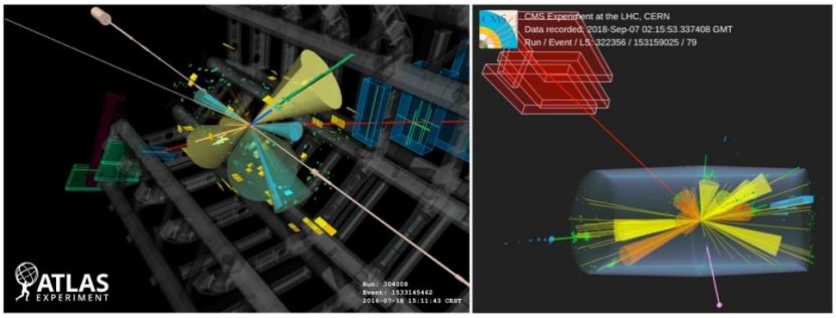
CERN Bulletin

Issue No. 14-15-16/2023 – 6 April 2023
http://home.cern/cern-people

ATLAS and CMS observe simultaneous production of four top quarks

The ATLAS and CMS collaborations have both observed the simultaneous production of four top quarks, a rare phenomenon that could hold the key to physics beyond the Standard Model



Event displays of four-top-quark production from ATLAS (left) and CMS (right).

Today (24 March 2023), at the Moriond conference, the ATLAS and CMS collaborations have both presented the observation of a very rare process: the simultaneous production of four top quarks. They were observed using data from collisions during Run 2 of the Large Hadron Collider (LHC). Both experiments' results pass the required five-sigma statistical significance to count as an observation – ATLAS's observation with 6.1 sigma, higher than the expected significance of 4.3 sigma, and CMS's observation with 5.5 sigma, higher than the expected 4.9 sigma – making them the first observations of this process.

The top quark is the heaviest particle in the Standard Model, meaning it is the particle with the strongest ties to the Higgs boson. This makes top quarks ideal for looking for signs of physics beyond the Standard Model.

There are a variety of ways to produce a top quark. Most commonly, they are observed in quark and antiquark pairs, and occasionally on their own. According to Standard Model theory, four top quarks – consisting of two top quark–antiquark pairs – can be produced simultaneously. The rate of production is, however, predicted to be 70 thousand times lower than that of top quark–antiquark pairs, which makes four-top-quark production elusive. Evidence for this phenomenon has previously been found by ATLAS in 2020 and 2021, and by CMS in 2022. However, until today, there had never been an observation.

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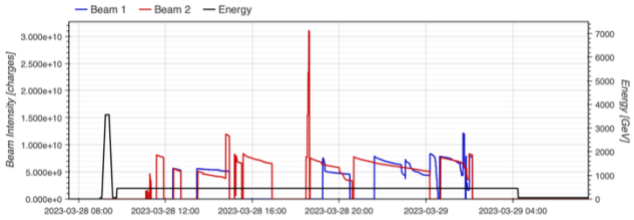
As well as being rare, four-top-quark production is notoriously difficult to detect. When physicists search for a particular event, they look for its "signature": the properties of the final particles of a decay. These provide clues to the short-lived events they are looking for. Every top quark decays into a W boson and a bottom quark. The W boson can then decay into either a charged lepton and a neutrino or a quark–antiquark pair. This means that the signature of four-top-quark events can be highly varied, containing from zero to four charged leptons and up to 12 jets produced by the quarks. This makes looking for the signature of four-top-quark production challenging.

To help search for these events, both ATLAS and CMS used novel machine-learning techniques to build the algorithms that select four-top-quark candidate events. The analyses use the spectacular four-top-quark signature with multiple electrons, muons and (bottom-quark-tagged) jets to separate the events with four top quarks from the background due to other Standard Model processes with larger production rates. Both ATLAS and CMS searched for event signatures containing two or more leptons.

The first direct observation of four-top-quark production is an exciting new step in learning more about this fascinating particle. Both experiments look forward to continuing to study this phenomenon during LHC Run 3.

Naomi Dinmore

Accelerator Report: Beam is back in the LHC



Beam intensity in the LHC on Tuesday 28 March.

On Wednesday 22 March, the LHC machine, the injection beam lines and all the experiments were closed for the cold check-out of the LHC, an important phase in the commissioning that follows the hardware tests and is a prerequisite for injecting beam into the machine. During this phase, all safety and interlock systems are activated and tested, and the machine is cycled as if there were beam in the machine to make sure that everything works correctly and on time.

On Monday 27 March, the date scheduled for first beam in the LHC, the machine would have been ready to receive the first beams, were it not for a single crystal collimator, which broke during the final phase of the hardware tests. A programme of work to resolve the issue started on Wednesday 22 March: — the device was removed and a replacement vacuum chamber was put in place, followed by a vacuum pump down and a bake-out. The crystal collimator, which is only required for runs with Pb ions, will be repaired, tested, and reinstalled during the next technical stop, which is scheduled to start on 19 June.

With this work completed, the machine was ready for beam injection on Tuesday 28 March, only one day behind schedule. The first injections started after the 9 a.m. briefing. Beam 2 (counterclockwise) was circulating by 11 a.m., and beam 1 (clockwise) followed one hour later. The operators made the beams circulate in steps, stopping each beam at each experiment using collimators that were closed completely for that purpose. The secondary particle showers from these collimators, called splashes, are used by the collaborations to make first beam tests with their detectors.

Once the beams were circulating in the machine, thorough checks were made and the many machine parameters started to be adjusted, a process that is still ongoing. A detailed and regularly updated commissioning programme is now being worked through. Shifts are allocated to specific activities, such as setting up the optics setting-up and adjusting the collimators, and experts join the operations team in the CCC for this purpose. This programme was regularly adjusted as the beam commissioning progressed faster than expected.

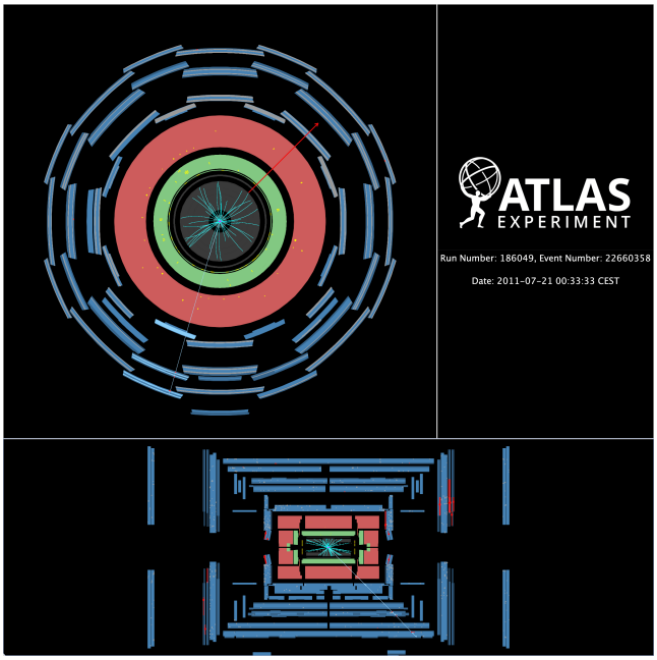
However, this fast and smooth progress was abruptly brought to a stop by a power outage at LHC point 4 just before midnight on Saturday 1 April. Sectors 3-4 and 4-5, including the RF cavities located at point 4, warmed up, losing their superconducting abilities. Due to the power shortage, the helium pressure in the cavities rose and the safety release valves came into play, relieving the overpressure in the cavities. Unfortunately, two rupture discs, which are additional safety components, opened. They were promptly replaced the same night, as soon as the power was restored. The following morning, the cavities were refilled with liquid helium and the cooldown started. In parallel, sectors 3-4 and 4-5 were also recovering so that, by Tuesday afternoon, the beam commissioning could resume.

