

Superconductivity for sustainability: a new superconducting link for the High-Luminosity LHC

A flexible cryostat and the first series of high-temperature superconducting magnesium diboride cables will form an innovative electrical transfer line to power the HL-LHC



A novel, flexible cryostat, colloquially known as the “python”, composed of 19 high-temperature magnesium diboride superconducting cables that can carry 120 kA. (Image: CERN)

The Large Hadron Collider (LHC), the world’s largest and most powerful particle accelerator, is also the largest single machine operating in the world today that uses superconductivity. The proton beams inside the LHC are bent and focused around the accelerator ring using superconducting electromagnets. These electromagnets are built from coils, made of niobium–titanium (Nb–Ti) cables, that have to operate at a temperature colder than that of outer space in order to be superconducting. This allows the current to flow without any resistance or loss of energy. The High-Luminosity LHC (HL-LHC), an upgrade of the LHC, will for the first time feature innovative electrical transfer lines known as the “Superconducting Links”.

Recently, CERN’s SM18 magnet test facility witnessed the successful integration of the first series of magnesium diboride superconducting cables into a novel, flexible cryostat. Together with high-temperature superconducting (HTS) magnesium diboride (MgB₂) cables, they will form a unique superconducting transfer line to power the HL-LHC triplets. The triplets are the focusing magnets that focus the beam, right before collisions, to a diameter as narrow as 5 micrometres.

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Colloquially known as the “python”, the flexible, double-wall, corrugated cryostat comprises 19 MgB₂ superconducting cables in a single assembly, twisted together to form a compact bundle. Each MgB₂ cable is about 140 metres long, with the diameter of the bundle measuring about 90 mm. Together, these 19 superconducting cables can transfer a DC current of about 120 kA at 25 K (-248 °C) – a temperature higher than that at which conventional superconductors operate. In the LHC, niobium–titanium (Nb–Ti) and niobium–tin (Nb₃Sn) cables are operated in superfluid helium at 1.9 K (-271.3 °C) – a temperature colder than the 2.7 K (-270.5 °C) of outer space. The MgB₂ cables of the Superconducting Link are cooled by a forced flow of helium gas. “The R&D done in the initial phase of the LHC project has made the ongoing production reliable and repeatable,” says HL-LHC project leader Oliver Brüning.

This new type of superconducting transmission line also has potential outside accelerator technology. These lines can transfer vast amounts of current within a small diameter and could therefore be used to deliver electricity in big cities or to connect renewable energy sources to populated areas. Recently, CERN and Airbus UpNext signed a collaboration agreement to assess the use of superconducting transmission for future low-emission aeroplanes.

But the novelty of this superconducting material is not the only secret component for a sustainable, superconducting transfer line.

“One of the beauties of this new system is that the cryogenic operation of the Superconducting Link is done at zero cost because it transfers the helium gas that in any case is needed to cool the current leads,” says Amalia Ballarino, the deputy leader of CERN’s Magnets, Superconductors and Cryostat group. “So, the Superconducting Links act as both helium and electrical transfer line.”

CERN’s SM18 facility will continue to host the assembly and testing of the Superconducting Links – ten, in total, for the HL-LHC – until they are installed in the LHC tunnel during Long Shutdown 3, scheduled to start in 2026. The first HL-LHC Superconducting Link will come into operation this year, when it will be connected to the cryostat with the REBCO (rare-earth barium copper oxide) HTS current leads on one side and to the Nb–Ti connections on the other. Integrating these key new technologies (novel superconducting cables made of MgB₂, long and low static heat load flexible cryostats, and REBCO HTS current leads) marks the beginning of a sustainable approach to electrical transmission for the future of CERN’s accelerators, starting with the HL-LHC.

Feasibility Study for a possible Future Circular Collider (FCC) gets under way on the ground



Two of the possible scenarios for the FCC’s placement. (Image: CERN)

For now, CERN will be conducting initial assessments on the ground in order to refine the existing geological and seismic data as well as the data on the fauna and flora for conservation purposes. The first phase will involve a visual inspection of the areas of land concerned, and will be followed in 2024 by seismic studies and drilling. The project’s environmental aspects, namely the geological characteristics of the tunnel and surface sites and the effects on the landscape, will also be studied.

The results of these assessments will make it possible to refine the placement scenarios and determine which should be prioritised if the project is approved, taking into account both the environmental objectives for the areas on the surface and the underground constraints.

This work is being carried out in conjunction with local stakeholders to ensure that future activities will take all the relevant aspects and different interests into consideration. CERN, France and Switzerland are working together closely to identify and resolve any issues that might arise from the FCC's planning and construction, which must respect sustainable development principles. In this regard, CERN has already made

environmental commitments in all its areas of activity, based on the “avoid–reduce–compensate” principle. It is working with local stakeholders to ensure that the project is adapted to the local area and its priorities and fosters cooperation, along the lines of the initiative that is already in place to recover waste heat from CERN's accelerators to heat a nearby residential complex. Operating as part of one of the most sophisticated scientific complexes in the world, the FCC, if it goes ahead, would optimise and extend the life of the existing infrastructure until the end of the twenty-first century, while helping to further our understanding of the Universe.

Accelerator Report: The CERN accelerator complex is awakening from hibernation

PSB Fixdisplay - W 9 03-Mar-2023 11:40:24

Comments (03-Mar-2023 10:30:59)
Supervisor : G.P. Di Giovanni (167744) Beam!
Operator : CCC: 76671

BP	User	Pls	Inj.	Acc.	b.Ej.E10	Ej.E10	Dest.
16	---ZERO---	1	○○○○	○○○○	0.00	0.22	BDUMP
17	---ZERO---	1	○○○○	○○○○	0.00	0.11	BDUMP
18	---ZERO---	1	○○○○	○○○○	0.00	0.08	BDUMP
19	LHCINDIV_2023	10	●●●●	●●●●	42.20	44.82	BDUMP
20	---ZERO---	1	○○○○	○○○○	0.00	0.26	BDUMP
21	---ZERO---	1	○○○○	○○○○	0.00	0.04	BDUMP
22	---ZERO---	1	○○○○	○○○○	0.00	0.03	BDUMP
23	---ZERO---	1	○○○○	○○○○	0.00	0.07	BDUMP
1	LHCINDIV_2023	10	●●●●	●●●●	42.54	44.84	BDUMP
2	---ZERO---	1	○○○○	○○○○	0.00	0.06	BDUMP
3	---ZERO---	1	○○○○	○○○○	0.00	0.37	BDUMP
5	---ZERO---	1	○○○○	○○○○	0.00	0.11	BDUMP
	---ZERO---						BDUMP

5/23 No Message

The PS Booster Vistar, clearly showing that the Individual bunch beam (LHCINDIV) is injected (column. Inj.) accelerated (column Acc.) and extracted (column Ej. E10) on all 4 rings to the beam dump. (Image: CERN)

The 2022–2023 year-end technical stop (YETS) is defined as 17 weeks beam-to-beam in the LHC, which is two weeks longer than the standard YETS and was introduced in response to the energy crisis. The last LHC beam of 2022 was dumped in the early morning of Monday, 28 November; 17 weeks later, on Monday, 27 March 2023, we plan to inject the first beam of the year into the LHC. Although this first beam is a single-bunch beam with reduced intensity, the injector complex needs to be commissioned well in advance. The LINAC4

hardware therefore already began recommissioning on Monday, 13 February, only 11 weeks after the accelerator was stopped. During that time, maintenance was carried out, and a new, more efficient, H- source was installed. In the subsequent beam commissioning period that started on 20 February, the beam was brought through LINAC4, all the necessary parameters were adjusted and the performance of the new source was tested using the higher intensity beam. After the first accelerating structure, the radio-frequency quadrupole (RFQ), the beam current usually measures 25 mA. With the new source, the experts managed to bring this up to 35 mA, an increase of 40% with a similar transmission efficiency. For the 2023 physics run, 25 mA will remain the default current, but further studies to push the performance of LINAC4 and the PS Booster are planned for later this year.

