ion communities of the other LHC experiments, providing fresh data and more new and exciting results.

Joachim Mnich
Director for Research and Computing

(1) https://news.fnal.gov/2023/08/muon-g-2-doubles-down-with-latest-measurement/
(2) https://atlas.cern/Updates/Briefing
(3) https://cms.cern/tags/physics-briefing

Accelerator Report: Beams injected into the LHC ahead of heavy ion collisions



This graph shows the temperature evolution of the arc 7-8 cold mass, which underwent a limited warm-up to repair the vacuum leak in the inner triplet left of LHCb. The leak appeared on 17 July and the arc 7-8 was warmed up to about 20 Kelvin and kept at that temperature, using gaseous Helium, until the interconnection was opened on 24 July. Active cooling of the arc was not possible during the intervention and the average temperature of the arc therefore increased. On 1 August, the intervention was completed and the cool-down of the arc could start.

>>> The LHC schedule has been revised following discussions between representatives of the LHC experiments and the LHC machine teams. We concluded that the emergence of the leak should mark the end of regular proton running this year, as reinstating high proton-beam intensity operation at 6.8 TeV would entail substantial setup and revalidation time. Consequently, the focus for the rest of the year will be on the heavy ion physics that was already scheduled for the year-end. This will be complemented by relatively brief special physics runs with protons, such as Van de Meer scans to calibrate the luminosity measurements of the experiments and proton collisions with strongly de-focused beams at the interaction points (high beta star) in the experiments, along with a condensed machine-development session, which were initially planned for the second half of July.

The heavy-ion programme, starting in the week of 11 September, comprises two parts. The first is a proton–proton reference run at an energy of 2.68 TeV, followed by the actual run with lead ion collisions in all four large LHC experiments. Originally scheduled for four weeks, this lead ion run has now been extended by an additional week. The last lead ion beams of 2023 will then be dumped on Monday 30 October at 6 a.m. marking the start of winter stop for the entire CERN accelerator complex. Until then, anticipation is high for a busy, challenging and above all a successful physics period.

The resumption of beam operation is not only rewarding for the physics community, but also for all the dedicated people who have worked hard and thought out-of-the-box to get the unprecedented vacuum leak repaired. By avoiding the standard procedures of warming up the whole sector, the repair was made quickly and now enables the lead ion run to take place. This accomplishment underscores the strength, quality and innovative spirit of CERN's scientific and technical teams.

Rende Steerenberg

.

CERN Science Gateway: public events programme

A season of events for all: find out what is in store when CERN Science Gateway opens its doors

CERN Science Gateway will be the flagship venue for visitors from all over the world wishing to learn more about the Laboratory and its work. The public events programme will aim to create engaging content and experiences, ranging from talks to films and dance or music performances, all built around a seasonal programme that will establish CERN Science Gateway as a scientific reference in the wider cultural scene, both locally and further afield.

Soumya Swaminathan, former WHO Deputy Director-General for Programmes, speaking at CERN during the second edition of the Sparks Forum exploring future technologies for health. (Image: CERN)

At present, CERN's Globe of Science and Innovation hosts events attended primarily by the local public. However, with the opening of the new CERN Science Gateway facilities in October – and its auditorium seating up to 900 people – CERN aims to broaden its reach, not only in terms of audience numbers, but also in terms of diversity: age, geographical distribution and interests. By collaborating and co-creating events with other museums, science centres, cultural centres and educational networks, we aim to reach a range of audiences: from families, whether local or visiting tourists, to more specialised groups such as the high-energy physics (HEP) community, as well as undergraduate and postgraduate students, alongside the general public and our neighbours in the local communities.

Overall, the public events programme at CERN Science Gateway will aim to deliver one event per month (with the exception of December and the summer months), with a different theme each season. "The chosen themes aim to address a topic that aligns with CERN's mission and is relevant to society", says Claudia Marcelloni, head of public events programming.

This will be achieved through the gradual implementation of an ambitious seasonal programme, with most events falling under a thematic proposal, while leaving space for spontaneous and recurring events that CERN traditionally hosts or participates in, such as Dark Matter Day and CineGlobe.

In addition to the CERN Science Gateway programme, we will continue to organise off-site public events in the local area in both host countries, accessible to the public in their own venues and tailored to individual communities.

Specifically, this rhythm is expected to begin in earnest during the 2024–2025 season, as 2024 will be mainly focused on CERN's 70th anniversary celebrations. In the meantime, four public events will take place in November 2023:

3 November: Dark Matter Day lecture by Nobel laureate Michel Mayor

9 November: CineGlobe – "Mauvais Je(ux)", an experimental theatre performance created by the Laokoon collective.

16 November: Launch of the third edition of Sparks – Future Quantum

27 November: Talk by Avi Loeb, author of Interstellar: The Search for Extraterrestrial Life and Our Future in the Stars

You will need to register to attend the upcoming events. All information will be available at: https://voisins.web.cern.ch/en/events

The goal of CERN's public events programme is to further CERN's mission to establish the Organization as a key place to convey the importance and relevance of fundamental science in creating knowledge, bringing people and nations together through peaceful collaboration and driving innovation collectively.

Lila Mabiala

Six unlikely benefits of being a CERN Guide

Sign up now for newly available training sessions for guides

Unlock the benefits of being a CERN Guide. Start small, guide quickly. (Image: CERN)

Who would have thought that being a CERN Guide in the Science Gateway era could give you so many benefits. See for yourself in the list below (you'll never guess number six).

1. The why

"What made you want to work at CERN?" Answering this visitor's question unlocks the memories of why you came to CERN. CERN is constantly evolving, researching, developing and pushing boundaries. So, as a CERN Guide, each time you take part, you could see, hear, experience something new and exciting that reminds you why you chose to work in such an inspiring place.

2. Exclusive access

Unlock exclusive behind-the-scenes access to areas of CERN. Plus, access a dedicated space for CERN Guides in Science Gateway and join the community to share ideas, download content and sign up for talks and trainings.

3. Wellbeing

Emerging from the COVID-19 years, there's something all the more special about, once again, interacting with people of all ages. And now, Science Gateway activities are aimed at visitors aged from 5 to 105+. There's something for everyone. Engaging with these different audiences can bring joy to your job, make your eyes shine brighter and boost your spirits.

4. Physical health

Ask any doctor, or PhD student at least, and they'll confirm that guiding groups increases your step count. It gets you away from a computer screen and into the fresh air. You can even add extra cardio to your workout by getting visitors to walk a little faster between visit points.

5. New skills

Find out something that you never knew about CERN, from engineering to physics to computing to funny anecdotes from CERN's history. You don't need a scientific background to be a CERN Guide – all profiles and languages are welcome, helping showcase CERN's diversity. You just need an active CERN affiliation for six months or more to sign up for training. Improve your skills in communicating, in adapting to different audiences, in languages, and get tips on how to answer the most bizarre visitor questions.

6. Productivity

The strangest benefit by far is that alternating your day-to-day work with being a CERN Guide could actually make you more productive. As illustrated by this wonderful cartoon.

(Image: Liz Fosslien)

What now?
With Science Gateway opening this autumn, you have the chance to:

- Showcase interactive exhibitions
- Facilitate hands-on lab workshops
- Perform interactive science shows
- Guide visitors on tours of CERN sites
- Take part in local events

To find out more and sign up for newly available training sessions, visit: https://guides.web.cern.ch/join

Kate Kahle

Farewell to CERN's astronaut

(Image: CERN)

On Tuesday 29 August, Slawosz Uznanski, Polish engineer and CERN staff member said goodbye to colleagues and friends ahead of his leave of absence to begin astronaut training. More images available https://cds.cern.ch/record/2868944.