The detailed commissioning plan has been adapted as a result of these events and, provided that the remaining commissioning continues to progress smoothly, the time lost will be absorbed and should not delay the start of physics. The next major milestone will be reached when collisions are made at the injection energy, which should still be possible before the Easter weekend. Over that weekend, the operations team will continue to prepare the machine for collisions at high energy, which are scheduled to take place during the first weeks after Easter. Once these collisions have been achieved, the LHC will enter a period of beam commissioning interleaved with a ramp-up of intensity with initial data taking for physics. During this period, the number of bunches in the LHC will be gradually increased and , in parallel, the experiments will start taking physics data. The final commissioning steps will be completed during the remaining shifts, ready for the real data-taking season to start in mid-May.

Rende Steerenberg

Improved ATLAS result weighs in on W boson

An improved ATLAS measurement of the W boson mass is in line with the Standard Model of particle physics



Event display of a W-boson candidate decaying into a muon and a muon neutrino inside the ATLAS experiment. The blue line shows the reconstructed track of the muon, and the red arrow denotes the energy of the undetected muon neutrino (Image: CERN)

The W boson, a fundamental particle that carries the charged weak force, is the subject of a new precision measurement of its mass by the ATLAS experiment at CERN.

The preliminary result, reported in a new conference note presented today (23 March 2023) at the Rencontres de Moriond conference, is based on a reanalysis of a sample of 14 million W boson candidates produced in proton–proton collisions at the Large Hadron Collider (LHC), CERN's flagship particle accelerator.

The new ATLAS measurement concurs with, and is more precise than, all previous W mass measurements except one – the latest measurement from the CDF experiment at the Tevatron, a former accelerator at Fermilab.

Together with its electrically neutral counterpart, the Z boson, the electrically charged W boson mediates the weak force, a fundamental force that is responsible for a form of radioactivity and initiates the nuclear fusion reaction that powers the Sun.

The particle's discovery at CERN 40 years ago helped to confirm the theory of the electroweak interaction that unifies the electromagnetic and weak forces. This theory is now a cornerstone of the Standard Model of particle physics. CERN researchers who enabled the discovery were awarded the 1984 Nobel Prize in physics.

Since then, experiments at particle colliders at CERN and elsewhere have measured the W boson mass ever more precisely. In the Standard Model, the W boson mass is closely related to the strength of the electroweak interactions and the masses of the heaviest fundamental particles, including the Z boson, the top quark and the Higgs boson. In this theory, the particle is constrained to weigh 80354 million electronvolts (MeV), within an uncertainty of 7 MeV.

Any deviation of the measured mass from the Standard Model prediction would be an indicator of new physics phenomena, such as new particles or interactions. To be sensitive to such deviations, mass measurements need to be extremely precise.

In 2017, ATLAS released its first measurement of the W boson mass, which was determined using a sample of W bosons recorded by ATLAS in 2011, when the LHC was running at a collision energy of 7 TeV. The W boson mass came out at 80370 MeV, with an uncertainty of 19 MeV.

At the time, this result represented the most precise W boson mass value ever obtained by a single experiment, and was in good agreement with the Standard Model prediction and all previous experimental results, including those from experiments at the Large Electron–Positron Collider (LEP), the LHC's predecessor at CERN.

Last year, the CDF collaboration at Fermilab announced an even more precise measurement, based on an analysis of its full dataset collected at the Tevatron. The result, 80434 MeV with an uncertainty of 9 MeV, differed significantly from the Standard Model prediction and from the other experimental results, calling for more measurements to try to identify the cause of the difference.

In its new study, ATLAS reanalysed its 2011 sample of W bosons, improving the precision of its previous measurement. The new W boson mass, 80360 MeV with an uncertainty of 16 MeV, is 10 MeV lower than the previous ATLAS result and 16% more precise. The result is in agreement with the Standard Model.

Comparison of the measured value of the W boson mass with other published results. The vertical bands show the Standard Model prediction, and the horizontal bands and lines show the statistical and total uncertainties of the results.

To attain this result, ATLAS used an advanced data-fitting technique to determine the mass, as well as more recent, improved versions of what are known as the parton distribution functions of the proton. These functions describe the sharing of the proton's momentum amongst its constituent quarks and gluons. In addition, ATLAS verified the theoretical description of the W boson production process using dedicated LHC proton–proton runs.

"Due to an undetected neutrino in the particle's decay, the W mass measurement is among the most challenging precision measurements performed at hadron colliders. It requires extremely accurate calibration of the measured particle energies and momenta, and a careful assessment and excellent control of modelling uncertainties," says ATLAS spokesperson Andreas Hoecker. "This updated result from ATLAS provides a stringent test, and confirms the consistency of our theoretical understanding of electroweak interactions."

Further measurements of the W boson mass are expected from ATLAS and CMS and from LHCb, which has also recently weighed the boson.

ICRC and CERN cooperate on R&D in technologies for humanitarian action

Representatives of the International Committee of the Red Cross (ICRC) came to CERN on Friday, 24 March for the first in a series of knowledge-sharing sessions on free and open source technologies

CERN and the ICRC signed a memorandum of cooperation in December 2022. The ICRC was represented by Massimo Marelli, Head of the ICRC Delegation for Cyberspace in Luxembourg, and CERN was represented by Joachim Mnich, Director for Research and Computing. (Image: CERN)

Today (24 March 2023), International Committee of the Red Cross (ICRC) representatives from its Delegation for Cyberspace came to CERN for the first in a series of knowledge-sharing sessions on using free and open source technologies to support the vital humanitarian work they carry out across the globe. These technologies are being explored as a means to pursue neutrality, impartiality and independence of humanitarian action in a digital environment. CERN and the ICRC have signed a cooperation agreement that will see members of CERN's IT department provide training on selected technologies, as well as sharing their experience.

Technologies to be covered include Indico, CERN's popular platform for organising events; CERNBox, which is used to store and share data; Newdle, which was created at CERN to aid meeting scheduling; CERN's Single-Sign On solution for authentication; and OpenStack, a popular open source cloud-computing tool to which CERN contributes and which is used at CERN to manage the computers in its data centre.

The ICRC is an independent, neutral organisation that works to ensure humanitarian protection and assistance for victims of armed conflict and other situations of violence. It takes action in response to emergencies and at the same time promotes respect for international humanitarian law and its implementation in national law.

