CERN Bulletin

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More articles at *http://home.cern/cern-people*

OPEN DAYS: CONGRATULATIONS AND THANKS

75 000 visitors participated in hundreds of open house activities thanks to the commitment of nearly 3000 volunteers and many CERN services

A young visitor at the controls of heavy-lifting equipment at the visit point dedicated to transport and handling (Image: Maximilien Brice and Julien Ordan/CERN)

Open Days are a special time for sharing, and are exciting for visitors and volunteers. 75 000 people attended this weekend's event and took part in hundreds of activities and visits organised at nine sites and nearly 160 visit points.

In the information and activity tents, on the car parks, roads and visit points, nearly 3000 of you welcomed them, guided them, informed them and shared your knowledge and passion with them. Open Days are a huge task before, during and after the event. Many activities were developed for participants to learn while having fun, some of them also meant to surprise. Several spaces had to be designed and secured. The smiles of the visitors and their enthusiastic comments are a great reward.

Find several collections of photos of the Open Days on CDS here (*https://cds.cern.ch/search?ln=en&as=1&cc=Photos&m1=e&p1=open+days&f1=&op1=a&m2=a&p2=2019&f2=&op2=a&m3=a&p3=&f3=&action_search=Search&c=Photos&c=&sf=&so=d&rm=&rg=10&sc=0&of=hb*).

Find the comments of volunteers and visitors on Twitter here (*https://twitter.com/hashtag/cernopendays*) and their pictures on Instagram here (*https://www.instagram.com/explore/tags/cernopendays/*).

A WORD FROM THE DIRECTOR GENERAL

CERN STAFF SURVEY - YOUR OPINION MATTERS

One of the ways we aim to ensure an excellent working environment at CERN is by maintaining a strong and open dialogue with everyone working here, whether staff, fellows, users, other associated members of personnel or contractors. That's why we hold regular meetings with personnel to report on ongoing activity and to answer questions about the things that are important to you. And it's why the HR department is preparing to launch out a staff survey.

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A WORD FROM THE DIRECTOR GENERAL

CERN STAFF SURVEY - YOUR OPINION MATTERS

The last major surveys of CERN's personnel were in 2009. They sought the opinions of both staff (*https://cds.cern.ch/record/1274032?ln=en*) and users (*http://accu.web.cern.ch/content/surveys*). Since then, the Users' Office has surveyed users on the specific topics of health insurance, in 2013, and internal communications, in 2016. Today, it's time for a new staff survey: an opportunity for staff members to make their voices heard concerning what's good at CERN and what could be improved. Staff opinions and suggestions will also provide valuable input to the upcoming five-yearly review, and will help us to create a good working environment for all who work here.

The survey covers all aspects of working at CERN, and staff members have already helped us to shape it, thanks to the strong response to a pre-survey conducted before the summer. This has allowed us, along with the external experts we are working with, to tailor the survey to focus on your concerns.

Please take the time to complete the survey: just 10-15 minutes of your time will help us make CERN a better workplace. The Staff Association is running a complementary survey to which your input is also highly appreciated.

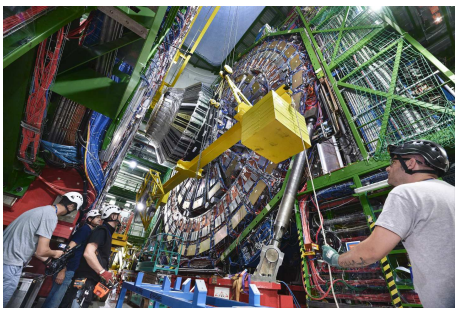
The staff survey will be open from 24 September to 15 October, and the results will be shared with all personnel later in the year.

For more information on the survey, see this announcement (https://home.cern/news/official-news/cern/launching-staff-engagement-and-satisfaction-survey-24th-september).