On Friday, 3 March, following two weeks of hardware commissioning, the beam was injected into the PS Booster at 10.15 a.m. In just over an hour, the beam had been captured, accelerated, synchronised, and extracted to the beam dump. This is the point where the tedious work of adjusting the machine starts, after which the various operational beams will be set up and fine-tuned. The first beam will have to be ready for

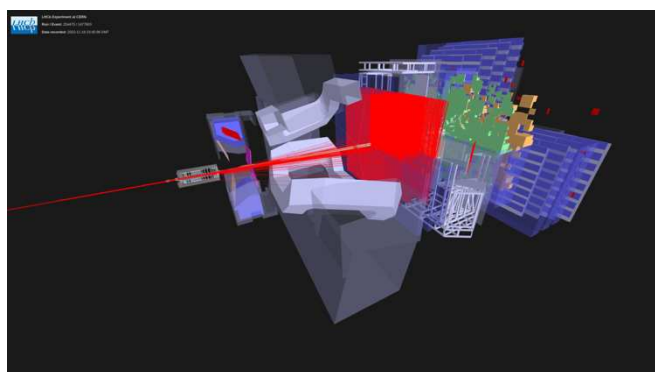
when the PS completes its two-week hardware commissioning period on Friday, 10 March. The PS will then have one week to prepare the first beam for the beam commissioning of the SPS, which today is about halfway through its three-week hardware commissioning period. It will then be the turn of the SPS to prepare the single-bunch LHC beam to be delivered to the LHC on Monday, 27 March, to awaken the LHC from its hibernation. Throughout the accelerator complex, various beam types will then be re-adjusted to be

delivered for physics, starting with the PS East Area around Easter and followed by the other fixed-target facilities in the subsequent weeks. The first collisions in the LHC are expected around 22 April, heralding the start of a relatively short but intense physics run that is scheduled to end on 30 October.

Rende Steerenberg

LHCb begins using unique approach to process collision data in real-time

Using a new system called real-time analysis, the LHCb collaboration has made filtering and analysing experiment data simpler and faster



(Image: CERN)

Current technology does not allow all Large Hadron Collider (LHC) proton–proton collision data to be stored and analysed. It is therefore necessary to filter out the data according to the scientific goals of each experiment. Physicists call this selection process the “trigger”. Thus, data taking and analysis at the LHC has traditionally been performed in two steps. In the first, which physicists call “online”, the detector records the data, which is then read out by fast electronics and computers, and a selected fraction of the events is stored on disks and magnetic tapes. Later, the stored events are analysed “offline”. In offline analysis, important data taken from the online process is used to determine the parameters with which to adjust and calibrate LHCb’s subdetectors. This whole process takes a long time and uses a large amount of human and computing resources.

In order to speed up and simplify this process, the LHCb collaboration has made a revolutionary improvement to data taking and analysis. With a new technique named real-time analysis, the process of adjusting the subdetectors takes place online automatically and the stored data is immediately available offline for physics analysis. In LHC Run 2, LHCb’s trigger was a combination of fast electronics (“hardware trigger”) and computer algorithms (“software trigger”) and consisted of multiple stages. From the 30 million proton collisions per second (30 MHz) happening in the LHCb detector, the trigger system selected the more interesting collision events, eventually reducing the amount of data to around 150 kHz. Then, a variety of automatic processes used this data to calculate new parameters to adjust and calibrate the detector.

For Run 3 and beyond, the whole trigger system has changed radically: the hardware trigger has been removed and the whole detector is read out at the full LHC bunch-crossing rate of 40 MHz. This allows LHCb to use real-time analysis for the full selection of data, making it much more precise and flexible.

The real-time reconstruction allows LHCb to not only cherry-pick interesting events but also compress the raw detector data in real time. This means there is tremendous flexibility to select

both the most interesting events and the most interesting pieces of each event, thus making the best use of LHCb's computing resources. In the end, around 10 gigabytes of data are permanently recorded each second and made available to physics analysts.

The success of real-time analysis was only possible thanks to the extraordinary work of the online and

subdetector teams during the construction and commissioning of this brand new version of the LHCb detector. More information about LHCb's new trigger system and the team behind it can be found on the collaboration's website.

LHCb collaboration

New ATLAS management team takes the helm

The ATLAS collaboration at CERN welcomes a new management team at its helm. Spokesperson Andreas Hoecker (CERN) will continue to steer the experiment until February 2025.



The new ATLAS management team: Spokesperson Andreas Hoecker (CERN), Deputy Spokesperson Manuella Vincter (Carleton University), Deputy Spokesperson Stéphane Willocq (University of Massachusetts Amherst), Resource Coordinator David Francis (CERN), Upgrade Coordinator Benedetto Gorini (CERN), and Technical Coordinator Ludovico Pontecorvo (CERN). (Image: CERN)

The ATLAS collaboration is a global effort involving almost 6000 physicists, engineers, technicians and other experts. Made up of 182 institutions (249 institutes) spread over every populated continent, its multinational efforts require a high level of coordination. Together, a new ATLAS management team will oversee all aspects of the collaboration throughout most of LHC Run 3.

ATLAS spokesperson Andreas Hoecker will work with several familiar faces in the management team. Manuella Vincter (Carleton University) continues as deputy spokesperson. She is joined by deputy spokesperson Stéphane Willocq (University of Massachusetts Amherst), who previously served as ATLAS physics coordinator. Technical coordinator Ludovico Pontecorvo

(CERN) will continue in his role for another year, before handing the baton to Martin Aleksa (CERN) in March 2024. David Francis (CERN) continues as resources coordinator and Benedetto Gorini (CERN), who joined the team in October 2022, continues as upgrade coordinator. Stepping down from their roles are deputy spokesperson Marumi Kado (new Director of the Max Planck Institute for Physics, Munich) and, since October 2022, upgrade coordinator Francesco Lanni (new leader of the CERN Neutrino Platform). Both provided invaluable contributions to ATLAS during their terms.