At today's event, the ICRC was represented by six members of its Luxembourg-based Delegation for Cyberspace and of its Geneva-based Data Protection Office Tech Hub. They are responsible for carrying out research and development and exploring and testing the technology relevant for the deployment of services to populations affected by armed conflict and other situations of violence by digital means, in a neutral, impartial and independent manner. Their aim is also to explore how to adapt the ICRC's way of working, as well as the work of the International Red Cross and Red Crescent Movement as a whole and the wider humanitarian community, for the benefit of people affected by humanitarian emergencies globally.

"Through this collaboration, we aim to develop new research-and-development opportunities for cooperation related to the use of free and open source software development, as well as to cybersecurity," says Enrica Porcari, Head of the CERN IT Department. "We will work to further the sharing of knowledge, experience and tools in this area."

"We will also identify new challenges as they emerge and develop guidance to help equip the humanitarian and academic sectors with the tools necessary to navigate them," continues Porcari. "This is an important opportunity for us to further boost CERN's positive impact upon society."

CERN is at the heart of the open science movement, which is underpinned by sharing open data and creating open tools. The ICRC and CERN share institutional features and interests, including neutrality, impartiality, independence, openness, data protection and cybersecurity. Both organisations recognise the importance of openness and building pillars of knowledge. They both value suitable, affordable, easy-to-use computing tools that enable them to pursue their

respective mandates, from protecting vulnerable populations to advancing science.

"This collaboration with CERN is an essential enabler for furthering our exploration in the area of neutrality, impartiality and independence of humanitarian action in the digital space," says Massimo Marelli, Head of the ICRC Delegation for Cyberspace in Luxembourg. "Specifically, to do this, we will work with CERN to set up their free and open source software tools in the Delegation for Cyberspace environment and test new functionalities and tools as well as operating modalities."

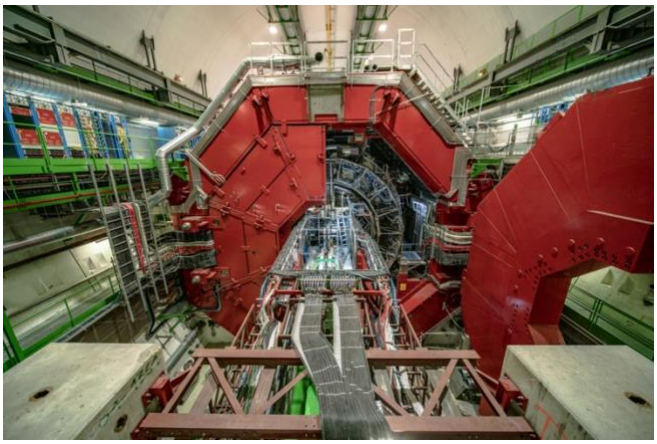
At today's event, initial plans were made for more in-depth training sessions later in the year. Find out more about this important new cooperation, which will further boost the positive impact CERN technologies have on wider society, in an announcement published today on the ICRC website.

CERN works closely with other international organisations in Geneva to boost its positive impact upon society. For example, CERN hosts UNOSAT, the United Nations Satellite Centre, and has an agreement with the United Nations Office at Geneva to collaborate on Indico, a popular open source platform for organising events.

Andrew Purcell

ALICE sees "the ridge" in simplest collisions yet

The observation brings physicists a step closer to finding the origin of collective phenomena in small collision systems



The ALICE detector. (Image: CERN)

When atomic nuclei such as gold or lead nuclei collide at high energy in particle colliders, they can produce quark–gluon plasma (QGP) – a hot and dense state of matter predicted to have existed shortly after the Big Bang. One of the key features of QGP formation in such heavy-ion collisions is a long-range spatial correspondence, or correlation, between the particles that are created in the collisions. This collective phenomenon, which manifests as a ridge-like shape in data plots and is known as the ridge, was first observed in 2005 in heavy-ion collisions at the Relativistic Heavy-Ion Collider at Brookhaven National Laboratory in the US, and has since been observed at CERN's Large Hadron Collider (LHC) in smaller collision systems such as collisions between protons.

At the Rencontres de Moriond conference today, the ALICE collaboration reported the observation of a ridge correlation in the simplest collision system yet. The result brings physicists a step closer to finding the origin of QGP-like collective phenomena in small collision systems.

The first observation of a ridge correlation in collisions other than heavy-ion collisions was made in 2010 by the CMS collaboration in "high-multiplicity" proton collisions that produce a relatively large number of particles. Soon after, CMS, ALICE and ATLAS observed the phenomenon also in collisions between protons and lead nuclei. These observations came as a surprise – such collision systems were expected to be too small and simple to develop QGP-like collective behaviour. Further studies have shown that the observed ridge correlations are indeed collective in nature, but the exact mechanisms that underpin this collective behaviour in these smaller and simpler systems remain to be identified.

In its latest study, the ALICE collaboration set out to investigate whether a ridge correlation also occurs in "low-multiplicity" proton collisions that create a relatively small number of particles. The

ALICE researchers analysed a large sample of proton collisions recorded by the collaboration during the second run of the LHC to investigate how the ridge effect depends on the number of particles produced in the collisions. They then plotted in a graph the number of particle pairs produced in a set of low-multiplicity collisions along two angular directions relative to the collision axis, and found a clear ridge-like shape.

Next, the ALICE team examined how the number of particle pairs associated with the ridge varied with multiplicity, and compared the results with previous results from electron–positron collisions recorded by the ALEPH experiment at the Large Electron–Positron Collider, the LHC's predecessor. This comparison showed that, for the same multiplicity, the ridge correlation in proton collisions is stronger than that deduced for electron–positron collisions, in which no ridge correlation has so far been seen.

These new ALICE results, as well as future studies based on data from the third run of the LHC, should help physicists identify the mechanisms that govern collective behaviour in small collision systems.

Ana Lopes

Contributing to the emergency response in Türkiye in the aftermath of the earthquake

Marc Nas, Operations Officer and Deputy Group Leader of the CERN Fire and Rescue Service, describes his mission to support the international effort

Marc Nas (centre) and his team in Türkiye

On 6 February 2023, at 4.17 a.m. local time, Türkiye and Syria were hit by an earthquake with a magnitude of 7.8 on the Richter scale. As of 26 February 2023, over 51 100 deaths had been confirmed, with more than 44 300 in Türkiye and more than 6700 in Syria. The devastation generated a wave of solidarity across the world, bringing a range of aid and support to help overwhelmed rescue teams on site.

One of our CERN colleagues joined the effort: Marc Nas, Operations Officer and Deputy Group Leader of the CERN Fire and Rescue Service. Since 2015, Marc has been involved in the European Union's Civil Protection Mechanism. This mechanism was established by the European Commission in 2001 to strengthen cooperation between countries in order to improve prevention, preparedness and response to disasters.

The mechanism was immediately triggered in the wake of the earthquake, and Marc was selected as Deputy Team Leader for the EU Civil Protection team. We caught up with him just after his return from a three-week mission to coordinate the EU's emergency response with the Turkish government.

How did you come to be a part of this mission?

My background is in urban search and rescue (USAR), disaster response, crisis team management and civil–military cooperation. From 2003 to 2017, I was Chief of Staff of the Netherlands Urban Search and Rescue Team. In this role I participated in several international exercises with the UN and the EU, taking part in emergency responses to earthquakes in Morocco, Haiti and Nepal. I joined the EU Civil Protection Mechanism in 2015 as a team leader, following the regular training courses and exercises in order to be ready and immediately operational in the event of a new emergency situation. When the earthquakes hit Türkiye and a call was put out for volunteers, I didn't hesitate. My CERN hierarchy

supported me in taking up this challenge and I'm very grateful that they did.