In November 2022, Slawosz was selected out of more than 22 500 applicants to be one of 11 members of the ESA 2022 astronaut class. You can follow Slawosz on his adventures via Linkedin, Instagram and Facebook.

The LHC leak repair: a short photostory

Look through the photo diary to relive the successful repair of the LHC

The intervention teams prepare to reclose the affected magnet after successful repairs (Image: CERN)

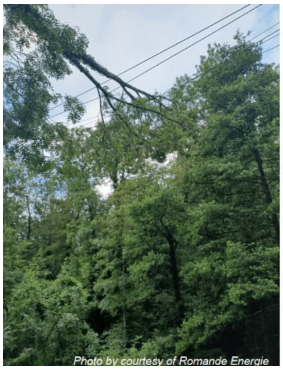
At 1 a.m. on Monday, 17 July, the LHC beams were dumped due to an electrical perturbation. Approximately 300 milliseconds later, several magnets lost their superconducting state ("quenched"). During a quench, the magnet warms up, which in turn warms and pressurises the liquid helium that surrounds it.

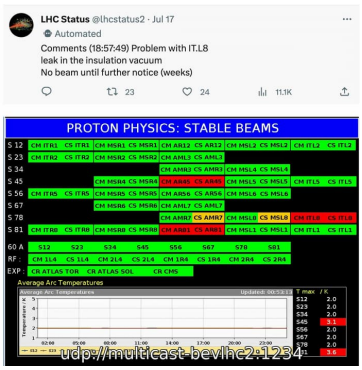
While not common, this sequence of events is a normal occurrence that protects the superconducting cable of the magnet when an electrical glitch occurs; the mechanical stress exerted on different parts of the magnet can be quite strong.

Among the magnets that quenched on 17 July were the inner triplet magnets located to the left of Point 8 of the LHC, which play a crucial role in focusing the beams for the LHCb experiment. Unfortunately, on this occasion, the quenches led

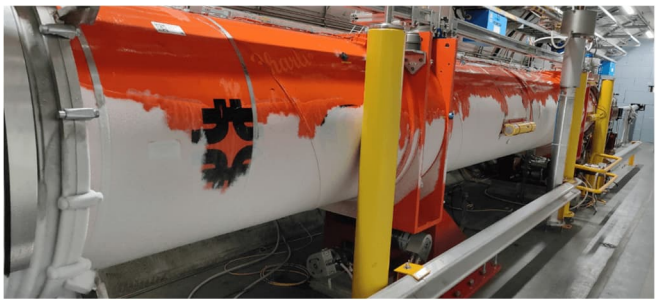
to a helium leak in these magnets and put a halt to regular LHC operations.

Look through the photo diary below to relive the ten-day race against the clock to repair the leak.



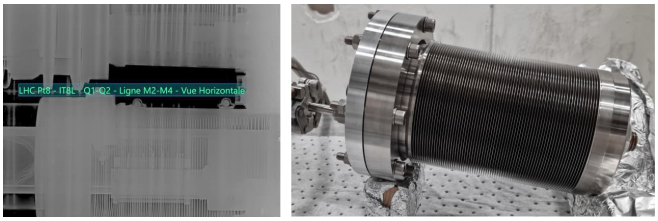


Monday, 17 July, 1 a.m.: ROOT CAUSE
The reason for the electrical glitch that caused the safety systems in the LHC to dump the beam and several magnets to quench was found: a tree on the Swiss side (about 55 km from CERN in the Canton of Vaud) fell on the power lines and disrupted the power system.



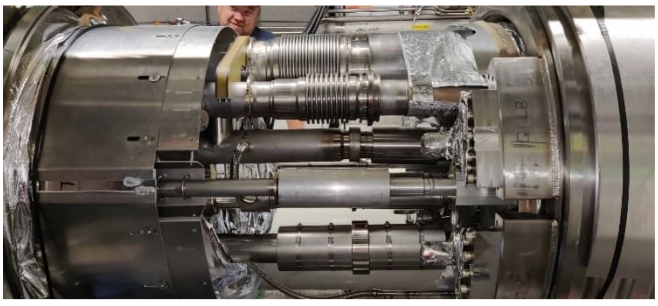
Monday, 17 July, 11 a.m.: A CHILLING DISCOVERY
Ten hours later, on entering the tunnel, the investigating team found that the cryostats of the triplet magnets near Point 8 were partly covered in ice. Tests quickly confirmed that a small amount of helium had escaped through a leak and filled the insulation vacuum.*
Action was taken immediately: the adjacent magnets were electrically isolated, circuits were locked off and grounded, and the quench heaters for this sector were switched off. Additionally, to allow work to be done on the triplet, the 3 km of superconducting magnets in the affected sector were stabilised at a temperature of 20 K, instead of their usual 2 K (-271°C).

**All LHC superconducting magnets are housed in cryostats. During normal operation the external wall of the cryostat is at room temperature, while the magnet operates at 2 K. The cryostat is designed to maintain the magnet at such a low temperature by minimising the in-flow of heat – and insulation vacuum is essential to achieve that.*



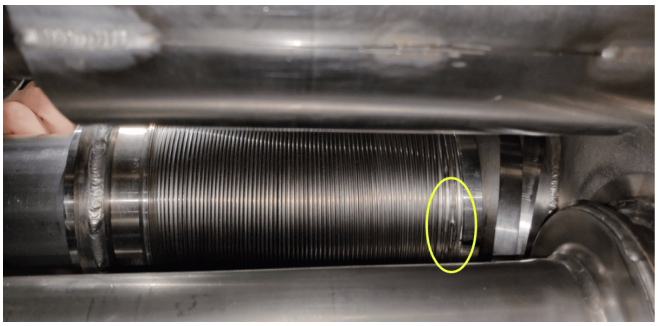
Tues, 18 July – Wed, 19 July: LOOKING FOR THE LEAK
The exact position of the helium leak in the 50-m-long cryostat was still unknown. By Tuesday, 18 July, vibration and acoustic tests had been performed. Attaching accelerometers and microphones, the intervening team detected a clear signal in the interconnection zone between the first quadrupole magnet (Q1) and the second (Q2). Additional X-ray scans showed that the spacing of the bellows ridges on one of the pipes in the superconducting magnets appeared to be stretched. Bellows are employed in the physical connections between two magnets, giving flexibility. In this case the stretched bellows were on the M2 pipe, which contains the instrumentation connections.

Thursday, 20 July - Sunday 23 July: PREPARING TO OPEN
The intervening teams agreed that the Q1-Q2 interconnection between the two quadrupole magnets would have to be opened for further investigation and repairs. To make a safe intervention possible, the sector around the magnets was emptied of liquid helium. In parallel, an electrical quality assessment showed that the electrical circuits of the triplet were fine – the problem was thus elsewhere.
Teams of experts from different CERN groups (safety, vacuum, cryogenics, magnets, engineering, powering, magnet protection, survey, beam instrumentation, operations) discussed how to tackle a problem that had never been encountered before on a 15-year-old string of magnets and established a procedure on the spot.

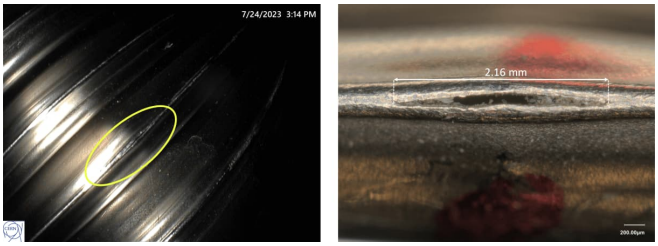


Monday, 24 July: OPENING THE TRIPLETS

The whole triplet cryostat reached room temperature. The external bellows and inner thermal shields at the Q1-Q2 interconnection were removed so that the inner helium lines could be inspected.