Fabiola Gianotti
Director-General

LS2 REPORT: CMS SET TO GLITTER WITH INSTALLATION OF NEW GEMS

The CMS muon system is being upgraded to help track muons with ever-higher precision



The GEMs being installed in CMS (Image: Maximilien Brice/CERN)

Muons – heavy, weakly interacting particles – zip past the inner layers of the Compact Muon Solenoid (CMS), after being produced in collisions by the Large Hadron Collider (LHC). They are observed using special detectors placed on the periphery of the cylindrical device, where they are the particles most likely to register a signal. Although CMS, as the name suggests, was designed with the ability to observe with high precision nearly every muon produced within it, it will become more challenging to do so in a few years' time. The High-Luminosity LHC (HL-LHC) will begin operations in 2026, providing on average over five times more simultaneous proton–proton collisions than before. Various components of CMS, including the muon system, are being upgraded during the ongoing second long shutdown (LS2) of CERN's accelerator complex, in order to cope with the HL-LHC's higher data rates.

Muon detectors contain different mixtures of gases that get ionised when high-energy muons fly through them, providing information about where the muon was at a given instant. The CMS muon system has so far used three different types of detectors: Drift Tubes (DT), Cathode Strip Chambers (CSC) and Resistive Plate Chambers (RPC). Around a decade ago, at about the time that CMS began collecting LHC collision data, it was decided to build a completely new type of detector called Gas Electron Multipliers, or GEM, to improve the muon-detection abilities of CMS in the HL-LHC era. After extensive R&D, the first GEMs were assembled and tested at CERN's Prévessin site in a dedicated fabrication facility. In July, two of 72 so-called “superchambers” of GEMs were transported carefully to Point 5 and installed within CMS. Each superchamber had a bottle of gas strapped on top of it on the trolley so the detector could keep “breathing” the inert air. The remaining 70 superchambers will be installed later in LS2.

“The GEMs are new technology for CMS and Run 3 of the LHC will give us the opportunity to evaluate their performance,” says Archana Sharma, who has led the CMS-GEM team since 2009. “Of course,” she continues, “it's not only there to be tested. The first GEMs will work with the existing CSCs to provide valuable trigger-

ing information to select the most interesting collision events." Two more GEM stations with 288 and 216 modules respectively will be definitively installed in the coming years, in time for the HL-LHC.

The muon-system team have been busy upgrading the electronics of the 180 CSCs located closest to the beam line to prepare for the HL-LHC. "We have already removed, refurbished and reinstalled 54 CSCs this year," notes Anna Colaleo, CMS muon-system manager. "Work on replacing the electronics for another batch of CSCs is in progress and we plan on completing this endeavour by the summer of 2020."

CMS is also performing critical maintenance on the rest of the muon detectors during LS2. As expected, over the course of several years of operation, some components of these detectors have deteriorated slightly. The RPCs have been made more airtight to reduce gas leaks, while both DTs and RPCs have had some broken components replaced. In addition, neutron shielding is being added to the top of the DTs located in the central barrel to protect CMS from the neutron background caused by the particle beam interacting with the beam pipe.

With nearly a year and a half of LS2 left, the CMS experiment site at LHC Point 5 continues to be a hub of activity as the collaboration prepares for the LHC's Run 3 and beyond.

More photos of the GEMs installation on CDS (*https://cds.cern.ch/record/2684028*)

Achintya Rao

ARTIFICIAL INTELLIGENCE: THE ONLY WAY IS ETHICS

Vivek Nallur, assistant professor at University College Dublin, discussed aspects such as implicit bias during his talk at CERN

During his talk, Nallur called for increased collaboration between computer scientists, legal professionals and experts in the domains where AI technologies are being applied (Image: Andrew Purcell/CERN)

CERN has an ambitious upgrade programme for its flagship accelerator complex over the next two decades. This is vital to continue pushing back the frontiers of knowledge in fundamental physics, but it also poses some gargantuan computing challenges.

One of the potential ways to address some of these challenges is to make use of artificial intelligence (AI) technologies. Such technologies could, for example, play a role in filtering through hundreds of millions of particle collision events each second to select interesting ones for further study. Or they could be used to help spot patterns in monitoring data from industrial control systems and prevent faults before they even arise. Already today, machine-learning approaches are being applied to these areas.

It was in view of the potential for further important developments in this area that Vivek Nallur was invited to give a talk last week at CERN entitled ' Intelligence and Ethics in Machines – Utopia or Dystopia? '.