Can you tell us what you found on arrival and what were the first actions that you had to take?
I arrived two weeks after the earthquake had struck. I was based in Gaziantep, leading an EU team of 12 people working alongside UN colleagues in an affected area three times the size of the Netherlands: from Malatya to Hatay and from Adiyaman to Adana. This was on a scale I had never experienced before. The effort needed was huge! Interestingly, there was relatively little visible damage in Gaziantep itself when I arrived. However, as soon as I drove a few hours out, north-east or south-west, the level of destruction I witnessed was enormous, affecting big cities.

What was the profile of the team you had to lead?
Our team spanned nine nationalities and comprised experts in various domains, such as medical support, logistics, safety and security, and information management. I had a one-day handover with the "Alpha team" whom we took over from. We immediately got to work alongside the other humanitarian agencies, UN organisations and local authorities to bring what help we could to support the effort. I had to work closely with my UN counterpart, who also happened to be Dutch and living in the Pays de Gex, so we made a strong connection immediately.

What was it like working in such a difficult context?
I had to facilitate the coordination of incoming assistance from EU Member States and other countries participating in the mechanism. We also supported the national authorities, liaising with UN colleagues in assessing and monitoring the situation and identifying where assistance was most urgently needed. The work was made more difficult by the aftershocks and the storms, which brought flooding to already devastated areas. What also struck me was the strong presence of so many different countries: field hospitals set up by Belgium, France, Italy and Spain, ships coming in from Italy and planes from all over Europe and the rest of the world. And this from agencies that are already stretched with the ongoing conflict in Ukraine and other emergencies!

What do you take away from this unique experience?
I am very grateful that CERN supported my participation with such flexibility. I return with so many experiences, images, memories, connections and learnings. I have witnessed first-hand the commitment and solidarity of the international world in the Türkiye response. I received very positive feedback from EU and UN colleagues about my work style and personal approach, which people described as relaxed, friendly and professional. This approach helped me build a rapport and connection with colleagues, locals and affected populations. Seeing the NGOs at work was fascinating, and the international scale of the response impressive, with for instance a field hospital set up by Turkmenistan, ships coming from Egypt and flights from Indonesia. The entire world was joining forces.
I've always enjoyed running operations and, with this experience, I'm ready to take it one step further: I now feel able to take up a role as team leader of a "first team" in future responses.

Interview by the HSE unit

25-hour days, runaway Higgs boson… Were you fooled?

CERN's Exhibitions section and LHCb have teamed up to overhaul the experiment's public exhibition, which is now open to visitors – don't miss it!

On 1 April, CERN announced that a new measurement of the second, achieved with a caesium fountain clock, indicated that days were bound to get one hour longer (https://home.cern/news/news/cern/time-change-cern-scientists-propose-25-hour-day), while the ATLAS and CMS collaborations breathed a sigh of relief after recovering the Higgs boson, which had mysteriously disappeared (https://atlas.cern/Updates/Blog/Missing-Higgs-Returns).

With April Fools' Day now behind us, the Organization can confirm that, sadly, we do have to make do with 24 hours a day. Did you know, however, that a caesium fountain clock is truly in operation at CERN, more precisely at the ALPHA experiment, in the Antimatter Factory? The experiment is using it to take precise measurements of the spectra of antihydrogen.

HEARTS innovates to foster European access to space

The EU-funded project HEARTS aims at providing access to high-energy heavy ion radiation testing facilities for space exploitation and space exploration

HEARTS will equip the CHARM heavy ion facility, located at CERN, to meet the needs of the space community for the radiation effects testing of electronics components and systems. (Image: CERN)

The HEARTS project will provide two new radiation-testing facilities for space applications, one at CERN and one at GSI in Germany. The project started in January and will allow the testing of high-end microelectronics technology for novel space applications and for shielding and radiobiology experiments that will foster human space exploration.

Artificial intelligence, quantum technologies, advanced computing, deep space missions... Projects for new advanced space applications are many and varied. To carry them out, it is essential to use highly advanced radiation-resistant electronic devices and to acquire decisive knowledge of shielding properties and radiobiology for astronauts going to the Moon and beyond. Capable of mimicking the effects of highly penetrating radiation in space, very high-energy (VHE) ion beams are now commonly used to qualify advanced electronics for use in space, shielding and radiobiology testing. However, no such facilities tailored specifically for space applications exist anywhere in Europe.

Funded under the Horizon Europe programme, HEARTS (High-Energy Accelerators for Radiation Testing and Shielding) aims to develop and establish a European infrastructure for research

and industrial access to high-energy heavy ion facilities to study radiation effects in electronics, shielding and radiobiology. For this purpose, it will upgrade two VHE ion facilities at CERN and GSI and provide access to space industries and academia on a routine basis.

HEARTS will be instrumental to ensuring Europe's autonomous access to space. With VHE ion facilities available in Europe, European companies will be less dependent on facilities elsewhere. By the end of the project in 2026, HEARTS will enable Europe to fulfil the current demand for VHE ions with ease and to meet the increasing demand foreseen by the end of the decade.

The project is coordinated by CERN, in partnership with GSI as the main high-energy ion accelerator infrastructures. The University of Padua is an academic partner, and Thales Alenia Space and Airbus Defence and Space are industrial partners. All have extensive experience in the field of radiation effects and a strong interest in VHE ion testing.

HEARTS is a project funded by the European Union under Grant Agreement No 101082402, through the Space Work Programme of the European Commission.

Antoine Le Gall

Kicking off

Following the installation of kicker magnets that are more heat resistant and their successful tests during the SPS scrubbing run, the SPS is getting ready for High-Luminosity LHC operation

The new kicker magnets made in preparation for HL-LHC operation orient the beam into the right direction. (Image: CERN)

Upgrades for the future operation of the High-Luminosity LHC (HL-LHC) are under way in the whole accelerator complex. One of these upgrades is a new design to reduce the heating of some of the kicker magnets of the SPS to prepare them for future high-intensity beams. With their present design, these specific magnets would be heated to such an extent that they would temporarily lose their ability to bend the beam into the correct position. To avoid this, a special ceramic chamber that includes silver fingers has been installed. These fingers greatly reduce the electromagnetic interaction between the beam and the ferrite of the magnets, which is non-conductive. Thanks to this shielding effect, the magnets heat up much less. The new magnets were installed during the winter shutdown and have just passed their initial tests with beam with flying colours during the SPS scrubbing run that began on 24 March.

Sixteen fast-pulsing magnets (twelve small and four large) "kick" incoming beams from the PS accelerator into the correct orbit of the SPS beam. The magnetic pulse has to be timed precisely to prevent an accidental deflection of the circulating beams that could cause them to be lost in the accelerator. The circulating SPS beam, however, can cause significant heating of the larger kicker magnets, which are only used for LHC-type proton beams. This has already happened in the past, and the beam intensity had to be reduced to prevent the magnets from overheating. This problem has now been solved with the newly installed large kicker magnets.