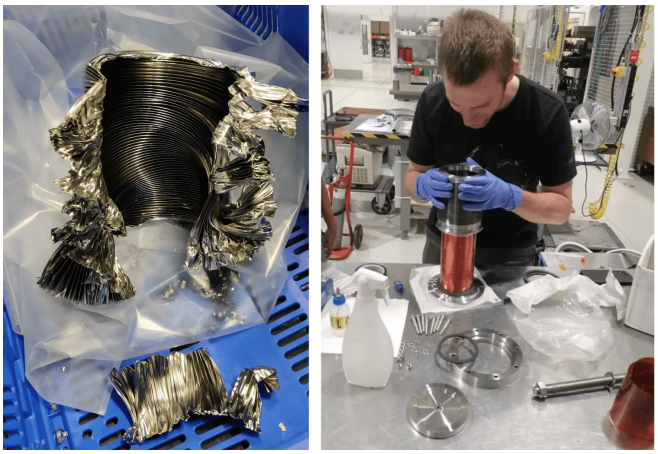


Monday 24 July: GOTCHA!
The leaking bellows in the M2 pipe.

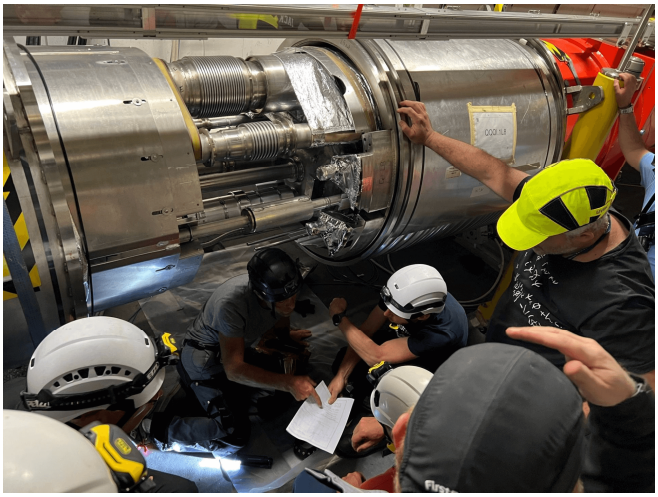


Monday, 24 July, afternoon: SMALL BUT MIGHTY
The teams located the M2 bellows that were suspected to be at the root of the problem and, indeed, found that there was a 1.6-mm-long crack on it, which was the source of the helium leak. An action plan was put in place: remove the broken bellows, replace them, do all the necessary tests, close up again and start the cooldown…

…all in under 10 days. Otherwise, a complete warm-up of the affected LHC sector could not be avoided, and this would put an end to the whole LHC physics programme for 2023.



Tuesday, 25 July: WORKING THE BELLOWS
While the broken bellows were cut out, the vacuum team conducted pressure and leak tests on spare bellows to test their resilience and provide a replacement unit for the tunnel repair.

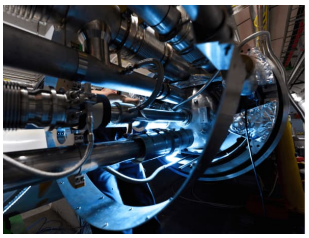
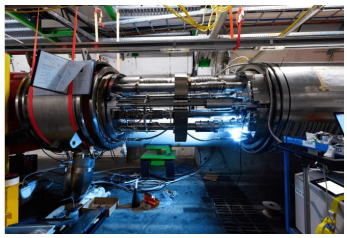


Thursday, 27 July: TEAMWORK…
Experts led by Sandrine Le Naour and Said Atieh discussed the possible repair solutions on site.

…MAKES THE DREAM WORK
The new bellows were installed. On the far left: threading the instrumentation through the new bellows. In the middle: many hands make light work! On the right: skilled welders do their magic.

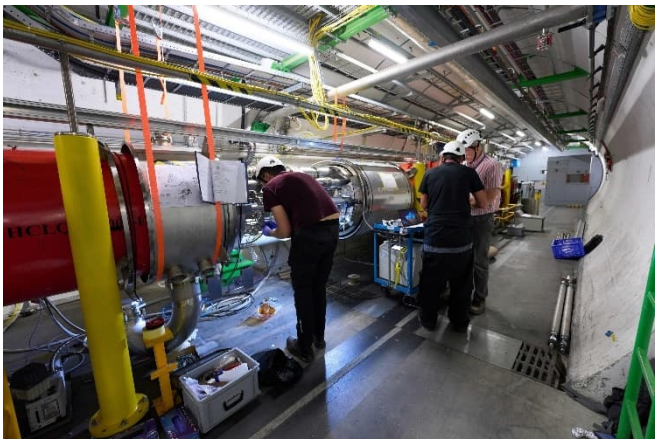
ILLUMINATED
Graeme Barlow looking at the open interconnection, with the various pipes inside visible. The M lines allow the helium to be transported between magnets (M1 contains the busbar for the electrical connection, M2 contains the instrumentation connections, and M4 has a cryogenic function). In the middle sits the beampipe where the particles

circulate. The M2 bellows are just visible between the M1 and the beampipe.

THE REPAIR ZONE

NEXT STEPS
The vacuum and mechanical teams discussed the action plan while the repairs were in progress.

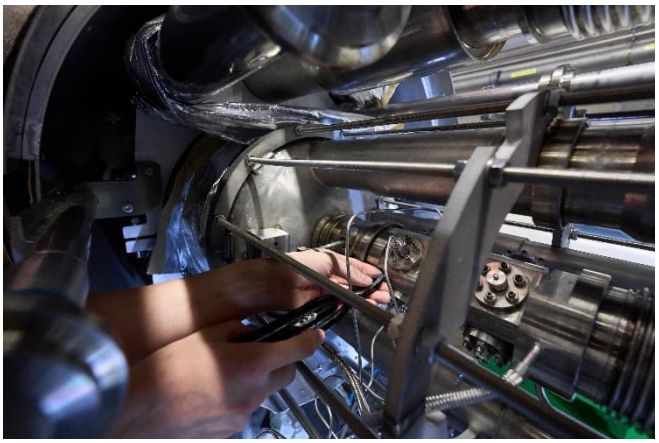


WORK IN PROGRESS
Two teams were often at work at the same time: on the left, reinstalling beam position monitor (BPM) cables, on the right, starting the leak test on the new bellows.

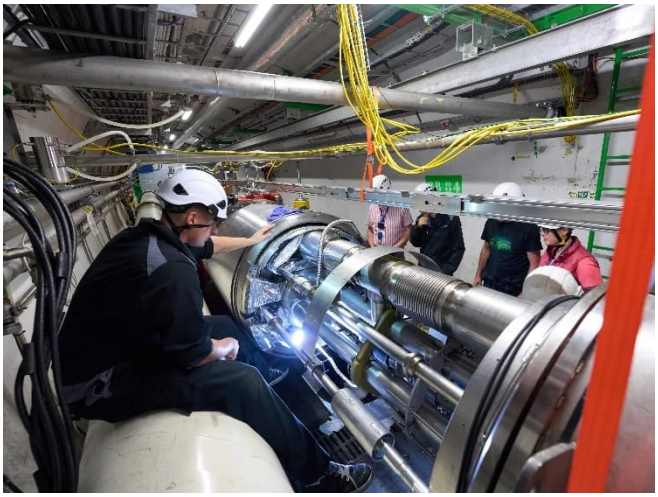
LEAKPROOF
The vacuum team installing the leak-test tooling.