Nallur is an assistant professor at the School of Computer Science at University College Dublin in Ireland. He gave an overview of how AI technologies are being used in wider society today and highlighted many of the limitations of current systems. In particular, Nallur discussed challenges related to the verification and validation of decisions made, the problems surrounding implicit bias, and the difficulties of actually encoding ethical principles.

During his talk, Nallur provided an overview of the main efforts undertaken to date to create AI systems with a universal sense of ethics. In particular, he discussed systems based on consequentialist ethics, virtue ethics and deontological ethics – highlighting how these can throw up wildly different behaviours. Therefore, instead of aiming for universal ethics, Nallur champions an approach based on domain-specific ethics, with the goal of achieving an AI system that can act ethically in a specific field. He believes the best way to achieve this is by using games to represent certain multi-agent situations, thus allowing ethics to emerge through agreement based on socio-evolutionary mechanisms – as in human societies. Essentially, he wants AI agents to play games together again and again until they can agree on what actions should or shouldn't be taken in given circumstances.

"We shouldn't try to jump from no ethics in AI to universal ethics; let's take it step by step," says Nallur. "To start, we should aim to have systems that work and can have liberty within specific domains. To achieve this, we will need intense and fundamental collaboration between computer scientists, domain experts and legal professionals."

Nallur was invited to speak at CERN by CERN openlab, which is running a number of R&D projects related to AI technologies with its industry and research collaborators. "Naturally, CERN doesn't have to deal with the kind of ethical quandaries that those using AI in a medical or law-enforcement context face," says Alberto Di Meglio, head of CERN openlab. "However, it would be a mistake to dismiss this as simply an interesting philosophical exercise in the context of particle physics. Here at CERN, we are proud that tools and techniques we develop are often adopted for use by other communities – within both research and industry. As such, it is important to think about ethical considerations related to AI technologies from a very early stage." He continues: "I hope that this fascinating talk will serve to ignite further discussion within our community."

Nallur's talk (https://cds.cern.ch/record/2687725) is available to watch in full

Andrew Purcell

COMPUTER SECURITY: UN-CONFIDENTIALITY WHEN USING EXTERNAL E-MAIL

Using the CERN e-mail service gives you some flexibility, but some current practices can have severe implications for password secrecy and the confidentiality of certain documents sent by e-mail

Using the CERN e-mail service gives you some flexibility. Maybe a bit too much, as some current practices are problematic under CERN's Computing Rules (CERN Operational Circular No. 5) since they can have severe implications for password secrecy and the confidentiality of certain documents sent by e-mail!

E-mails are like unsealed envelopes. Everyone who has physical access to that envelope can read the letter inside. In the digital world, this means that everyone with access to your mailbox can potentially read all your e-mails. This is why the CERN e-mail service is hosted within CERN and its managers are subject to strict confidentiality rules. E-mail communication within CERN is encrypted, but easily gets lost once e-mails leave the Organization. So let's take a look at just how easily. . .

To take one example, configuring a forward for all e-mails sent to your @cern.ch address towards an external e-mail provider like Gmail, Yahoo, Mail.ru, GMX.de or Outlook.com, exposes all forwarded e-mails to that third party. CERN confidentiality is left to be "just" governed by the third party's commitment to maintain confidentiality and hence is subject to any business interest they might have. No guarantees, but plenty of terms and conditions. The confidentiality of CERN's internal information, documents and attachments exchanged by e-mail is lost. And the original sender might not even realise this! In addition, forwarding e-mails to third parties poses a risk to CERN's privileges and immunities as an intergovernmental organisation (as also stated on the e-mail service's configuration page). They become void when confidential information is forwarded by e-mail, leaving the Organization unprotected (see our very old *Bulletin* article entitled "Don't let your mail leak").

Secondly, giving an external e-mail provider such as Gmail full access to fetch or delete e-mails from CERN's mail servers and write e-mails on behalf of CERN defeats password secrecy. Your CERN password is yours and only yours. It must not be shared with anyone else. However, for the aforementioned full access the third party has to store original, plain text CERN passwords, and use them directly on behalf of the CERN user, to connect to CERN's e-mail service and let Gmail fetch data from your CERN mailbox. This is different from configuring your local (local!) mail client to fetch these e-mails as your local mail client resides on your local laptop, smartphone or tablet, and is not handed out willingly to any third party*.