The original kicker magnets were installed during the 1970s and replacing them turned out to be much more expensive than adapting the existing ones to the HL-LHC beams. The SY-ABT kicker team found a good compromise between reducing the heating of the magnets and achieving a sufficiently fast field rise time, as well as optimising the budget spent for the material of the magnets. The solution

adopted is largely based on the approach that has proven to be successful with the SPS extraction kicker magnets. The main difference is that, in the case of the SPS magnets, the fingers were applied directly to the ferrite of the extraction magnets. In the new design, the fingers are placed on two U-shaped ceramic chambers, which are installed inside the kicker magnets. Each set of fingers is connected to the high-voltage end plate of the magnets, effectively limiting the electrical stress on them. Obtaining the required high-voltage performance while limiting the heating required several iterations of the design and close collaboration between the SY-ABT and BE-ABP teams.

"A significant challenge for the teams was that all components had to be prototyped and manufactured on a very short timescale," says Laurent Ducimetière, who led the study together with Mike Barnes and Thomas Kramer. After the prototype kicker magnet passed the high-voltage tests in the lab, the team built up a completely new kicker magnet consisting of four of these magnets and installed it in the SPS.

Kristiane Bernhard-Novotny

Arts at CERN and Copenhagen Contemporary to collaborate through Collide International award

Arts at CERN and Copenhagen Contemporary join forces and announce the first open call for Collide Copenhagen

Collide Copenhagen poster designed by Copenhagen Contemporary (Image: Copenhagen Contemporary)

Today (23 March 2023), we are pleased to announce a three-year partnership between CERN and Copenhagen Contemporary through Collide, Arts at CERN's flagship international residency programme.

Arts at CERN is designed to generate creative connections between science and the arts through a broad programme of artistic residencies, art commissions and exhibitions. Over the past decade, Arts at CERN has brought arts and science together in new configurations, in collaboration with leading cultural institutions around the globe. The Collide residency programme was established in 2012 to foster networks with international organisations, creating new links between art and fundamental science worldwide.

Copenhagen Contemporary is Copenhagen's international art centre, displaying installation art created by world-renowned artists and new emerging talents. Located in the former B&W welding building and offering 7000 m2 of industrial halls, Copenhagen Contemporary displays large-scale installation art and creates collaborative partnerships and events across cultural genres, locally and internationally. Since 2016, Copenhagen Contemporary has hosted exhibitions featuring, among others, James Turrell, Carsten Höller, Pierre Huyghe, Bruce Nauman, Yoko Ono, Anselm Kiefer, Wu Tsang, and Larissa Sansour.

"For over 10 years, the Collide programme has allowed us to forge bonds of a new kind with different cities across our Member States," explains Charlotte Warakaulle, CERN's Director for International Relations. "We are delighted to see this international network expand with Copenhagen, which has such important traditions in particle physics, technology development, innovation and artistic expression. Bringing these dimensions together in Copenhagen will enable us to take these vital, creative encounters across communities even further."

"At Copenhagen Contemporary we are excited and proud to bring the prestigious Collide

programme to Scandinavia and offer artists a unique opportunity to develop their work in dialogue with world-leading scientists and researchers. Art and science share a deep curiosity to understand the world and our place in it. But their methods and end goals are different. Through art, the great conversation about the human condition is constantly renewed. We want to make this programme an opportunity to investigate how technology affects our life and might change our destiny," says Marie Laurberg, Director of Copenhagen Contemporary.

The first edition of Collide Copenhagen has now been officially launched. Artists from any country in the world are invited to submit their proposals for a fully-funded two-month residency, split between CERN and Copenhagen Contemporary. The selected artist or artistic collective will devote this period to artistic research and artistic exploration, working side-by-side with physicists, engineers, laboratory staff and the Arts at CERN and Copenhagen Contemporary teams. For the first edition and the following annual calls, in 2024 and 2025, Arts at CERN and Copenhagen Contemporary will invite artists to reflect on the impact of science and research in contemporary culture. Proposals that consider the role of advanced technologies and novel scientific models as major topics in contemporary culture are welcome. Collide Copenhagen is especially aiming for artistic proposals that reflect on themes such as artificial intelligence, the modelling and analysis of vast datasets, the emergence of quantum technologies, and the interpretation of these themes from philosophical and ethical standpoints. The artists selected for the 2023–2025 editions will become part of an ambitious exhibition at Copenhagen Contemporary in 2025, investigating technology's impact on humanity.

The application deadline is 8 May 2023. Conditions and guidelines for the call are on the Arts at CERN website. An international jury of experts will review the proposals and the decision will be announced in late June 2023.

Computer security: Is this password yours?

We already discussed passwords in the previous issue of the Bulletin*. However, as many of you figured out, that was just an April Fools' hoax and all those considerations are void. Apologies to those who felt confused… Hence, let's get serious again*.

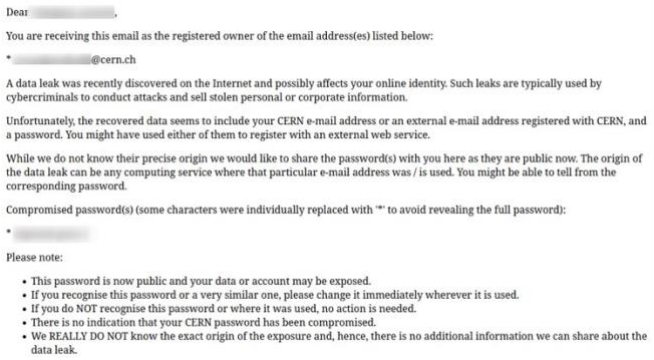
There are many ways to lose your password. By handing it out involuntarily when you fail to spot a phishing attack against you. By having your home PC, laptop or smartphone infected with some malware that steals your password directly when you type it in. Or when the password database used by your favourite cloud service provider is hacked. But unless the attackers abuse your password – and with it the access to your computing account – in a very visible way, how would you know?

Of course, it's easy to spot if your password has been used to send spam into the world (resulting in your mailbox overflowing with thousands of [out-of-office | non-delivery | angry] replies), to place orders on your behalf (and all your money is gone), to post offensive or nasty messages in your Instagram timeline, Twitter tweets or chat group (and you receive a backlash in return), to log in from far away (and you get a warning), or to compromise your laptop (and end up with all your data encrypted by ransomware). But what if that's not the case? What if the attackers just sit tight and keep your password as a trophy, a token, an opportunity to be used later? Or a commodity to be sold on the dark web to attackers who do want to strike?

The first stop depends on your personal vigilance. Monitoring your devices for any weird activity, installed programs or behaviour. And monitoring your logins! CERN – like Amazon, Google and many others – monitors your login activity and notifies you in case your most recent login is "bizarre", like a login from Melbourne when you live in Paris, from Amsterdam when you study at UCLA, or from Hong Kong when you work in Buenos Aires.