Graeme Barlow of the vacuum team installing the leak-test machine with Paul Cruikshank.

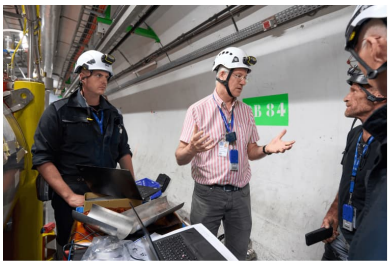
Paul Cruikshank, leader of the LHC vacuum intervention, together with his team, starting the leak test on the newly installed bellows.



RECONNECT
During the opening of the Q1-Q2 interconnection, the beam position monitoring (BPM) cables had to be removed. Here, the cable reinstallation is under way.

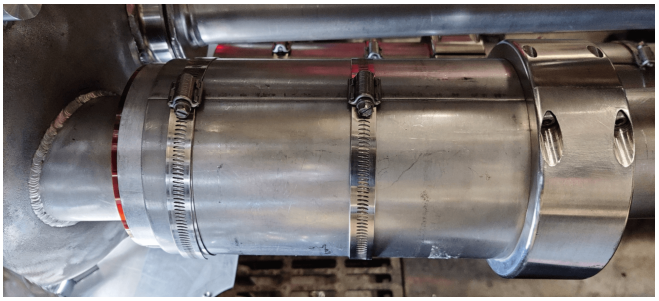


The reinstalled bellows required several new welds. Each required a dedicated leak test to avoid any bad surprises once the interconnection was reclosed.
Sandrine Le Naour (far right) assessing the progress. She coordinated the mechanical interventions to open the magnet interconnections and then had to prepare the careful reclosure.



Paul Cruikshank with the vacuum team and expert welder Didier Lombard. On the right, a close-up view of a clamshell-leak testing tool (a technology developed at CERN to leak-test the entire LHC during its installation) used by the team to leak-testnew welds. This CERN innovation (also used by industry today) enables the vacuum quality of a tube to be checked from the outside, which is a great advantage when the objects to be tested are very long and difficult to remove: something that is very typical in the 27-km-long LHC vacuum systems.

FINAL LEAK TEST UNDER WAY...
Wim Maan and Marcel Knoch checking the tightness of the final weld.



FULLY REPAIRED
The M2 bellows fully repaired. The bellows are surrounded by external shells to support and guide them when the helium is pressurised during different operational phases of the LHC.

TEAM SUCCESS!
The bellows were repaired and the leak test was successfully completedwithin the ten day deadline. Although there's still plenty to do to reclose the interconnection, the light at the end of the tunnel is in sight! After the teams have repumped the vacuum and cooled down the magnets, the LHC can restart.
The LHC operations team is confident of seeing the first beam back in early September.

For more information on this story, watch a video interview with Paul Cruikshank, one of the coordinators of the repair operation: https://youtu.be/u0iUi5gTKXk

HL-LHC: successful tests validate a new remote alignment system for magnets

The many CERN-developed sensors and software programs of the FRAS (Full Remote Alignment System) have been successfully tested on a prototype magnet in preparation for the HL-LHC

Solutions for the new remote alignment system (FRAS) have been defined and validated using a test model. (Image: CERN)

"When dealing with a 27-km-long machine whose components must be aligned to within a few tenths of a millimetre, or sometimes even a few micrometres, CERN's surveyors can no longer consider the Earth to be spherical, let alone flat: all the details of its elliptical (geoid) shape come into play." That's how Hélène Mainaud-Durand (BE-GM) describes the challenges involved in aligning the magnets and other components of the HL-LHC. These major technological difficulties were first encountered during the installation and operation of the LHC and are even trickier with the constraints of the HL-LHC. The new HL-LHC remote alignment system (FRAS), which passed its first test with flying colours this summer, will be a key tool for meeting the future challenges of safe alignment.

The FRAS is an alignment system comprising almost one thousand sensors distributed along the 200 metres of new magnets that are installed on either side of the ATLAS and CMS detectors. The sensors, along with their electronics and software programs and a system of motorised jacks on which some of the components will sit, will be used to adjust the relative positions of the components remotely, in real time, with no human intervention needed in the cavern. This is a crucial requirement in the irradiated environment of the HL-LHC. Although a similar remote-controlled system has already been deployed along 50 metres of magnets inside the current accelerator, the FRAS, which will cover a greater distance, is innovative in several respects. The alignment tolerance will be the same as it is now (+/- 0.15 mm) but the system will cover a much greater distance (200 m instead of 50 m).

The new system boasts two different alignment technologies. The first is a classic capacitive technology based on measurements of the distance between several sensors that are distributed along the row of magnets and are connected by a 220-metre-long wire integrated into the HL-LHC sensors and components. Although this system uses well-known technologies, major adaptations have been needed to meet the specific requirements of the HL-LHC: to protect the sensors from radiation, their electronics are separated from them, connected to them by 120-metre-long cables made of materials suited to the hostile environment – a major technical challenge.

In addition, this first system is supplemented with a second, novel technology known as frequency sweeping interferometry (FSI). This technique involves measuring the distance between the end of an optical fibre (the measuring head) and several targets consisting of reflective glass spheres that have been specially developed for use in this system. This ingenious technology, which does not require cables (only an optical fibre is needed), will be used not only to confirm the measurements taken using the first system but also, for the first time, to determine the position of the cold masses inside the magnet cryostats.

"The FSI technology has been developed in house and is the fruit of eight years of research and development carried out jointly by several groups from the BE department, with the help of many teams across the Laboratory. Using a method that

had already been tried and tested at the National Physical Laboratory in the United Kingdom, we were able to design a solution that suited our own requirements and in which several other physics laboratories have already expressed interest. Mastering this technology at CERN also means that we have all the cards in hand ready for the industrialisation phase of the sensors, which will begin soon", explains Hélène Mainaud-Durand.

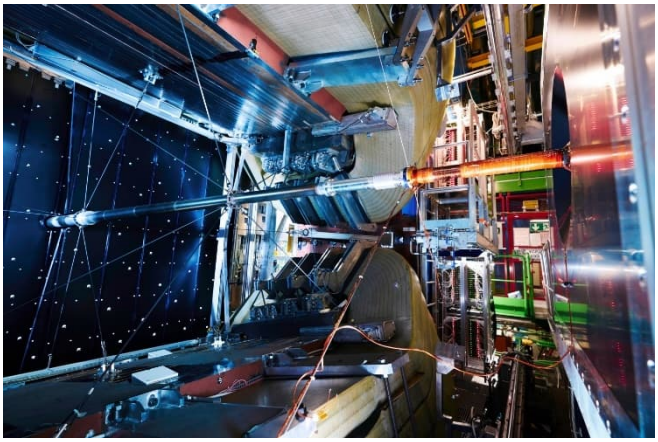
Following its baptism of fire on a magnet prototype at the metrology laboratory this summer, the FRAS will first be tested on the HL-LHC magnets at the inner triplet testing string (IT-String) in 2024, before finally being installed in the cavern during Long Shutdown 3 (LS3), which is planned for 2027.

https://videos.cern.ch/record/2298440
This animation shows how the Large Hadron Collider alignment systems work and the changes needed for the High Luminosity upgrade (Video: CERN)

Thomas Hortala

LHCb observes hypertriton production in proton-proton collisions at the LHC

With its detection of hypertriton in proton-proton collisions, the LHCb experiment strengthens CERN's role as one of the few places worldwide to study hypernuclei such as the hypertriton and its antipartner in detail


The LHCb detector. (Image: CERN)

On 23 August, at the EPS-HEP conference 2023, the LHCb collaboration presented its observation of the rare hypernuclei hypertriton and antihypertriton, which surpasses the experiment's design goals. More than 100 of these rare hypernuclei were found in proton–proton collisions corresponding to 5 fb^{-1} of LHC Run 2 data recorded between 2016 and 2018.