"This is an exciting time for the ATLAS collaboration, as we are undertaking several key objectives simultaneously," says Andreas. "In addition to collecting and analysing data from the current record-energy operation of the LHC, benefitting from recently installed detector improvements, our broad programme of physics analysis and experiment upgrade will continue apace. Meeting this wide range of goals will require our full commitment and focus of effort." In its 30 years of history, the ATLAS collaboration has proven to be a leading source of scientific excellence – a legacy the ATLAS management team plans to build on. "I am confident that ATLAS members will rise to the occasion to meet these challenges," concludes Andreas. "Our members are a great source of inspiration to me; their ideas and contributions are the driving force behind our experiment's excellent results. As spokesperson, I will continue to cultivate our longstanding culture of open and inclusive engagement."

Discover the new LHCb exhibition

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!



The cinema room with its immersive walls explains how LHCb operates. (Image: Guillaume Max Pietrzyk)

The CERN Exhibitions section (IR-ECO-EXH) and the LHCb experiment have developed a new public experience at LHC Point 8, in Ferney-Voltaire (France), where the experiment is located. The design phase of the new exhibit, carried out in collaboration with the Spanish design firm Indissoluble – The Exhibition Factory, which previously worked on the ALICE and Microcosm exhibitions, started in autumn 2020. Last December, only two years later, the installation was already completed and about to welcome its first visitors. The new exhibition has indeed been open to the public since the beginning of the year, and was officially inaugurated on 3 March.

“Working on the new LHCb exhibition has been a challenge also because the work mainly happened during the pandemic. However, the excellent teamwork and the highly collaborative and committed attitude of all the members of the working group made it possible for the exhibition to be designed, delivered and installed on time and within budget,” says Antonella Del Rosso, project leader in the Exhibitions section.

After passing the car park and the gate, visitors enter the LHCb main building and are guided through the exhibition's four sections, which include a miniature model of the underground cavern featuring the DELPHI and LHCb detectors. The main exhibition hall hosts pieces of the LHCb detector such as the vertex locator, parts of the calorimeters and muon systems, the upstream tracker, the ring-imaging Cherenkov detector and a scintillating fibre tracker.

The highlight of the exhibition is the cinema room: three immersive walls take visitors underground and lead them through the physics of the detector by means of an audiovisual experience (see picture). Different screens and projections mirror the segmented structure of LHCb, with each panel corresponding to a different part of the detector. All the exhibition points are equipped with interactive touch screens, which provide additional information about the detector system, data acquisition and basics of particle physics. One of the last stops is a sneak peek into the LHCb control room.

With the new cinema room and the showcased detector parts, the new exhibition is a nice alternative to underground visits, especially when access is impossible during LHC runs, as well as complementing those visits with a first visual input.

Last year, the LHCb experiment welcomed almost 1000 visitors. The new exhibition is now ready for the many more to come.

Sanje Fenkart

CERN and SESAME engage with Bahrain

The fruitful collaboration between the two laboratories and the Bahraini scientific community were in focus during the CERN & SESAME Info Days at the University of Bahrain



Representatives from CERN, CMS, SESAME, the University of Bahrain, the Princess Sumaya University for Technology, the Cyprus Institute, and the American University of Bahrain gathered on the occasion of the CERN & SESAME Info days at the University of Bahrain. (Image: University of Bahrain)

CERN, the CMS collaboration and SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) were the special guests of the Info Days held at the University of Bahrain on 14 and 15 February 2023. The event, which brought together representatives from these communities, was jointly sponsored by the

International Atomic Energy Agency (IAEA), the University of Bahrain and the Shaikh Ebrahim bin Mohamed Al Khalifa Center for Culture and Research. It was an opportunity to showcase the contribution of the Bahraini community to CERN and the CMS experiment, while assessing future opportunities to collaborate with SESAME. The University of Bahrain joined CMS as an associated institute in 2019.

In addition to celebrating past achievements, a range of speakers looked to the future of particle physics and technologic innovation in the Middle East. Along with CERN physicists, SESAME representatives were given a platform to advocate for enhanced collaboration between Bahraini scientists and their laboratory, an international organisation operating the only light source in the Middle East. Talks aimed to increase awareness of the two institutions in Bahrain, encouraging students, researchers and industrial partners to join collaborations, which could bolster particle physics projects and scientific collaboration in the region.

Thomas Hortalá

Take part in the new seminar series on future colliders



The Future Colliders unit, within CERN's Research and Computing sector, is launching a new seminar series dedicated to future collider projects. The aim of this new series is to create an information

and discussion forum in which to present the various activities related to the different projects being studied: the Future Circular Collider (FCC), the Compact Linear Collider (CLIC) / International Linear Collider (ILC) and the Muon Collider.

"A lot of work is taking place to prepare for a future accelerator facility beyond the LHC," says Michelangelo Mangano, leader of the Future Colliders unit. "And while the basic motivations for future colliders, and their physics potential, are usually well known, more detailed information about technological challenges and progress, achievements, timelines, etc., is typically confined

to internal meetings, and thus less easily available to the CERN community.”

This new seminar series intends to inform the broader CERN community – personnel from different departments as well as users and visitors – about the progress on these projects. The presentations will cover aspects ranging from accelerator and detector design and technology R&D, to civil engineering and environmental issues, to physics targets.

The seminars will take place in CERN’s Main Auditorium approximately once a month, on Tuesdays from 11.00 a.m., with Zoom and webcast transmission.

The first episode of the series will take place on Tuesday, 14 March. It will provide a general overview of the status of the three main projects, as an introduction to the whole series:

“Status of CERN’s future collider projects”

by Daniel Schulte, Steinar Stapnes and Frank Zimmermann

Come and join us!

More information on Indico:
<https://indico.cern.ch/event/1260648/.on>

The CERN Medical Service: an essential partner for our occupational health



The CERN Medical Service team in 2023. (Image: CERN)

In the event of an emergency or an injury, or if you need immediate assistance, call the Fire and Rescue Service directly on +41 22 767 4444.

The CERN Medical Service was founded on 1 June 1965. It supports the Organization in its duty to monitor the health, in a work-related context, of just over 3400 employed members of the personnel (MPEs) and students, to ensure that they are fit for the work assigned to them and that any adverse effects of their professional activities on their health are minimised. The Medical Service provides occupational medicine support to MPEs and students throughout their career, carrying out entry, periodic and end-of-contract medical visits.

The Medical Service also receives several thousand people a year regardless of their status, whether at the infirmary or for psychological support.

2023 is a pivotal year for the Medical Service, whose resources have been adapted and reinforced. An immediate and ambitious occupational health initiative will be to carry out periodic consultations for some 1700 MPEs who have not been seen following the slowdown in pace since 2016 owing to medical staff shortages due to illness, as well as the COVID-19 pandemic.

Prevention being at the heart of its mandate, the Medical Service offers not only occupational health visits but a wide range of other services. It carries out awareness and prevention campaigns on diverse medical topics of relevance to the CERN community, including an annual flu vaccination campaign. It also arranges occupational workplace visits on request.

Mental health and well-being are among its priorities, and the Medical Service hosts two psychologists, who offer initial psychological consultations on work-related issues to all members of the personnel.

“Collaboration with our Host States is another facet of the Medical Service’s activities, notably for the blood donation campaigns, which resumed in

2022 with two successful events in May and September,” says Raphael Otzenberger, Head of the Medical Service. In addition, CERN receives support to provide emergency care for everyone on site through an agreement with the Hôpitaux Universitaires de Genève (HUG).