A second-stop shop to learn whether your password has been compromised in the past is the

website “have i been pwned?”. While it might be counterintuitive to enter your email address into an unsolicited site like this, the reputation and integrity of its maintainer, security expert Troy Hunt (find his presentation at CERN here: https://cds.cern.ch/record/2693939), guarantees its trustworthiness.
The password database of Troy Hunt is only one of many. Via our network of peers and friends, through protective intelligence and from other publications, the CERN Computer Security team has been able (and continues) to gather zillions of tuples of {email address/account name and password}. In rare cases these tuples even list the origin of the password exposure. And these tuples are actionable. If it’s a valid CERN computing account, the action is simple: you’re asked to check all your devices for any sign of compromise and you’re forced to change your CERN password the next time you log in1. Alternatively, if the email address is registered with CERN2 but used with an external cloud service (Amazon, Twitter, YouPorn, you name it…), the corresponding owner will receive a notification including the partially obfuscated clear-text password (given that it has already been exposed, the password is “burned” in any case!). The notification also indicates where the password has been used, if known (and, no, if it’s not indicated, we really don’t know either, so please don’t ask).



Dear [redacted],

You are receiving this email as the registered owner of the email address(es) listed below:

* [redacted]@cern.ch

A data leak was recently discovered on the Internet and possibly affects your online identity. Such leaks are typically used by cybercriminals to conduct attacks and sell stolen personal or corporate information.

Unfortunately, the recovered data seems to include your CERN e-mail address or an external e-mail address registered with CERN, and a password. You might have used either of them to register with an external web service.

While we do not know their precise origin we would like to share the password(s) with you here as they are public now. The origin of the data leak can be any computing service where that particular e-mail address was / is used. You might be able to tell from the corresponding password.

Compromised password(s) (some characters were individually replaced with '*' to avoid revealing the full password):

* [redacted]

Please note:

- This password is now public and your data or account may be exposed.
- If you recognise this password or a very similar one, please change it immediately wherever it is used.
- If you do NOT recognise this password or where it was used, no action is needed.
- There is no indication that your CERN password has been compromised.
- We REALLY DO NOT know the exact origin of the exposure and, hence, there is no additional information we can share about the data leak.

As the aforementioned “zillions of tuples” also contain information on other institutes and universities, international organisations and agencies, partners and peers of the CERN Computer Security team, aggregated notifications are also sent to the corresponding Computer Security Incident Response Teams (CSIRT) of those entities, so that they can follow up directly with their users. Every single password change counts. Every re-protected account counts. The fewer remain compromised, the better for the security posture of us all.
So, unless you employ the ultimate silver bullet to protect your account and greatly reduce the consequences of a compromised password, namely two-factor authentication3, watch out! Is this password yours?

The Computer Security team

Official news

Taxation in France

Memorandum concerning the internal tax annual certificate and individual annual statement for 2022 (for the 2023 declaration of 2022 income in France)

The Organization would like to remind members of the personnel that they must comply with the national legislation applicable to them (cf. Article S V 2.02 of the Staff Rules).

I - Internal tax annual certificate and individual annual statement for 2022

The internal tax annual certificate or the individual annual statement for 2022, issued by the Finance and Administrative Processes Department, is available since 14 February 2023 via MyFiles (under “Financial and Social Benefits”). It is intended exclusively for the tax authorities.

If you are currently a member of the CERN personnel, you will have received an e-mail containing a link to your certificate or statement, which you can print if necessary.
If you are no longer a member of the CERN personnel or are unable to access your certificate or statement as indicated above, you will find information explaining how to obtain one on this page (https://admin-eguide.web.cern.ch/en/procedure/annual-certificates).

II - 2023 tax declaration form of 2022 income in France

The 2023 tax declaration form for 2022 income must be completed following the general indications available on this page (https://admin-eguide.web.cern.ch/en/procedure/income-tax-declaration-france).
If you have any specific questions, please contact your local "Service des impôts des particuliers" (SIP, Private Citizens' Tax Office) directly.

HR department
HR-Internal-tax@cern.ch

Exchange rate for the tax declaration form of 2022 income: for the attention of members of the personnel and pensioners living in France

2023 For the tax declaration form of 2022 income, the average annual exchange rate to be used is **EUR 0.99* for CHF 1.**

*Communicated by the French Tax Authorities.

HR department

Announcements

CERN/NASA Summit: "Accelerating the Adoption of Open Science"

In celebration of the 2023 Year of Open Science, CERN and NASA are jointly organizing "Accelerating the Adoption of Open Science", a week long open science summit at CERN in Geneva, Switzerland, from 10 to 14 July 2023. This event will bring together relevant stakeholders in the physical sciences and international policy makers (e.g. UNESCO, European Commission). The diverse range of attendees will exchange experiences, ideas, and expertise, towards promoting open science policies and practices and to develop practical action plans to implement Open Science practices that are fit for both context and purpose.
The summit will feature a combination of online plenary sessions and panel discussions (that will be open for anyone to attend and contribute to), and more focused workshop sessions in which invited participants from universities, research institutions and funding agencies will be encouraged to further develop their action plans collaboratively. By the end of the week, attending institutions should be further along the path of establishing open science as the dominant norm

for research practice at their relevant institutional and national settings.
Attendance to the workshops associated with this event will be limited to 80 people, and will consist primarily of invited individuals. A limited number of slots will be available for conference registrants for in-person workshop participation. Allocation of these will prioritize applicants that meet certain criteria, which includes: institutional responsibility to advance open science policy and practices; practitioners of open science at universities/research institutions; representatives of national/international/intergovernmental organizations with a remit to promote open science practices; members of the research community focused on issues relating to open science, etc. Registration for the event will open on 5th April 2023.
For questions, please contact: open-science-summit2023@cern.ch.

A new phone app to centralise CERN services

The SCE and FAP departments, in collaboration with other departments, are launching a proof-of-concept project to integrate various services offered at CERN into one convenient centralised phone application: CERN Campus. “What’s the emergency number?”, “What’s on the menu today in Restaurant 1?”, “Where’s Building 55?”, “How do I report a problem”, etc.

The all-in-one CERN Campus app will be downloadable to computers and professional and private smartphones of anyone associated with CERN. The selection of information will be possible via CERN login. The possibilities of a tool like this are endless, which is why SCE and FAP are already collaborating with many departments at CERN to assess which services could be included in the platform now and in the future.

It is also essential that YOU help us determine the priorities. Please take a few minutes to answer a short survey (10 minutes maximum) and to share your ideas and interests in relation to this new platform. The survey is open until 31 May.

- English: https://forms.office.com/Pages/ResponsePage.aspx?id=mTQNyEBKjEqYbqvOAX1rGbHfVZ1MJtVPj8J3IJ-CJxhUOVNSTzlGTEFEMjJCSTE1MENTRFZGTFZDQi4u
- French: https://forms.office.com/Pages/ResponsePage.aspx?id=mTQNyEBKjEqYbqvOAX1rGbHfVZ1MJtVPj8J3IJ-CJxhUOVNSTzlGTEFEMjJCSTE1MENTRFZGTFZDQi4u&lang=fr

As part of this proof-of-concept project, we will be launching a CERN Campus trial application for Android and iOS devices in the coming months. Stay tuned!

Thanks for your collaboration.

SCE and FAP departments

Work begins on Building 60

Work on Building 60 will begin this month and should be completed by mid-2025. It will consist of two consecutive remediation and renovation phases.