Both nuclei and antinuclei are produced at the LHC, as well as unstable hypernuclei such as (anti)hypertriton. Hypertriton comprises a proton, a neutron and a Lambda hyperon, which is a baryon containing one strange quark. In the case of antihypertriton, the antiparticles of these three particles form the hypernucleus. Their production is rare and fascinating to study. As both hypertriton and antihypertriton contain a hyperon, they are also an object of study in astrophysics: the creation of hyperons with a strange quark is energetically favoured in the inner core of neutron stars, so knowing about formation of hyperons serves as an ingredient for modelling this core.

An equally exciting research object for astrophysics is one of the (anti)hypertriton's decay products: (anti)helium-3, which occurs in space and could be used as a probe for dark matter. On the one hand, (anti)nuclei are produced in collisions between cosmic rays and the interstellar medium. On the other hand, they could be created theoretically when dark-matter particles annihilate. To determine the expected number of (anti)nuclei reaching Earth and the possible deviations from it, precise knowledge of their creation and annihilation probabilities is fundamental.

The (anti)hypertriton's lifetime is around 240 ps, and then it disappears releasing its decay products

in the LHCb detector. Thanks to a new reconstruction technique, the experimentalists were able to trace the path of the decay products through the LHCb detector. The (anti)helium-3 nuclei are identified via the energy that they lose through ionisation inside the inner detectors, such as the VELO and other tracking detectors.

Read more here: https://lhcb-outreach.web.cern.ch/2023/08/23/new-observation-of-hypertriton-and-antihypertriton-production-in-lhc-proton-proton-collisions/ .

Kristiane Bernhard-Novotny

Dark boson searches at CERN's North Area

With their latest dark-matter searches, both the NA62 and NA64 experiments start probing several well motivated light dark-matter models

The NA62 (left) and NA64 (right) experiments at CERN's North Area. (Image: CERN)

Located at CERN's North Area and receiving beams from the Super Proton Synchrotron (SPS), the NA64 and NA62 experiments search for dark matter, complementing searches at the LHC, as they cover a different energy range. Both experiments recently published new results.

Dark matter does not seem to interact with our visible world but makes up most of our Universe. Researchers assume that the dark sector interacts with the Standard Model via so-called mediators. These mediators could be, for instance, a dark photon, a dark scalar boson and an axion, which could be distinguished by how they interact with Standard Model particles.

The NA62 experiment, which was designed to study the ultra-rare kaon decay into a charged pion and two neutrinos, has now searched for possible contributions from dark-matter particles to another rare kaon decay. The researchers used a beam consisting mainly of pions and kaons, produced by firing the 400 GeV/c SPS proton beam onto a beryllium target. The rare kaon decay into a pion and a pair of photons, subsequently decaying into two electron–positron pairs, is particularly interesting as, hypothetically, dark bosons would decay into the same final states as Standard Model photons. Although the experimentalists did not find evidence for such a rare decay, nor for a dark boson, they placed the most stringent upper limits to date by analysing data recorded in 2017 and 2018. In addition, the experimentalists excluded the axion as a possible explanation for the 17 MeV/c2 ATOMKI anomaly and thus confirmed previous findings by the NA64 experiment.

The NA64 collaboration hunts for invisible light dark-matter particles that interact with Standard Model particles through a possible dark photon. Using electron collision data collected between

2016 and 2022, corresponding to 9.4 × 1011 electrons on target, NA64 started to probe the very exciting region of parameter space predicted by two benchmark dark-matter models for the first time. Their dataset excludes leading sub-GeV dark-matter candidates with a coupling between the dark-matter particle and the dark photon for a range of dark-matter particle masses, ruling out both models. To obtain these results, the NA64 experiment used a 100 GeV/c electron beam generated from protons interacting with a fixed target. The collaboration utilised an active beam dump and attempted to reconstruct the hypothetical dark photon, via both visible electron–positron pairs and missing energy for invisible decays.

Kristiane Bernhard-Novotny

SESAME, a growing focal point for regional scientific collaboration

SESAME, the Synchrotron-light for Experimental Science and Applications in the Middle East laboratory, welcomes Iraq as its first Associate Member

SESAME

SESAME, the Synchrotron-light for Experimental Science and Applications in the Middle East laboratory, based in Allan, Jordan, is an intergovernmental organisation established on the CERN model under the auspices of UNESCO. It opened its doors to users in 2017, offering third-generation X-ray beamlines for a range of disciplines, aiming to be the first international Middle-Eastern research institution enabling scientists to collaborate peacefully for the generation of knowledge.

SESAME has eight full Members (Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, Palestine and Türkiye) and 17 Observers, including CERN, and has just welcomed its first Associate Member: following approval by the governments of all of SESAME's Members in July, Iraq will accede to Associate Membership of the laboratory (https://www.sesame.org.jo/news/iraq-accede-associate-membership-sesame), paving the way to full Membership in the future.

"My visit to SESAME on 8 June 2023 has convinced me that Iraq will stand to greatly benefit from membership, and that this would be the right moment for it to become a Member," stated Naeem Alaboodi, Minister of Higher Education and Scientific Research and Head of the Iraqi Atomic Energy Commission, in his letter to Rolf Heuer, President of the SESAME Council and former CERN Director-General. "However, before doing so, it would like to better familiarise itself with the governance, procedures and activity of this centre, and it feels that the best way of doing this would be by first taking on Associate Membership."

"The Council and all the Members of SESAME are delighted by Iraq's decision," said Rolf Heuer. "We look forward to further countries of the region joining the SESAME family, both for the benefit they will derive from the many opportunities SESAME offers, and for the experience they will bring to SESAME."

The International Atomic Energy Agency (IAEA) has been actively encouraging those of its Member States located in the SESAME region to seek membership of SESAME and, in the words of the Deputy Director-General and Head of the

Department of Technical Cooperation of the IAEA, Hua Liu, "Iraq's formal association with SESAME is an excellent development and there is no doubt that its status of Associate Member, to be followed soon after, it is hoped, by full Membership, will allow the Iraqi Atomic Energy Commission to further develop its aim of using relevant technologies for different applications, especially health care, agriculture, the environment, the oil industry and cultural heritage."

The first proposal for beam time has already been submitted by Iraq: it is a joint project between the Natural History Museum in Iraq and the British Museum in the UK to study a unique set of complex stromatolites and thrombolites – sedimentary formations created by microorganisms – collected at Ganau Spring in the northeast of Iraq.

SESAME, like CERN, was established as a place for promoting both excellent science and peaceful collaboration. Iraq's accession to Associate Membership is another step in this direction, and many more countries in the Middle East and neighbouring regions will undoubtedly soon follow in its footsteps.

_____

To find out more, read the article "SESAME's 30-year-long journey in science diplomacy" in the CERN Courier, January/February 2023, p.28. https://cerncourier.com/a/from-dreams-to-beams-sesames-30-year-long-journey-in-science-diplomacy/

Computer Security: I know what you did last summer

Just in time for the end of the holiday season and with reference to a famous film of the 90s, we set out to study where you've been and what you did this (last) summer… without infringing on your privacy as you're actually already publishing this information freely.