Thirdly, e-mails with confidential content leaving the Organization require special care. Encryption of the confidential contents is the usual (but difficult) remedy. Better is to avoid e-mail as a communication channel for such data at all. For personal data, CERN's Office for Data Privacy (ODP) recommends avoiding wherever possible the use of e-mail to communicate personal data. In any case, secure collaboration workspaces are the preferred mechanism (see our *Bulletin* article entitled "A 'file drop' for confidential data").

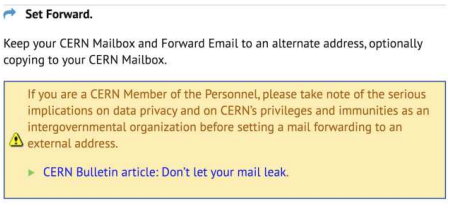
What next? Help us to protect CERN's data, operations, and privileges and immunities. Reconsider your working principles:

- Avoid forwarding e-mails to a third party e-mail provider. If you are employed by CERN, the CERN e-mail service should be most appropriate for your professional needs;
- Do not allow a third party e-mail provider to automatically fetch and process your CERN e-mails. Keep your password and access to CERN protected;
- Refrain from sending confidential documents, in particular those containing personal data, via e-mail. Instead, use CERNbox as a secure alternative.

The CERN Computer Security Team, in collaboration with the CERN account management service, the e-mail services and the CERNbox team are always actively looking into providing you with the best ways to keep your communications secure.

**Interestingly, Google has started doing exactly the same: restricting remote API access calls to its Gmail service. Until now, for instance, you could configure any third-party e-mail app to access your Gmail account in order to send, read and delete e-mails remotely. But that has ceased due to Google's privacy concerns.*

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



The Computer Security Team

Official communications

125TH ACCU MEETING

Agenda for the meeting to be held on Tuesday, 17 September 2019 at 9.15 a.m. in Room Georges Charpak (Room F, 60/6-015)

1. Chairperson's remarks
2. Adoption of the agenda
3. Minutes of the previous meeting
4. News from the CERN Management
5. Report on services from SMB Department
6. Report on services from IT department
7. Reports from ACCU representatives on other Committees
   - Academic Training Committee
   - Scientific Information Policy Board (SIPB)
8. Users' Office News
9. Matters arising
10. Any Other Business
11. ACCU Meeting dates 2020 (proposal)
12. Agenda for the next meeting

The **Advisory Committee of CERN Users (ACCU)** is the forum for discussion between the CERN Management and the representatives of CERN Users to review the practical means taken by CERN for the work of Users of the Laboratory. The mandate of ACCU is available on: http://accu.web.cern.ch/content/mandate

There are one or two Delegates from each Member State (two Delegates from the large Member States), one Delegate from each of the Associate Members, four Delegates from non-Member States (NMS), and two from CERN. The list of ACCU members is available on: http://accu.web.cern.ch/content/accu-members

ACCU meetings are attended by the Director General and members of the Directorate, other members of the CERN management and departmental representatives, the Head of Users' Support and a representative of the CERN Staff Association. Other members of the CERN Staff attend as necessary for specific agenda items.

Chairperson: Dragoslav-Laza Lazic (Dragoslav.Lazic@cern.ch)

Secretary: Michael Hauschild (ACCU.Secretary@cern.ch)

Anyone wishing to raise any points under “Any Other Business” at the upcoming ACCU meeting is invited to contact the appropriate User representative, or the Chairperson or the Secretary.

OPERATIONAL CIRCULAR NO. 2 (REV. 3)

Conditions of access to the fenced parts of the CERN site (update of Annex I to the implementation measures)

Members of the personnel and other persons concerned are hereby informed that the Director-General has approved, further to consultation with the Staff Association in line with §4 of the circular, an update of Annex I to the document “*Implementation measures, subsidiary document to Operational Circular No. 2 (Rev. 3)*”.

This update of the Annex I has entered into force on 1 September 2019 and is available via the following link: https://cds.cern.ch/record/2109697

The modifications predominantly concern the opening hours of the main access points of the fenced parts of both Meyrin and Prévessin sites.