11 April – end of May: installation of worksite equipment and of scaffolding on the façade of Building 60. Route Scherrer will be closed.
April – November 2023: remediation. This mainly involves removing asbestos, but also several other

sources of pollution (paint containing lead and PCBs, etc.).

The building's remediation will be carried out using a dynamic confinement approach, whereby the areas concerned will be hermetically sealed and depressurised. A ventilation system, operating 24 hours a day throughout the remediation phase, will evacuate and filter dust. The personnel responsible for the work will enter and leave the work areas through a series of airlocks designed to prevent contamination.

As is the case for all remediation work carried out on the CERN sites, **the strictest possible measures will be taken to ensure the safety of both the personnel performing the work and everyone in the vicinity of the work areas**.

2024 – mid-2025: renovation. Building 60, which was designed in the 1950s by the renowned Swiss architect Peter Steiger, no longer complies with fire protection and environmental standards. Peter Steiger's architectural vision will be preserved in the fully renovated building, which will retain its original features as far as possible, while providing a modern, ecological and modular working environment that is suited to the 21st century and fully compliant with the applicable standards.

Practical information:

- The ground floor (Building 500) and all the services located there (bank, newsagent, CAGI cultural stand, UNIQA, CWT travel agency, Users Office, Staff Association office and Restaurant 1) will remain open throughout the work.
- Route Scherrer will be closed and traffic diverted via Route Curie and Route Bohr.
- A drop-off/pick-up point and a short-stay car park (max. 30 min) will be available in front of the main entrance to Building 500.
- The CERN shuttle will no longer stop in front of the Main Building, so passengers will need to get off at the Building 39 stop and walk.
- The bike shelter near the Users Office will not be available.
- The lifts in the Main Building will be unavailable; the lifts in Buildings 3, 52 and 53 can be used to access the ground floor and first floor.
- Other buildings can be reached via the corridor of Building 50.

Please note that the area will be noisier than usual. The noise levels created by the work are hard to anticipate at present but will be closely monitored by the HSE unit. People working nearby will be kept regularly informed.

Thank you for your understanding.

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For more information, see this Indico page (https://indico.cern.ch/event/1268661/) or send an email to this address: batiment.60@cern.ch

SCE department

Registration is still open for FameLab Switzerland 2023

Registration is still open for the Swiss chapter of FameLab 2023, an international competition for science communication. Competitors are asked to make a 3-minute-long presentation of a scientific topic of their choice in front of an audience and a jury, making it accessible, fun, but always scientifically accurate. The competition is open to anyone aged 18 to 35 studying or working in STEM subjects or social sciences in Switzerland.

The regional first stages ("loca-heats") will take place in Lausanne on 10 May.

Visit the event's website (http://www.famelab.ch/) for more information and to register (deadline: 3 May).

Book presentation – "Quantum Mechanics: A Mathematical Introduction" by Andrew J. Larkoski

Join the audience in person or via videoconference on 25 April at 4 p.m. for a presentation of "Quantum Mechanics: A Mathematical Introduction", a book by Andrew J. Larkoski.
This original and innovative textbook takes the unique perspective of introducing and solving problems in quantum mechanics using linear algebra methods, to equip readers with a deeper and more practical understanding of this fundamental pillar of contemporary physics.
More information on Indico (https://indico.cern.ch/event/1254498/).

Library – new books and e-books in March

The Library team adds new resources for the CERN community every day in its catalogue. Check the March 2023 additions here (https://catalogue.library.cern/search?q=_created%3A%5B2023-03-01%20TO%202023-03-31%5D%20AND%20publication_year%3A%5B2018%20TO%202023%5D&f=doctype%3ABOOK&f=doctype%3APROCEEDINGS&l=grid&order=asc&p=1&s=60&sort=bestmatch).

Find more books and e-books in the CERN Library Catalogue (https://catalogue.library.cern/).
Please let us know if you cannot find the book you need via our request form (https://catalogue.library.cern/request).
Enjoy reading! For any question or suggestion, contact the Library: library.desk@cern.ch .

Joint Advisory Appeals Board

The Joint Advisory Appeals Board has examined an internal appeal lodged by a former staff member, against the decision notifying them of the amount of the indemnity for permanent deterioration of physical or mental health, in the context of an accident of occupational origin, received under Annex 3 of Administrative Circular No. 14 “Protection of members of the personnel against the financial consequences of illness, accident and incapacity for work”.

In application of Article R VI 1.18 of the Staff Regulations, and in agreement with the appellant, the final decision of the Director-General, dated 2 December 2022, and the report of the Board are being brought to the attention of the members of personnel.
These documents will be available from 3-21 April 2023 via this link (https://indico.cern.ch/event/1271704/).

HR department

Update on Open Access for the CERN community

The CERN Open Access policy requires that all peer-reviewed primary research articles from CERN authors are published open access (OA). The CERN Scientific Information Service (SIS) has enabled a range of mechanisms to offer CERN authors a large offer to comply with the policy.

The most important of these mechanisms is SCOAP3 (Sponsoring Consortium for Open Access Publishing in Particle Physics), which has arranged for automatic OA to research in high-energy physics, published in 11 of the leading journals in the discipline. CERN SIS is also supporting other collective models, with no fees for readers or authors, such as Physical Review Accelerator and Beams published by APS, the Subscribe to Open model for the Annual Review of Nuclear and Particle Science, and the SciPost journals.

To ensure that the wide range of disciplines and needs of CERN researchers are supported, SIS has secured agreements with major scientific publishers (AIP, APS, Elsevier, Frontiers, IEEE, IOP, MDPI, Springer, Wiley). These agreements provide automatic Open Access publishing for articles submitted by CERN corresponding authors, while providing readers at CERN with access to the publishers' content still under paywall.

In 2023, SIS started three new similar agreements covering the portfolio of ACM (Association for Computing Machinery) Digital Library, ACS (American Chemical Society) and Nature Research Journals. This brings the total number of agreements to 12, collectively covering more than 4,000 journals. In 2023, the agreement with IOP was renewed with an extended scope, including more journals and articles.

Finally, in certain cases, CERN SIS will cover the costs for OA publishing of articles that are not covered by the existing mechanisms. To be considered eligible, authors must contact SIS prior to submission to journals. It is important to note that articles submitted to journals with extraordinarily high APCs (in excess of CHF 4000) will not be funded by CERN. However, an exceptional mechanism is in place for articles to be published in high-profile journals (i.e. Nature, Nature Physics, Science Advances, etc.) and that are likely to receive a high public attention. In these cases, a detailed justification must be submitted to SIS for review and approval by the Director of Research and Computing, prior to journal submission.

Additional Information about Open Access mechanisms at CERN is available through the CERN SIS website. CERN SIS also provides an Interactive Author Guide, in order to help CERN authors to navigate across the open-access options.

For any question, please send email to open-access-questions@cern.ch or contact us on Mattermost.

CERN Library

Science Gateway: Night-time traffic disruption expected from 3 to 13 April on the Route de Meyrin

Due to work related to CERN Science Gateway, the route de Meyrin will be closed between 10 p.m. and 5 a.m. on the nights of 3 to 6 April and 11 to 13 April. A diversion will be put in place (see below). Every effort will be made to limit the impact of the work as much as possible.

Thank you for your understanding.