Or, rather, your smartphone is. As discussed in another Bulletin article about the "symbiosis of your life", most of us carry this kind of beacon with us. This beacon memorises where we've been in a number of ways. The most obvious is the GPS location or IP address information your smartphone shares with the Googles and Facebooks of this world and with your local internet service provider (ISP), respectively. While the former use this for marketing and advertising purposes ("if it's gratis, you pay with your [location] data") or share it with your favourite sports app (like "Strava", anyone?) to track your running route, hiking trail or cycling path, the latter is solely for internal purposes and to meet legal obligations. Like ISPs, CERN, for example, keeps a log of which wireless access point your device has been connected to at any moment while using the CERN network (Android and iOS have introduced so-called "MAC address randomisation", which makes easy correlation more difficult or even impossible). But there are some other easy ways to know what you did last summer without being an ISP or a Facebook-alike. Enter "SSIDs".

An SSID is the non-unique name of a wireless network, like "CERN", "eduroam", "FREE WIFI GVA" or "Livebox-XB4X". This is the name and description of the wireless network your device connects to. Manually, if you enter it the first time; automatically, if it's already known to your device. And to make it extra convenient, your device stores all the SSIDs it has ever connected to. On an iPhone, just go to "Settings" -> "Wi-Fi" -> "Edit"; on an Android phone it's in "Saved networks". Now you know what you did last summer. And before. All your SSIDs are there. And by their names you can easily figure out where you've been… But we're not done yet. Because third parties can figure it out, too.

If Wi-Fi is enabled, your smartphone is always trying to connect to a wireless network. That makes your life convenient. Internet everywhere. Coming to CERN, prompt Wi-Fi connectivity. Returning home, immediate internet access. When travelling, “eduroam” signs you in automagically and gets you swiftly connected to the internet without further ado. To do so, however, your smartphone needs to advertise itself to the network, to ask whether anyone has “seen” a particular SSID, broadcasting the list of your saved SSIDs one by one. And this is where you lose your privacy. Letting everyone know what you did last summer, and even before (as this SSID information does not come with any time stamps).

This is what we did, without attributing any SSID to a particular device: we just collected all the SSIDs that the smartphones around Building 31 were advertising at a specific moment in time. Airports. Hotels. Institutes. Conferences. Restaurants. Bars. Museums. Shops.: Prague Airport Wifi Free, #StarbucksWifi, *Louvre_WiFi_Gratuit, .La Jolla Village Guest WiFi, ATLAS WEEK, AirFranceCONNECT, Airport-Frankfurt, AlohaHostel, Alpen Resort Public WiFi, Ambleside Tavern, BEAURIVAGE, BESTWESTERN, BMW Public, BostonPublicLibrary, Brussels Airport free Wi-Fi, Camping Zermatt Public WiFi, DESY guest legacy, Dunkin' Donuts Guest, ESA-wireless, Foyer Schumann, GELATERIA ITALIANA, GenuaWifi, Glasgow, Gran Hotel Santiago, Grand Elysee, GrandCentral_FreeWiFi, Helsinki Airport Free Wi-Fi, Hilton Honors, Hotel de Ville, INTERMARCHE, ITER-Guest, Incanto-Ristorante, Jiva Hill free access, KFC Hotspot, MIGROS WiFi, MarriottBonvoy_Guest, McDonald's Free WiFi, MonacoWifi, Pneus Claude Wifi Clients, Porsche HotSpot, Pret-a-Manger, Public WiFi Interlaken, Radisson_Guest, Raiffeisen Bank - Free WiFi, Regiojet - zluty, Room#507, Starbucks WiFi, Styles Hotel, THE BARISTA LAB public, The Bowling Balexert, Val Thoiry - WiFi Gratuit, VertigoJazzClub, VorstadtBistroSolothurn, Wirtshaus Franz, Wyndham Public, ZurichAirport, _Free JFK WiFi, _SNCF gare-gratuit, easyJet onboard, esa-conference, etc., etc. Indeed, we know what you (all) did last summer.

So, be aware of what your smartphone shares with the world. The SSIDs it has connected to, the SSIDs where you’ve been. And if you want to regain control, go into your Wi-Fi settings and either delete all the SSIDs you do no longer want to be associated with or disable automatic connections in general (note that you’ll need to re-register if you want to connect to a particular network again). Otherwise, everybody will know what you did last summer…

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.

Computer security team

Official news

Fraudulent telephone calls: Warning from the Swiss Federal Office for Customs and Border Security

The Federal Office for Customs and Border Protection warns of fraudulent automated calls from Swiss mobile phone numbers, allegedly announcing the confiscation of postal parcels. It is recommended that you immediately end any such telephone call.

Further information and recommendations are available at https://www.bazg.admin.ch/bazg/en/home/teaser-homepage/focus-teaser/warnung-telefonanrufe-mit-automatisierter-ansage-des-zolls.html and https://www.bazg.admin.ch/bazg/en/home/teaser-homepage/focus-teaser/warning-against-fraudulent-messages.html.

Host State Relations service
Relations.secretariat@cern.ch

Announcements

Take part in the CERN Science Gateway inauguration ceremony!

On 7 October 2023, CERN will officially open the Science Gateway. Volunteer to take part!

The Science Gateway is CERN's emblematic new centre for scientific education, communication and outreach. Designed by the architect Renzo Piano, the building will house immersive exhibitions, laboratories to educate the public through hands-on activities and a 900-seat auditorium. These new areas will help us to reach new audiences aged five and upwards, to enhance our engagement with the local population and to encourage young people to take up careers in science.

The inauguration ceremony will take place on Saturday, 7 October 2023. The event will be the culmination of an ambitious project and the start of a new chapter in the life of CERN. Nearly 900 people (Council delegates, donors, representatives of local authorities and the Host States) are expected to attend.

In addition to attending the official ceremony, which will take place in the auditorium, the guests will have the opportunity to explore the site through various activities that will be on offer throughout the day. The programme will include tours of the exhibitions, where children (supervised by volunteers) will interact with the visitors, as well as stands on the Piazza and workshops in the laboratories.

We need volunteers!

For the ceremony we need help with the logistics, welcoming and informing visitors and supervising the exchanges between the children and the guests at the exhibitions and in an interactive game.

The day will be split up into several time slots (including breaks) and a detailed schedule will be drawn up according to your availability. Sign up to volunteer!

Conditions

- You must have a CERN contract (MPE, MPA, official guide, external contractors' personnel (ECP) or temporary worker (TEMC)) and be aged 18 or over.
- You must be fluent in English and/or French (according to your role).
- You will be required to attend one of the general information sessions.
- You will also be required to attend a briefing on the specific role you will be assigned.
- You must have followed the special training course for use of the Science Gateway (several sessions are planned for September – sign up at https://guides.web.cern.ch/agenda-trainings)
- You may be asked to take part in a rehearsal.

Dress code and meals

- We will lend you one of the official red Science Gateway vests, which you will be required to wear throughout the event and return at the end of the day.
- Lunch will be provided.

For more information and to register: https://indico.cern.ch/e/sg-volunteers
Registration deadline: 20 September 2023 – before midnight.

Thank you for volunteering!

Library: new books and e-books in July

The Library team adds new resources for the CERN community every day in its catalogue. Check the July 2023 additions here.

Some highlights by topics:

- Administration/Management
- Astronomy/Astrophysics
- Engineering/Technology
- IT
- Mathematics
- Physics

Find more books and e-books in the CERN Library Catalogue.

Please let us know if you cannot find the book you need via our request form.