A dedicated infirmary provides primary care for anyone present on the CERN site and refers those requiring medical treatment to appropriate healthcare providers where applicable. In the event of an emergency, call the Fire and Rescue Service for assistance on +41 22 7674444. If you haven't done so yet, please make sure that you add this number to your contacts list.

Furthermore, as part of its insurance medicine remit to support people who are on long-term leave from work for various reasons, the Medical Service, in collaboration with the HR department, follows up on members of the personnel on long-term sick leave, always with a view to facilitating a return to work, where possible.

The Medical Service is constantly striving to do a better job of taking into account the nature of people's work and the risks to which they are exposed.

The roles and responsibilities under the current occupational health follow-up model and its potential evolution are being further refined through the work of a dedicated working group, which includes representatives of HR and the Staff Association. This working group was set up in the context of a wide-reaching project launched in 2022 by the HSE unit: the HSE Operational Response (HOR) project, as explained by Benoît Delille, Head of the HSE unit: “The HOR project has its origins in the difference of understanding and perception by the CERN community of the scope of activities of the various HSE services, and fits within the context of communicating CERN's safety governance and promoting CERN safety culture. It comprises several work packages, one of which is dedicated to HSE medical and personal assistance. This aims to analyse the current situation in order to propose a framework that

clarifies the operational response that the Medical Service offers to the CERN community, with three main topics of focus: occupational health, insurance medicine, and personal and emergency assistance. I am very much looking forward to recommendations provided and peer-reviewed by professionals in the field, paving the way for a well-defined and clear framework that integrates the lessons learned and new practices in the Host States and at CERN.”

The Medical Service has a clear work-related remit and cannot provide the equivalent of community medicine, owing to legal limitations. The Medical Service doctors thus complement the care provided by general practitioners, who look after people's specific health needs in a holistic and personalised way and act as point of contact with the national healthcare system.

As an intergovernmental organisation, CERN has its own health insurance, the CHIS, whose main purpose is to safeguard its members against the financial consequences of illness, accidents and maternity by reimbursing expenses arising from medical treatment. The CHIS covers both active and retired employed members of the personnel, students and members of their families. Associated members of the personnel, who are not employed by CERN but affiliated with collaborating institutes, arrive at CERN with their own health insurance. They can benefit from the support of the Users Office and have the option of a preferential private plan with Allianz healthcare. The Medical Service is thus part of a comprehensive network of support structures at CERN, working hand in hand to further well-being at work and, more generally, support the CERN community in their health-related concerns. The Medical Service collaborates closely with CHIS and other services, such as the HR department, the Social Affairs service and the Users Office, where required.

Find out more on the Medical Service's website: <https://medical-service.web.cern.ch/on>

How can citizens contribute to the United Nations Sustainable Development Goals?

To find out, join the Crowd4SDG Final Conference and take part in panel discussions and hackathons.



(Image: Crowd4SDG/CERN)

Join us (<https://indico.cern.ch/event/1224762/>) on 17 March to celebrate the achievements of the EU-funded Crowd4SDG project and to find out more about how citizen science and crowdsourcing tools can be used to address the Sustainable Development Goals (SDGs) and climate action. The timetable is brimming with presentations, panel discussions and hackathons, relevant for all.

Prior to the final conference on 17 March, a series of events will bring together a dynamic mix of youth innovators, decision makers involved in the SDGs and members of the Crowd4SDG consortium at CERN to celebrate the achievements of the three-year-long project.

The first two days will see project participants getting involved in coaching sessions at IdeaSquare, the innovation space at CERN. The results of these sessions will be showcased during the final conference on 17 March.

In addition, projects developed for Crowd4SDG will be featured during the Geneva Trialogue, organised and hosted by the United Nations Institute for Training and Research (UNITAR), to be held on 16 March at CERN. The event will bring together academia, international organisations and the private sector. Beyond crowdsourcing, it

will also promote open innovation and education. More information about the Geneva Trialogue, which is attendance by invitation only, can be found here (<https://sdgsolutionspace.org/geneva-trialogue-2023/>).

The Crowd4SDG final conference on 17 March will bring the series of events to a close, showcasing the projects, papers and other results of Crowd4SDG and outlining how ideas and initiatives could continue beyond the project's end.

Presentations will explore a range of topics, from using citizen science tools to monitor extreme climate events, to mobilising youth involvement in citizen science climate action projects, and more. Teams that have participated in the project will present their ideas and prototypes. In the afternoon, three hackathons will be held at IdeaSquare, centred around the use of citizen science tools and how Crowd4SDG methodologies can be used to collect data concerning the SDGs.

Crowd4SDG is a collaboration between CERN, the University of Geneva (UNIGE), the Spanish National Research Council (IIIA-CSIC), the Polytechnic University of Milan (POLIMI), the United Nations Institute for Training and Research (UNITAR) and Paris Cité University.

The full agenda of the final conference on 17 March at the Globe of Science and Innovation and at IdeaSquare can be found on the Indico page. The event is open to all, but registration is required and will be confirmed subject to availability of places.

Alexia Yiannouli

Computer Security: Protective intelligence

There are lots of different types of intelligence out there. Human intelligence measured in IQ points; social intelligence aka social competence; artificial intelligence (discussed in the last Bulletin) and its many variations, including “big data”, “machine learning”, “neural networks”, etc. The focus this time is on “signals intelligence” (SIGINT) or, to be more precise, “threat intelligence” (ThreatINT) – the intelligence usually provided by clandestine secret agencies, obtained by observation and espionage, through dubious channels or clever infiltration.

While this sounds a bit dodgy, there’s nothing wrong with being interested in whether there are some burglars operating in your village, some thieves interested in your make of car, or some criminals on the prowl to steal your credit card details. It’s best to be alert and find out about their wrong-doings before any malicious act occurs. In order to improve your defences. In order to increase your protection level. In order to be prepared.

The same holds true for the digital world. For the most efficient protection of CERN – to detect an attack as effectively as possible, to be alert, prepared and ready – it’s essential to gather as much information as possible about the intentions of the malicious evil. Intentions that are discussed via hidden channels. Attack vectors that are advertised on the dark web. Stolen credentials and vulnerabilities that are sold on underground markets. ThreatINT about CERN, CERN’s domains (cern.ch, .cern, but also zenodo.org, etc.), CERN’s networks, CERN accounts or other digital resources owned by the Organization. ThreatINT aimed against CERN, WLCG and its affiliated institutes and universities.

After a one-off data gathering and analysis of dark web ThreatINT about CERN in 2020, the CERN Computer Security team has started a proof of concept with another ThreatINT provider and expert in dark-web information gathering. Their first round of analysis threw up more than 1000 passwords of CERN primary (31%) and application-specific accounts (69%) used to log in to, for example, CERN’s Single Sign-on, LHC@BOINC or Zenodo. While the majority of the CERN primary account passwords turned out to be false positives

or came from old password dumps already handled long ago, more than 60 of the application-specific account* passwords were valid. The passwords had been obtained from different password stealers installed via malware infections on the (most probably home) PCs of the corresponding account owners. A malware infection implies that every password typed on that PC should be deemed compromised and must be changed (AFTER reinstalling the PC in order to avoid the new passwords being compromised again, of course). Too bad for those who haven’t enabled their two-factor authentication protection yet.