More information on voisins.cern (https://voisins.web.cern.ch/en/science-gateway-night-time-traffic-disruption-expected-3-13-april-route-de-meyrin).

The 2022 CERN Knowledge Transfer highlights are now published

This report shows how CERN's technology and expertise, paired with our partners, can drive innovation and progress for the benefit of society

The 2022 report has a particular focus on the five knowledge transfer domains: environment, healthcare, digital, quantum technologies and aerospace. It also includes examples of funding opportunities for CERN personnel, EU funded projects with a strong knowledge-transfer component and more.

The document is now accessible online (https://kt.cern/annual-report), along with previous editions.

CERN Knowledge Transfer Group

CERN School of Computing 2023: apply now!

Applications are now open for the 44th CERN School of Computing. The CSC 2023 will take place from 20 August to 2 September in the beautiful city of Tartu, Estonia, and will be organised in collaboration with the University of Tartu.

The CSC is not a conference but a true summer university. The two-week programme consists of around 50 hours of lectures and hands-on exercises, covering three main themes: physics computing, software engineering and data technologies. As with every CSC, the programme is audited by the hosting university, and students who pass the final optional exam will receive a diploma from the CSC, as well as ECTS credits from Tartu University.

However, the School is about more than just studying; the social and sports programme is also a vital part of it. There will be ample opportunities to explore and experience some of the great cultural, historical and natural attractions of Tartu and the local region.

The CSC 2023 is aimed at postgraduate (i.e. having a minimum of bachelor's degree or equivalent) students, engineers and scientists with a few years' experience in particle physics, computing or related fields. We welcome applications from all countries and nationalities. Limited financial support may be available.

The deadline for applications is 25 April 2023 – places are limited!

For more details and to apply, please visit: https://indico.cern.ch/e/CSC-2023.

Alberto Pace, CERN School of Computing Director

CERN Accelerator School: Introduction to Accelerator Physics | 25 September - 8 October 2023

In collaboration with ALBA, the CERN Accelerator School is organising its next general accelerator physics course from 25 September to 8 October 2023.

The two-week residential course makes up the core teaching of all CAS courses, offering the ideal opportunity to delve into the fascinating world of particle accelerators. This course is designed for laboratory and university staff and students, as well as for manufacturers of accelerator equipment.

It provides a comprehensive introduction to the fundamental concepts of beam dynamics and underlying accelerator systems. Through engaging

lectures, enlightening tutorials and insightful discussion sessions, participants will deepen their knowledge of crucial topics in the world of accelerators.
In addition to the comprehensive curriculum, networking is a central aspect of the event as attendees forge connections with fellow students and lecturers in the field. This opportunity to connect and collaborate is a key ingredient of the program, further enhancing its value as an indispensable resource for anyone seeking to expand their understanding of particle accelerators.

Registrations are open on Indico (https://indico.cern.ch/event/1226773/).

Library – ASM Handbooks Online

Did you know that you could access the ASM Handbooks Online thanks to the CERN Library?
The renowned ASM Handbooks are a comprehensive and authoritative guide to the structure, properties, processing, performance, and evaluation of metals and non-metallic engineering materials. They are published by ASM International.
You will find the latest editions of the 24 volumes of the series in the library catalogue https://catalogue.library.cern/search?q=%22ASM%20handbook%22&l=grid&order=asc&p=1&s=15&sort=bestmatch).
Find more about the ASM Handbooks Online here (https://sis.web.cern.ch/search-and-read/online-resources/asm-handbooks-online).
For any question, please contact library.desk@cern.ch.

From research to industry: Selling your skills to a future employer - 11 April

Join the first joint event co-organised by the CERN Alumni network and The Paul Scherrer Institute.This interactive course will help early-career researchers to identify the skills acquired while doing research and to translate them into a language their future employer in the industry will understand.
11 April 2023 / 4.30 p.m. - 5.30 p.m.
Online - Register on the Alumni website (https://alumni.cern/networks/events/110161) to receive Zoom details.

Alumni event on 21 April: "Virtual company showroom" with Pilatus Aircraft Ltd

Join representatives from Pilatus Aircraft Ltd to find out more about the company, potential job opportunities and the skills and talents they are now seeking.

The event will start at 11 a.m. on 21 April with a general presentation and will be followed by a Q&A session, come armed with your questions.

Please register here (https://alumni.cern/networks/events/111242) for the event to receive the zoom link.

About Pilatus Aircraft Ltd

Founded in 1939, Pilatus Aircraft Ltd develops and produces aircraft and systems for pilot training. Its PC-24 is the world's first business jet designed for use on short unprepared runways.

Ombud's corner

Labels stick

Katarina* doesn't know what to do: she has a chronic health problem and her doctor has recommended that she take sick leave for the sake of her health. At CERN, she's part of a team that's working to a tight schedule and has ambitious goals. She's very worried that her absence will affect the schedule and that her colleagues, with whom she forms a close-knit team, will have to pick up the slack.

But what worries her even more is that, if she raises her health problems with her hierarchy, she'll be labelled as "a problem person".

Tobias* is very worried about the level of resources that he's been given to fulfil his duties. He has tried several times to draw his hierarchy's attention to the consequences of this lack of resources for the activity concerned, which the Organization considers strategically important, but, so far, to no avail. He doesn't bring it up it any more, as he's afraid he'll be labelled as a moaner, a difficult character or "a problem person".

Ioannis* has had a burnout and has been on extended sick leave. He's about to go back to work and his main worry is that he'll be labelled as "a problem person", not only in the short term but for good. Ioannis thinks this difficult period he's gone through might stand in the way of him applying for internal mobility or being given more responsibilities.

Linda* has a difficult relationship with her supervisor. Their personalities clash and they have a different outlook on priorities. In meetings, discussions have become rather heated. Although Linda's career path so far has been exemplary, she's worried that these communication difficulties with her current supervisor will mean that she'll be labelled as "a problem person" from now on.

These four colleagues share a fear of being labelled negatively and worry that it will harm their career prospects in the Organization.

But what do we mean by "a problem person"?

If we mean someone who has been affected by life's ups and downs or those of working life in particular, or who is going through a tough time and struggling to cope, then we're all "problem people", because that will happen to all of us at some point.

If we mean someone who speaks up about fears or risks and who openly and constructively points out weaknesses in our processes, then we need "problem people" because they can flag vital issues and shortcomings.

And lastly, if we mean someone who struggles to communicate ideas or a difference of opinion in certain situations, using negative labels will deprive the community of a different perspective on workplace issues. That person is not a "problem person" but a source of ideas, provided that communication with the supervisor improves.

The article "Horns and halos", which appeared in the Ombud's Corner in 2017, approached the issue of labels from a different, and very useful, perspective. I encourage you to (re)read it.

Let's try to avoid participating in this merciless "labelling" of our colleagues. Instead, let's get to know them, understand their strengths and weaknesses and make up our own minds. Let's give them a chance to show their true colours, rather than relying on what others say about them.

Laure Esteveny

** Names have been changed.*

I want to hear from you – feel free to email ombud@cern.ch with any feedback or suggestions for topics you'd like me to address.

NB: If you would like to be notified about posts, news and other communications from the CERN Ombud, please subscribe to receive the CERN Ombud news.