Enjoy reading! For any question or suggestion, contact the Library: library.desk@cern.ch

.

CERN Knowledge Transfer fund and Medical Applications budget 2023 – submit your application by 18 September

CERN's Knowledge Transfer (KT) group invites those who are working on a CERN technology that could be applied outside high-energy physics to submit applications for funding from the KT fund or the medical applications budget by 18 September

CERN's core business is fundamental science, but the Laboratory's technology and know-how have the potential to drive innovations in a variety of fields, often through collaborations with industrial partners.

CERN offers its personnel two funding schemes to help bridge the gap between research and industry: the knowledge transfer (KT) fund and the medical applications (MA) budget. These mechanisms provide resources to help take early-stage, innovative projects from the Laboratory to society.

In order to be considered, a project must be based on CERN technologies, submitted by a member of the personnel and approved by the department head. Grants from the KT fund and the MA budget can cover material and equipment costs and allow CERN teams to hire associate members of the personnel or technical or PhD students to support the project's activities. The department must agree to cover the salaries of the personnel involved. The KT group is available to help you assess the technology and seek external partners such as companies, hospitals or universities.

If your technology has the potential for applications in healthcare, you should apply for funding from the MA budget. Before making your submission, you must present your proposal – even if it's not yet finalised – at one of the upcoming CERN Medical Applications Project Forum meetings on 23 August or 13 September. Please contact kt.medicalapplications@cern.ch as soon as possible to pre-book your slot. The full process is explained here: https://kt.cern/funding/ma-budget

If you are targeting applications outside the healthcare field, please apply for funding from the KT fund by following the instructions detailed here. All ideas are welcome, particular those in the field of the environment or quantum and digital technologies.

Complete applications must be submitted by 18 September 2023. Applicants will then present their proposals to the selection committee on 8 November 2023.

We encourage you to contact your Knowledge Transfer Internal Network (INET) representatives or the Knowledge Transfer group (kt@cern.ch) as early as possible to discuss opportunities.

The following articles highlight how KT support (through funding or other means) has benefited the projects of CERN personnel:

- Gaining perspective in intellectual property – Hélène Mainaud-Durand, Mechatronics and Measurements group
- When research radiates beyond the lab – Marco Silari, Radiation Protection group
- Rooted in society – Axel Naumann, Software Design for Experiments group
- The rise of the radiation protection robots – Mario Di Castro, Mechatronics, Robotics and Operations section
- Materials that matter – Jorge Guardia-Valenzuela, Mechanical and Materials Engineering group

Read more about how to apply for funding here: https://kt.cern/funding/kt-fund and https://kt.cern/funding/ma-budget

---

Preparing for retirement: seminars for staff

Retirement marks the end of a person's professional career and the start of a new chapter in life. Research shows that this transition is easier for those who are well informed and prepared.

If you are a staff member and considering retirement in the next one or two years, we encourage you to participate in two special seminars, organised by Human Resources Department:

- Preparation for retirement: a seminar organized jointly by ILO and UNOG once a year, for international civil servants from different international organizations in Geneva. The next seminar takes place virtually via Zoom from 13 to 30 Nov 2023 with 12 short sessions of 60' to 90'. The full programme is available for download from the Learning Hub. You can enrol now – deadline 16 October.

- Leaving CERN: a yearly information seminar at CERN, with presentations and Q&A sessions with internal experts. The next half-day seminar will take place on 12 Oct 2023 14:00 - 17:35 CET in CERN Prévessin 774/R-013. You can enrol now.

Spouses and registered partners can also attend these seminars.

For more information, contact your.career@cern.ch

HR department

ID lanyard celebrates diversity and inclusion at CERN

An attractive lanyard with a conscious design

Created in collaboration with CERN's graphic design team, our attractive and official CERN lanyard is made from recycled plastic. It features vibrant, merging particles that celebrate the diversity of our personnel and our collaborative, inclusive workplace culture.

Pick yours up at Building 55 or from your departmental Diversity & Inclusion Officer (DIO).

Requests for multiple lanyards are handled by the CERN Stores.

"Consider not only a diverse candidate's individual potential, but the potential for excellence of a diverse team." – Louise Carvalho, D&I Programme Leader

The Diversity and Inclusion Programme

Obituaries

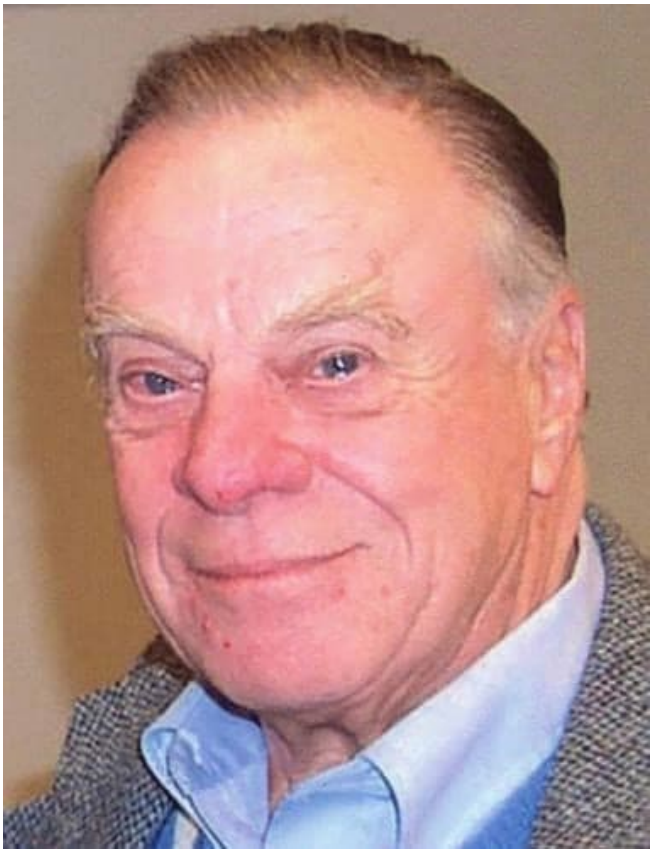
Lawrence W. Jones (1925 – 2023)

Lawrence W. Jones, an experimental particle physicist who contributed to important developments in accelerators and detectors, and a well-respected mentor and educator, passed away on 30 June 2023.

Jones was born in Evanston, Illinois, USA, on 16 November 1925. He enrolled at Northwestern University in autumn 1943, but was drafted into the US army a few months later. He served in Europe during World War II in 1944 and 1945, then returned to Northwestern to complete a BSc in zoology and physics in 1948 and an MSc in 1949.

After completing a PhD from the University of California, Berkeley in 1952, Jones came to the University of Michigan to begin a lifetime career in the physics faculty. In 1962, he acted as dissertation adviser to future Nobel laureate Samuel C. C. Ting and he was promoted to full professor in 1963. He served as the physics department chair from 1982 to 1987 and was named professor emeritus in 1998.

Jones collaborated in the 1950s in the Midwestern Universities Research Association (MURA), a collaboration of US universities that developed key concepts for colliding beams, and built the first fixed-focus alternating gradient accelerator.



Over the course of his career, Jones contributed to the development of scintillation counters, optical spark chambers and hadron calorimeters. He participated in experiments designed to measure inelastic and elastic scattering, particle production, dimuon events, neutrino physics and charm production.

Jones came to CERN as a Ford Foundation Fellow (1961–1962) and as a Guggenheim Fellow (1964–1965), then contributed to cosmic ray experiments on Mount Evans, Colorado, and nearby Echo Lake.