CERN is also now receiving, almost on a daily basis, immensely important ThreatINT regarding large research and education (R&E) institutions. Since the beginning of 2023, SAFER – the global trust group of security experts, including from CERN – has helped ransomware attack victims in Australia, Austria, Canada, Denmark, Germany, Hong Kong, Iceland, Italy, Kenya, Switzerland, Taiwan and the US – many affiliated with CERN or part of our academic community. The data indicated that these organisations had been compromised by high-profile threat actors, but that the final payload (ransomware deployment) had not been activated... yet! The high quality and precision of that intelligence allowed the institutions to act, monitor, detect and finally contain and stop any attack before it was too late.

Thus, building strong trust relationships and sharing sensitive ThreatINT is essential. Even if it’s not being shared in public, this is what’s going on constantly behind the scenes to the benefit of the community (see [here](#), [here](#), or [here](#)). Our favourite R&E security experts are never far away! Building strong trust relationships and sharing sensitive ThreatINT is essential to protect CERN. It is not a question of “if” the Organization will be subjected to an attack, but “when”. It’s best to learn about it sooner than not at all. Thanks to SIGINT. Thanks to protective intelligence.

** Application-specific accounts are those providing access to public resources like Zenodo.org or LHC@BOINC. The operational impact on CERN due to the exposure of such passwords is zero.*

Official news

2022 annual report: Chapter VI of the Staff Rules and Regulations (settlement of disputes and discipline)

The Organization is committed to a fair and respectful work environment. Behavioural concerns or administrative disputes brought to the attention of the Organization are addressed in a timely manner using, whenever possible, informal resolution mechanisms such as mediation. In cases where informal resolution is not achievable or appropriate, the Organization or the member of personnel concerned may decide to initiate formal proceedings under the Organization's settlement of disputes procedure or conduct-related frameworks, as applicable¹. This report provides an overview of the cases handled under Chapter VI of the Staff Rules and Regulations in 2022.

Introduction

The Annual Report under Chapter VI ("Settlement of Disputes and Discipline") of the Staff Rules and Regulations serves to report on:

- requests for review;
- internal appeals;
- cases in which disciplinary action was taken; and
- complaints before the Administrative Tribunal of the International Labour Organization (ILOAT).

Requests for review and internal appeals

Under Article S VI 1.01 of the Staff Rules, members of the personnel may challenge an administrative decision by the Director-General where it adversely affects the conditions of employment or association that derive from their contract or from the Staff Rules and Regulations.

If permitted by the Staff Rules and Regulations, a decision may be challenged internally within the Organization:

- through a review procedure; or
- through an internal appeal procedure. In this case, the Joint Advisory Appeals Board (JAAB) shall be consulted by the Director-General prior to taking any final decision on the merits.

Disciplinary Action

Under Article S VI 2.01 of the Staff Rules, the Director-General may take disciplinary action against members of the personnel who, whether

intentionally or through carelessness, are guilty of a breach of the Rules and Regulations or of misconduct that is to the detriment of the Organization.

Article S VI 2.02 of the Staff Rules stipulates that, having regard to the gravity of the breach or misconduct in question, the disciplinary action shall be:

- a warning;
- a reprimand;
- suspension without remuneration or pay for a period not exceeding six months;
- downward adjustment of the staff member's salary;
- demotion;
- dismissal.

The Director-General shall consult the Joint Advisory Disciplinary Board (JADB) prior to taking any disciplinary action other than a warning or a reprimand (Article S VI 2.04 of the Staff Rules). In cases of particular serious misconduct, the Director-General may decide to dismiss without notice and without consulting the JADB (Article S VI 2.05 of the Staff Rules).

Complaints before the Administrative Tribunal of the International Labour Organization (ILOAT)

A decision may be challenged externally by filing a complaint before the ILOAT:

- when internal procedures have been exhausted and the decision is final;
- when an internal challenge is not permitted by the Staff Rules and Regulations; or
- when the complainant is authorised by the Director-General to proceed directly to the Tribunal.

Requests for review:

From 1 January to 31 December 2022, two requests for a review of administrative decisions were introduced:

-In January 2022, a staff member requested a review of the decision not to be selected for the award of an indefinite contract following a CERN Contract Review Board procedure. The Director for Finance and Human Resources decided to maintain the decision, with the consideration that the procedure had been carried out in compliance with the relevant legal framework, and noting that the principles of transparency and fairness were not compromised in the selection process.

-In November 2022, a fellow requested a review of the decision concerning the amount of payment of their travel costs upon taking up appointment. In the final decision, the Director for Finance and Human Resources decided on a reviewed amount of reimbursement for travel expenses.

Internal appeals (Joint Advisory Appeals Board (JAAB)):

During the period from 1 January to 31 December 2022, seven internal appeals were introduced:

-In January 2022, two staff members introduced internal appeals against the Organization's general decision, for reasons linked to data privacy, to no longer deduct annual Staff Association membership fees through the January payroll. The appeals were deemed irreceivable since the situation had no adverse effect on employment conditions. Subsequently, the Organization continued to offer this Service to the Staff Association.

-In April 2022, three staff members introduced internal appeals against the decision not to increase basic salaries in January 2022 as an outcome of the five yearly review of financial and social conditions and the implementation of the decision by CERN Council. Following the request of the appellants, the Director-General authorized the direct referral to the ILOAT. One of the staff members withdrew their internal appeal.

-In June 2022, two staff members introduced internal appeals against the Director-General's decision, which concluded an arbitration procedure concerning the methodology of calculation of the salary increase annual budget in the context of the 2022 MERIT Guidelines; and the decisions to qualify their personal performance

during the year of 2021 as "strong". Both appellants also requested the Director-General's authorization to directly challenge the decisions before the ILOAT, which the Director-General rejected. The Director for Finance and Human Resources considered the appeals receivable only with regard to the individual performance qualification decisions and resulting performance rewards. The outcome of the appeals is expected in the first half of 2023.

Concerning previous appeals:

-In April 2021, three associated members of the personnel introduced internal appeals against the decision to replace the internal tax annual certificate by an individual annual statement in respect of cost-of-living allowances processed by CERN on behalf of third parties. The Director-General decided to follow the recommendations of the JAAB to reject the appeals in March 2022.

-In October 2021, a former staff member introduced an internal appeal against the calculation 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 (Rev. 4) "Protection of members of the personnel against the financial consequences of illness, accident and incapacity for work". The Director-General decided to follow the recommendation of the JAAB to reject the appeal in December 2022.

-In July 2021, a staff member introduced an internal appeal against the decision to qualify their performance as "fair" for the reference year 2020. This procedure was suspended pending the outcome of a procedure before the Harassment Investigation Panel, which was concluded in December 2022. The internal appeal procedure resumed in January 2023.