Information on these new access modalities is also available from the SMB website: http://smb-dep.web.cern.ch/en/security

Department Head Office
HR Department

LAUNCHING THE STAFF ENGAGEMENT AND SATISFACTION SURVEY: 24 SEPTEMBER

On 24 September, CERN HR will be launching an engagement and satisfaction survey for all staff members at CERN

(Image: CERN)

On 24 September, CERN HR will be launching an engagement and satisfaction survey for all staff members at CERN.

This survey will be an opportunity for staff members to share their feedback and ideas which will help us to identify CERN's strengths and areas to improve for the benefit of all.

The feedback will be solely processed by Effectory, an external, industry-leading research company which has over 20 years in the employee survey business, and have proven that employees can make significant improvements by sharing their ideas and feedback. Openness and honesty are key, so we have ensured that all answers will be fully anonymous.

Staff members will receive further information including a link to complete this survey on 24 September (closing date 15 October), and results will be presented later this year.

Thank you in advance to all CERN staff members for their participation!

CERN HEALTH INSURANCE SCHEME (CHIS) – IMPLEMENTATION DIRECTIVE ON DIRECT PAYMENT OF BENEFITS TO SPOUSE WHO ARE SUBSIDIARY MEMBERS

CHIS Directive No. 3 entitled "Direct payment of benefits to spouse who are subsidiary members", was approved by the Director-General after discussion at the Standing Concertation Committee on 6 June 2019 (see Article VI 2.04 of the CHIS Rules).

This Directive is available via the following link: http://cds.cern.ch/record/2687821. It entered into force on 1 July 2019.

Department Head Office
HR Department

Announcements

APPLY FOR THE FIRST QUANTUM-COMPUTING HACKATHON AT CERN IN OCTOBER!

Are you interested in learning more about quantum technologies and where it could take us? Do you enjoy collaborating on solutions to challenging problems? Then apply for **the first Quantum Futures Hackathon at CERN, held at CERN IdeaSquare from Friday 18 to Sunday 20 October 2019**, and secure your chance to explore one of the most promising technologies of our time. The hackathon is a follow up event to the Quantum Future Workshop, which took place earlier this year.

Participants will learn more about quantum computing by working in cross-disciplinary teams, exploring the emerging, quantum-based technologies and developing own contributions. Mentored by top scientists from both industry and academia, they will engage in a wide range of projects and challenges, such designing online games, developing solutions that help physicists at CERN, and quantum-generated artworks.

The event is designed to bring together participants from all backgrounds and all levels of expertise – all you need to apply is an interest in learning more about quantum technology. To apply and for more information, visit our Indico page (*https://indico.cern.ch/event/838035/*).

CONFERENCE: MOBILITY @ CERN | 20 SEPTEMBER

You are encouraged to attend the conference on mobility at CERN on:

Friday, 20 September at 11.00 a.m.
CERN Main Auditorium (500-1-001)
The talk will be given in English by Lluis Miralles, head of the SMB department

CERN has launched a process to establish its Enterprise Mobility Plan (EMP), with the aim of identifying measures to improve the commuting and professional travel of its personnel and collaborators.

CERN's specific activities and geographical environment, its status as an international organisation and the environmental and energy efficiency aspects associated with mobility are being considered. In the talk, the results of the 2018 personnel survey on mobility and an analysis of the CERN's current mobility provisions and the measures under study will be presented.

The conference will be webcast and recorded.

See also the Indico page (*https://indico.cern.ch/event/849318/*).

“LA NUIT EST BELLE!”: A NIGHT WITHOUT STREET LIGHTING

On 26 September, switch off your lights and take some time to observe the stars

CERN is taking part in Geneva's first ever switch-off of street lighting on 26 September. The “La nuit est belle” project is aimed at raising awareness about the impact of light pollution resulting from excessive artificial lighting. No fewer than 109 communes on both sides of the border are contributing to the project.

CERN encourages you to join in as well: switch off your lights, take advantage of the dark and look up at the stars. The astronomical conditions on the night of 26 September will be ideal (provided the sky is cloud-free) with a new moon, the Milky Way visible from sunset and a chance to see Saturn and Jupiter.

For those of you working late at CERN, please note that the sites will not be lit that night. Cyclists and pedestrians should make sure that they are visible. Follow the event live on social media via the hashtag #lanuitestbelle.

For more information, visit the website: https://www.lanuitestbelle.org