In 1983, Jones joined the L3 experiment at CERN, which was led by his former student, Samuel Ting. The Michigan team, led by Professor Byron Roe, helped to design, construct and install the experiment's hadron calorimeter, a key component used to determine the number of elementary neutrino families. Jones also contributed to the construction of L3 Cosmics, a programme to trigger on and measure cosmic rays, using L3's precision muon detector and surrounding solenoidal magnet.

His interest in entomology led to a species of beetle (Cryptorhinula jonsi) being named after him. On the first Earth Day, in 1970, Jones introduced the term "liquid hydrogen fuel economy" and, in 1976, he joined the advisory board of the International Association for Hydrogen Energy.

Jones's wife Ruth died in 2018, but he is survived by his children, Douglas W. Jones (and Beverly), Carol Jones Dwyer (and Robert) and Ellen Jones Dillman, as well as grandchildren Nathaniel (and Robin) and Rachel Jones, Maeve Dwyer, Kevin and Peter (and Brittany) Dillman, and four great-grandchildren.

Steven Goldfarb and Byron Roe

Roberto Lopez (1979 – 2023)

Roberto Lopez joined CERN in 2005 as an electrical engineer in the Magnet group of the Technology department. He played an active role in shaping and implementing standardised procedures for electrical validations and compliance assessments across various categories of CERN magnets, including those used in the PS, SPS, and LHC. The aim of these efforts was to promote a unified quality assurance approach for procedures and traceability. As he honed his expertise in high-voltage insulation tailored to CERN's needs, Roberto also engaged in collaborative endeavours with ITER Cadarache. This collaboration was driven by shared challenges related to insulation materials for superconducting coils.

Roberto fulfilled his mission with enthusiasm, contributing to a noble cause in an organisation whose philanthropic mission aligned with his own values – an organisation of which he was proud to be a part. His ingenious magnets for the new East Experimental Area enhanced efficiency, and his

leadership of our QA team led to an exemplary level of quality management for the normal-conducting magnet systems in our accelerator complex.

His courage and vitality were astonishing; where many would have stopped working, he persisted. He was a man of exceptional calibre, and this gave him the strength to lead a life that was remarkably close to normal. This determination allowed him to fulfil most of his childhood dreams, to explore Earth's most beautiful places with family and friends, indulge in his passion for fine mechanics – particularly the prancing horse variety – and even pilot a Formula 1 car. All this he achieved with a great sense of responsibility, as a man and as a loving father to his beloved daughter Lyna – his "mini-me," as he fondly called her – whom he cherished and was immensely proud of.

Our colleague and friend passed away peacefully, surrounded by his family, on Monday 7 August at the age of 44 after battling a serious illness for the past fifteen years. Never complaining – quite the opposite – he embraced this unfortunate circumstance to live his remaining time to the fullest. He even defied his illness by designing iron-cobalt magnets for medical radiotherapy equipment, showcasing his resilience. We extend our gratitude to the medical teams who stood by his side, granting us precious additional time with him, though too brief.

We should remember him through a quote from Jack London, prominently displayed in his office, as it encapsulates his essence: "I would rather be a superb meteor, every atom of me in magnificent glow, than a sleepy and permanent planet. The function of man is to live, not to exist. I shall not waste my days trying to prolong them. I shall use my time."

CERN colleagues and friends express their deepest condolences to the family of our cherished colleague Roberto, who left us far too early. In tribute to the privilege we had to walk a part of life's journey with him, let us learn from his experience and embrace every moment that life offers us.

Rest in peace Roberto.

His friends and colleagues

Jacome Costales Ballesteros (1999 – 2023)

We are deeply saddened to announce the death of Mr Jacome Costales Ballesteros on 10 August 2023.

Jacome Costales Ballesteros, who was born on 29 April 1999, worked in the FAP department and had been at CERN since 1 October 2021.

Yaco, as his colleagues called him, was a talented software engineer, a person with a great heart and a kind and gentle character. His colleagues in the Business Computing Group were shocked by his sudden death and will greatly miss him both as a wonderful colleague, a partner in adventure, and a great friend to many.

The Head of the Human Resources department has sent a message of condolence to his family on behalf of the CERN personnel.

Social Affairs service
Human Resources department

Ombud's corner

The CERN Ombud, a unique resource as we return from the summer break

As the summer draws to a close and we all gradually return to work and meet our colleagues again after the holidays, I thought it would be useful and appropriate to remind you of the Ombud's role in serving the CERN community and that each of you might one day consider making use of the Ombud's services.

The primary role of the Ombud is to help to informally resolve the conflicts that can arise in our working lives. Conflicts at work are only normal and are perfectly acceptable. They can even be a chance to improve our relations with our colleagues, as long as they are handled constructively. However, if they are left to fester, rather than being tackled openly and in a spirit of mutual respect, they can soon become destructive.

The Ombud provides a conflict resolution service without an official complaints procedure. This service is completely confidential, and nothing that is said is recorded. In helping you to solve the conflicts you may be facing, in an informal way, the Ombud provides the following tools:

- Discussion of the conflict and the options available to you to resolve it. This discussion

will not focus on the detailed causes of the conflict but on your needs and goals and on how to overcome the problem.
- Mediation between the parties concerned. This is a very effective, well-documented process, which helps the two parties to find, together, an agreement that will help them to improve their working relations.

The conflicts that visitors bring to my office don't necessarily involve another person. They may be linked to the hierarchical chain, a process, a management system or the general atmosphere within a unit. In such cases, a discussion with the Ombud can also be very useful as the Ombud can look at the situation you're facing with fresh eyes or provide a sounding board, a mirror, for your concerns.

The Ombud's second role is to promote CERN's values and its Code of Conduct, which are basic tools for living together as a community. This aspect of the Ombud's work is the reason for my regular articles in the CERN Bulletin and is also why the Ombud's Mattermost discussion channel was set up.

The CERN Code of the Conduct describes how all members of the CERN community are expected to behave in the workplace and is naturally also my point of reference in analysing the situations facing my visitors and in exploring solutions.

Finally, I would like to remind you of the fundamental principles governing the role of the Ombud, which underpin all the services on offer and are unique to CERN:

- Independence. This is guaranteed by the fact that the Ombud does not report to any hierarchical supervisor and is not involved in drawing up strategies and processes. The Ombud reports directly to the Director-General, who gives her complete autonomy in fulfilling her role. . Moreover, the Ombud does not take up any other role within CERN at the end of the mandate. This means that the Ombud's relations with visitors and various partners are in no way influenced by a career plan or other interests.
- Impartiality and neutrality. These two principles, which are closely related to independence, are consciously applied by the Ombud, who strives to avoid passing judgement and taking sides in a conflict.
- Informality. Going to see the Ombud is a purely informal step, which means that no process is triggered. If you contact the Ombud, what happens next is squarely in your hands. The Ombud will never take any action if you don't specifically request it and consent to it.
- Last, but by no means least, confidentiality. Everything you discuss with the Ombud remains strictly confidential and stays within the four walls of the Ombud's office (or the four virtual walls of the Ombud's personal Zoom room). The confidentiality requirement applies to the visitor as well as to the Ombud.

Don't hesitate to consult the Ombud's mandate and to contact the Ombud at:ombud@cern.ch. The Ombud's services are available to the whole CERN community, from employed members of the personnel (staff, fellows) to associate members of the personnel (users, students, other categories of associate) and all other CERN colleagues.

I wish you a great return to work!

Laure Esteveny

I would like to hear your reactions and suggestions – join the CERN Ombud Mattermost team at https://mattermost.web.cern.ch/cern-ombud/.

Full details of the role of the CERN Ombud are available at:https://ombud.web.cern.ch/