Warnings and reprimands:

In 2022, the Organization issued five warnings:

-A warning was issued to a staff member, further to sending an inappropriate and disrespectful email to the CERN Medical Service after having received an invitation for a blood test and medical appointment.

-A warning was issued to a User, further to verbally and physically assaulting a colleague during an altercation in their office.

-A warning was issued to a staff member, further to writing inappropriate comments concerning the CERN Management in their MERIT form.

-A warning was issued to a fellow, further to having abused their IT administrator privileges in order to access private communications between colleagues.

-A warning was issued to a User, further to inebriated and inappropriate behaviour towards the security agents at the CERN public entrance, which also required the intervention of the CERN Fire and Rescue Service.

In 2022, the Organization issued no reprimands.

The Joint Advisory Disciplinary Board (JADB):

In 2022, two decisions at the outcome of procedures initiated in 2021 were implemented²:

-The first concerning a User's implication in, inter alia, organising and facilitating fraudulent registration of associated members of personnel and misappropriation of funds. The Director-General decided to follow the recommendation of the JADB to terminate the contract of association.

-The second concerning a fraudulent violation of financial and administrative rules by a staff member, and conflict of interest. The Director for Finance and Human Resources decided to follow the recommendation of the JADB to demote the staff member and applied, in addition, the sanction of downward adjustment of salary.

Dismissal notified during the probation period:

In 2022, the employment contracts of one staff member and two fellows were terminated due to insufficient performance during the probation period (as per Article S II 5.01 g) of the Staff Rules).

Particularly serious misconduct:

In 2022, a decision following a procedure initiated in 2021 was implemented, resulting in the termination of a User's contract due to communications presenting as established fact that CERN had illegally appropriated the member of personnel's work and undermining the scientific integrity of the Organization (as per Article S VI 2.05 of the Staff Rules)².

Complaints before the Administrative Tribunal of the International Labour Organization (ILOAT)³:

During the period from 1 January to 31 December 2022⁴:

-In April 2020, a former staff member filed a complaint with the ILOAT against the Director-General's decision not to grant them an indefinite

contract (IC). The Tribunal's ruling is expected in 2023.

-From July and August 2021, 59 associated members of the personnel filed individual complaints with the ILOAT against the decision to replace the 2019 internal tax annual certificate by an individual annual statement. 54 complaints were withdrawn and one was rejected as irreceivable by the Tribunal, leaving 4 outstanding cases. The Tribunal's ruling is expected in 2024.

-From July to October 2020, three associated members of the personnel filed individual complaints with the ILOAT against a change in the conditions governing the processing by CERN of subsistence allowance payments on behalf of third parties (introduction of a 'cap'). The Tribunal's rulings are expected in 2023.

-In January 2021, a staff member filed a complaint with the ILOAT against the Director-General's decision to reject their internal appeal concerning an allegation of harassment. The Tribunal's ruling is expected in 2024.

-In February 2021, two staff members submitted requests for the revision of Judgments 4273 and 4274 with the ILOAT. The Tribunal's rulings are expected in 2024.

-In February 2021, a staff member filed a complaint with the ILOAT against the Director-General's decision to maintain their initial performance qualification. The Tribunal's ruling is expected in 2024.

-In March 2021, a staff member filed a complaint with the ILOAT against the Director-General's decision to deny their request for reclassification. The Tribunal's ruling is expected in 2024.

-In July 2021, a staff member filed a complaint with the ILOAT against the Director-General's decision to maintain their initial performance qualification. The Tribunal's ruling is expected in 2024.

-In July 2021, a staff member filed a complaint with the ILOAT against the Director-General's decision to refuse the recognition of a total disability resulting in an incapacity to work. The Tribunal's ruling is expected in 2024.

-In November 2021, a staff member filed a complaint against the amount received from the insurer following an occupational accident. The Tribunal's ruling is expected in 2025.

-In January 2022, a staff member filed a complaint against the Director-General's decision to reject

their internal appeal concerning an allegation of harassment. The Tribunal's ruling is expected in 2025.

-In June 2022, two associated members of the personnel filed individual complaints with the ILOAT against the Director-General's decision to maintain the individual annual statements issued to them during tax year 2021. The Tribunal's ruling is expected in 2025.

-In July 2022, two staff members jointly filed a complaint with the ILOAT against the Director-General's decision to reject their internal appeals against their individual payslips, in the context of the 2021 five-yearly review. The Tribunal's ruling is expected in 2025.

-In September 2022, two staff members individually filed complaints with the ILOAT against the Director-General's decision to declare their internal appeals receivable only to the extent that they challenged their performance qualification for 2021, in the context of the 2022 MERIT Guidelines. The Tribunal's ruling is expected in 2025.

-In September 2022, a beneficiary of the Pension Fund filed a complaint with the ILOAT against the Director-General's decision to reject the granting of an ex-gratia payment as per the CHIS Rules. The Tribunal's ruling is expected in 2025.

The ILOAT ruled in one case involving the Organization, which had been filed in 2019:

-In one case filed by a former member of the personnel against the decision of the Pension Fund Governing Board rejecting their internal appeal regarding the need to purchase a surviving spouse pension, the Tribunal dismissed the complaint in its entirety.

1 : See Chapter VI of the Staff Rules and Regulations on "Settlement of Disputes and Discipline", also Operational Circular ("OC") 9 on "Principles and procedures governing complaints of harassment"; OC10 on "Principles and procedure governing investigation of fraud".

2 : Previously referred to in the 2021 Annual report of Chapter VI of the Staff Rules and Regulations

3 : The predictions mentioned below as to the dates of the issuing of judgements by the ILOAT are based on the Organization's experience with the Tribunal. As the Tribunal may group cases together or deliver judgments in any order, accurate estimates cannot be provided.

4 : It is to be noted that the recent increase in ILOAT litigation against CERN continues.

HR department

Composition of the Joint Advisory Appeals Board (JAAB / CPCR)

2023 Exercise

Appointed by the Director-General :

Member: Valeria PEREZ REALE / TE

1st deputy: Joël CLOSIER / EP

2nd deputy: Raymond VENESS / SY

Appointed by the Staff Association :

Member: François DUVAL / EP

1st deputy: Nicolas SALOMON / PF

2nd deputy: Sylvia SCHUH-ERHARD / BE

Valeria Perez Reale and François Duval have drawn up the following list of the ten staff members from

whom the Chairperson of the Commission will be chosen each time a case arises:

Jan BORBURGH / SY

Nils HØIMYR / IT

François BRIARD / IR

Pedro MARTEL / EN

Etienne CARLIER / SY

Jesper NIELSEN / BE

Isabel FERNANDEZ GONZALEZ / SCE

Laurent ROY / EP

Composition of the Joint Advisory Disciplinary Board (JADB / CPCD)

2023 Exercise

Appointed by the Director-General :

Member: John PYM / DG

1st deputy: Gianluigi ARDUINI / BE

2nd deputy: Rosario PRINCIPE / TE

Appointed by the Staff Association :

Member: Nick ZIOGAS / IPT

1st deputy: Kurt WEISS / BE

2nd deputy: Gunnar LINDELL / HSE

John Pym and Nick Ziogas have drawn up the following list of staff members from among whom

the Chairperson of the Board may be chosen when required:

Sophie BARON / EP

Kandy MITCHELL / PF

Ronny BILLEN / BE

Alberto PACE / IT

Johan BREMER / TE

Laurent TAVIAN / ATS

Alexandra HAHNEL-BORGEAUD / IPT

Gabriel THIEDE / FAP

Quentin KING / SY

Giovanna VANDONI / ATS

HR department

Summer work for children of members of the personnel

During the period from 5 June to 8 September 2023 inclusive, there will be a limited number of jobs for summer work at CERN (normally unskilled work of routine nature), which will be made available to children of members of the personnel (i.e. anyone holding an employment or association contract with the Organization). Candidates must be aged between 18 and 24 inclusive on the first day of the contract, and must have insurance coverage for both illness and accident. The duration of all contracts will be 4 consecutive weeks and the allowance will be CHF 1557 for this period. Candidates should apply via HR

Department's electronic recruitment system, SmartRecruiters : <https://smrtr.io/cVgsF>
Completed application forms must be returned by 12 March 2023 at the latest. To allow as many people as possible to benefit, each child may participate in this programme only once. The results of the selection will be available mid of May 2023.

For further information, please contact:

Virginie.Galvin@cern.ch Tel. 72855

(Geraldine.Ballet@cern.ch Tel. 74151)

HR department

Announcements

CERN colloquium on 13 March - "Long baseline atom interferometry" with Mark Kasevich

Join the audience on 13 March at 8.45 a.m. for a CERN colloquium on "Long baseline atom interferometry" presented by Mark Kasevich (Stanford University).

Mark Kasevich will discuss how recent advances in methods to coherently manipulate atomic de Broglie waves have enabled a new generation of atom interferometers with unique capability to address outstanding fundamental science challenges. These challenges include detection of gravitational radiation at frequencies below 1 Hz,

searches for ultralight dark matter, and new tests of gravitational physics. The talk will describe recent progress in this field and outline future scientific opportunities.

The colloquium will take place in person in the main auditorium and online attendance is possible via webcast.

For more information and connection details, visit the [Indico](https://indico.cern.ch/event/1263010/) event : <https://indico.cern.ch/event/1263010/>

Route de Meyrin closed on the nights of 27 March to 4 April

Due to work related to CERN Science Gateway, the route de Meyrin will be closed between 10 pm and 5 am on the nights of 27 to 31 March and 3 to 4 April. A diversion will be put in place.

Every effort will be made to limit the impact of the work as much as possible.

Thank you for your understanding.

A CERN-dedicated forum in a carpooling platform

Carpooling is one of the solutions SCE is promoting to reduce jams and reduce greenhouse gas emissions.

While it is up to individual to decide whether and when they carpool, the Mobility Service encourages safe and responsible carpooling and has created a dedicated room in an existing and well-known tool, Mov'ici, to help people move

throughout the local area, and make it easier for them to find a carpooling offer matching their needs.

Take advantage of commuting with hundreds of drivers from the Ain and Haute-Savoie départements to Switzerland, visit movici.auvergnerhonealpes.fr/covoiturage/Communauté-du-CERN.

Applications are now open for the Django Girls programming workshop

The Django Girls programming workshop, run by CERN engineers for girls and women aged 15 and over, is returning to CERN on 21 and 22 April 2023. Sign up now!

The International Girls in ICT Day (ICT = information and communication technologies) will be celebrated on 27 April 2023. To mark the occasion, CERN's Women in Technology (WIT) community, its Visitors and Events Operations team and the Microclub are organising another edition of Django Girls.

The Django Girls workshop offers a crash course in computer programming for beginners aged 15 and over. The aim is to introduce digital technologies to the uninitiated, especially women, who are underrepresented in this field. In a supportive and positive environment, the participants will be coached by the CERN tutors in how to create a blog and launch it online. The event will take place in person, in French and English, at IdeaSquare.

The programme:

-Friday, 21 April 2023, 6.00–7.45 p.m.: Launch party

-Saturday, 22 April 2023, 9.00 a.m.– 5.00 p.m.: Workshop

Conditions of participation:

-Anyone aged 15 or over who is passionate about information and communication technologies can apply to attend. Participants need no previous knowledge of programming.

-Priority will be given to applications from girls and women, but boys and men are also welcome to apply.

-Places are limited, so make sure that you complete the registration form carefully!

Meals: Lunch will be provided on the Saturday.

Find out more and apply to attend at:
<https://indico.cern.ch/e/django-2023>

Application deadline: 26 March 2023 (11.59 p.m.)

The CERN Bike-sharing service resumed on 6 March

The Mobility service has taken the opportunity of the traditional winter stop of bikes and e-bikes sharing service to implement a new service contract.

Since 6 March 2023, the CERN bike-sharing has reopened and is managed by a new app. This change of provider aims to offer a service that best meets the needs of the whole CERN community.

Details are available here : <https://sce-dep.web.cern.ch/mobility/bike-sharing>

Other Mobility solutions are also described here : <https://sce-dep.web.cern.ch/campus-life/mobility>

SCE department

TPG Bus: new stop at the CERN Prévessin site

The SCE department is pleased to inform you that, since 27 February 2023, the TPG bus line No.66 includes a new stop at the CERN Preveessin site. This bus line connects Thoiry Center commercial with Geneva Airport, through Saint-Genis Porte de France.

We invite you to consider this new bus option as an alternative to car driving.

SCE department

Subscribe to the new Stores Newsletter

The CERN Notifications page allows you to choose the news you wish to receive based on the topics you are interested in. The CERN Stores have opened their channel on this service to keep their customers regularly informed.

As of March, each Stores News channel subscriber will receive a quarterly newsletter and specific

notifications sent in the event of special activity in supplies.

Do not miss the upcoming publications: subscribe to the Stores News Channel: <https://notifications.web.cern.ch/channels/23dcc497-d6d0-494b-a37b-80310d2f4d79/notifications>

SCE department

Mad Maths: a zany, poetic show about mathematics | 23 March 2023

Presented in the form of a maths lesson, “Mad Maths” is a mad-cap, off-the-wall show performed by two nutty professors. As they push maths to the limits of reason, the result is a hilarious mixture of poetry and the absurd, overturning expectations about this science with its painful reputation.

Whether you’re an adult or a teenager, a maths teacher or a maths dunce, allergic to numbers or fanatical about equations, this show is for you.

Two performances on Thursday, 23 March 2023 at the Globe of Science and Innovation

2.00–3.15 p.m. | Schools only

8.00–9.15 p.m. | Open to everyone

Suitable for ages 13 and above | Length: 1 hour 10 minutes | Performed in French

Sign up at: https://indico.cern.ch/e/mad_maths_2023.

Volunteer for the Django Girls programming workshop

The Django Girls programming workshop run by CERN tutors is returning to IdeaSquare on 21 and 22 April 2023.

To celebrate the International Girls in ICT Day (ICT = information and communication technologies), CERN’s Women in Technology (WIT) community, its Visitors and Events Operations team and the

MicroClub are organising another edition of Django Girls.

The Django Girls workshop offers a crash course in computer programming for beginners aged 15 and over. The aim is to introduce digital technologies

to the uninitiated, especially women, who are underrepresented in this field. In a supportive and positive environment, the participants will be coached by the CERN tutors in how to create a blog and launch it online. The event will take place in person, in French and English, at IdeaSquare.

Django Girls is a huge success every year. In 2022, despite the workshop taking place entirely online, it attracted some 50 participants, who learned how to code, guided in small groups by their CERN mentors. This year again we're looking for volunteer coaches to lead the workshop. Each volunteer will coach a team of three participants. So join the adventure and sign up now!

The programme:

Friday, 21 April 2023, 6.00–7.45 p.m.: Launch party

Saturday, 22 April 2023, 9.00 a.m.– 5.00 p.m.: Workshop

Eligibility criteria for coaches:

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 should be interested in programming: as a coach, you will need to explain the basics of the internet and present Python, object-oriented programming, HTML and CSS. Advanced knowledge is not required; the most important thing is to be able to explain programming clearly to people who have no technical knowledge.

You must be available for the launch party (evening of 21 April) and for the duration of the workshop (all day on 22 April).

Good mastery of spoken English and/or French is required (at least B2 level).

You must attend one general information session and one training session on Django Girls tutoring.

Meals: Lunch will be provided on the Saturday.

If more volunteers sign up than we need, priority will be given to women and ICT specialists.

Complete the registration form and spread the word.

Registration deadline: 26 March 2023 (11.59 p.m.)

Thank you for volunteering!

Library - new books and e-books in February

Everyday, the Library team adds new resources for the CERN community in its catalogue. Check our February 2023 additions here: https://catalogue.library.cern/search?q=_created%3A%5B2023-02-01%20TO%202023-02-28%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

18th CERN-Fermilab HCP Summer School | 22 - 31 August 2023

Hadron collider experiments have played a crucial role in particle-physics discoveries and are currently the main tool for exploring TeV scale physics. The ongoing third run of the LHC will deliver an unprecedented wealth of data at a higher energy than previous runs and with improved detector capabilities. This promises to continue the successes of the LHC physics

program, opening novel possibilities for searches for new physics, precision measurements such as the properties of the Higgs boson, as well as detailed studies of the flavour sector and heavy-ion physics.

To realise the full potential of these developments, CERN and Fermilab are jointly offering a series of "Hadron Collider Physics

Summer Schools", to prepare young researchers for these exciting times. The school has alternated between CERN and Fermilab, and will return to CERN for the eighteenth edition. You can find all the details about this year's edition at: <https://indico.cern.ch/e/hcpss2023>.

The CERN-Fermilab Hadron Collider Physics Summer School is an advanced school targeted particularly at young postdocs and senior PhD students working towards the completion of their thesis project, in both experimental HEP and phenomenology. Other schools, such as the CERN European School of High Energy Physics, may provide more appropriate training for students in experimental HEP who are working towards their PhDs.

Calendar and details

Mark your calendar for 22-31 August 2023, when CERN will welcome accepted students to the 18th joint CERN-Fermilab Hadron Collider Physics Summer School. The School will include 9 days of lectures and discussions, with one free day in the middle of the period.

Limited scholarship funds will be available to support some participants.

Updates, application procedures and more details are available at: <https://indico.cern.ch/e/hcpss2023>.

The deadline for applications and reference letters is 31 March 2023.

Register now for FameLab 2023, the international competition for science communication

Registration is 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 first stages ("local heats") will take place in Lausanne (5 April), Zurich (19 April) or Basel (3 May). The final will be held in Bern on 18 September. Visit the event's website (<http://www.famelab.ch/>) for more information and to register.

Ombud's corner

Have you encountered excluders?

This week marks the International Women's Day – a day that I always want to celebrate in some way. Last year I shared with you my experience of being a woman at CERN in the 1990s.

As I was exploring a new angle to gender diversity at CERN – a topic that my predecessors in the Ombud's corner have explored at length – I stumbled on an interesting Harvard Business

Review article. The article asks a very pertinent question: what to do about excluders, i.e. employees who, despite numerous corporate interventions, continue to treat some people differently based on their perceived visible or invisible trait(s) or social grouping, in particular women?

You may have come across an excluder in the workplace. Perhaps a senior colleague who refuses to supervise any female doctoral student, or a section leader who – despite having no women on his team – complains that he has no chance of promotion now because “they all go to women”. You might have met a manager who chooses not to hire young women because “they get pregnant and leave”. Or it could be a colleague who insists that women should still perform the lion’s share of caregiving “because that’s how it’s always been” and “they’re just better at it”. You may also have met a silent excluder who does not express such beliefs but whose actions reflect them nonetheless.

Excluders, especially when they are influential people, are immune to the active promotion of diversity and inclusion.

Not only can their biases and behaviours negatively affect an individual applicant’s hiring or promotion success, but they may also influence the development and implementation of work–family policies. They may do this, directly or indirectly, via top-down influence and role-modelling behaviours.

Unconscious bias and inclusive leadership interventions are particularly effective for employees who are already less biased and are motivated to improve diversity in their organisations. I’ve often heard comments at diversity-related talks and workshops along the lines of: “These events are always attended by the same people, who already support diversity at work, but we don’t seem to reach new people who would really benefit from them.”

There are, according to the Harvard Business Review article, several effective ways for organisations to thwart exclusion:

Establish a clear definition of exclusion that includes specific individual behaviours (e.g. inviting the same, incomplete part of a team for lunch or after-work drinks) and organisational behaviours.

Make inclusion an explicit hiring criterion. For example by asking candidates to speak about their specific experience with and approach to working with individuals from diverse communities.

Make inclusion an explicit performance criterion. For example, ask supervisee feedback on whether their manager creates an inclusive climate.

Give inclusive leaders visibility and publicly reward them as much-appreciated role models.

Encourage reporting of exclusion behaviour. The CERN Ombud, for example, is a safe and fully confidential channel to turn to for reporting such behaviour. We can discuss appropriate ways to respond to such behaviour – even if it’s not always easy. The Ombud can report any noted trends of exclusion to the appropriate level of management, without ever compromising the confidentiality owed to the member of the personnel concerned. Exclusion is not only about gender. Excluders can convey subtle and ambiguous discrimination toward people of various backgrounds. The practices listed above can also help detect colleagues who exclude women, mothers, childfree women, people with disabilities, members of racial and ethnic minorities, senior employees, LGBTQ+ persons, etc.

Our collective actions to encourage diversity and inclusion in our workplace are essential. To ensure their success, each one of us has the potential to role-model inclusive behaviour, whatever our status or seniority in the Organization. While in March we celebrate women’s myriad contributions to society, diversity in all its forms is central to a collaborative and thriving international work environment.

If you have not yet done so, check out the Gender and Equality Plan page and sign up for the diversity- and inclusion-related learning opportunities at CERN advertised there.

Laure Esteveny

Note: This post was inspired by the article entitled “What to Do About Employees Who Consciously Exclude Women”, which appeared in the November 2021 issue of the Harvard Business Review.

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 register to receive the CERN Ombud news.

