

CRAB CAVITIES GET INTO THEIR SHELLS

The two crab cavities have been put in their helium vessels and are currently being installed in their cryostat



Members of three departments – Engineering, Technology and Beams – performing final checks on the crab cavities before they are installed in their cryostat. (Image: Julien Ordan/CERN)

Building crab cavities (see the box below) is like assembling an enormous, intricate, three-dimensional puzzle after designing it from scratch. Yet, it is far from child's play – it requires a lot of thought and careful planning.

The assembly of the new superconducting crab cavities, the testing of which is planned to take place at the Super Proton Synchrotron (SPS) in 2018, is progressing with a steady pace and on schedule. This is the result of a great team effort by seven groups from three departments at CERN**, as well as colleagues from institutes in the UK and the US.

The first milestone was reached in late March 2017, when the two cavities manufactured at CERN demonstrated a maximum transverse voltage of up to 5 megavolts, surpassing the required voltage of 3.4 megavolts.

Since this initial success, each cavity has been inserted into a special titanium vessel, designed to enclose the cavities in liquid helium to allow them to operate them at a temperature of 2 Kelvin. The main power coupler and four additional couplers required for the operation of the cavities have been assembled. These operations were carried out in a clean room to preserve the performance level reached during the first radiofrequency tests. Later, the two cavities were connected to each other using a precision table to carefully align the electrical centre of the cavities for optimum beam operation.

The string of cavities is currently being installed in its cryostat.

(Continued on page 2)

A WORD FROM THE DIRECTOR GENERAL

TIME FOR CHANGE IN THE OMBUD'S OFFICE

Established in January 2011, CERN's Ombud's office is rapidly approaching its seventh birthday, and with Ombud Sudeshna Datta Cockerill about to take a well-earned retirement, Pierre Gildemyn is preparing to assume the role. The change of Ombud provides a good opportunity to look back at the reasons why CERN established the Ombud's office back in 2011, and how it has fared since then.

(Continued on page 2)

In this issue

News	1
Crab cavities get into their shells	1
A word from the Director General	2
LHC Report: colliding at an angle	3
25 years of the Internet Society	4
CERN School of Computing 2017: a successful 40th edition	4
The SCINT conference celebrates its 25th anniversary	5
Brain Power vs. Password Managers	6
The Glassbox reopens	7
Official communications	7
Announcements	8
Ombud's corner	11



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A WORD FROM THE DIRECTOR GENERAL

TIME FOR CHANGE IN THE OMBUD'S OFFICE

The office was created to accompany the launch of the CERN Code of Conduct. It is there to provide help to anyone at CERN experiencing conflict of any form. It is an informal, neutral and confidential place to turn, and it aims, wherever possible, to catch issues before they develop too far, while resolving any rare cases that can't be avoided, with the minimum of fuss. Like the Code of Conduct, the Ombud's office is all about promoting respect in the workplace.

I am a firm believer that the role of Ombud in any organisation helps to ensure a healthy working environment for all. At CERN, the role was very quick to become established: the Ombud's Corner in the Bulletin has been well read from the beginning, and around 100 people make use of the services of the Ombud every year. That's a small number compared to the overall

CERN population, and it includes representatives of all categories of personnel. Similar numbers of men and women turn to the Ombud for advice, although that translates to a considerably higher fraction of the female population than that of the male population. The issues raised are, however, similar for both. Relationships between supervisors and supervisees, and relationships between peers, constitute the lion's share of issues that people bring to the Ombud. About half of the cases are addressed confidentially through advice or discussion, with only a small number of cases leading to action or mediation. To me, this is a strong sign that the office of the Ombud is working as it should, and that we have created an environment that allows conflicts to surface and be managed constructively.

Every two weeks, the Ombud's Corner in the Bulletin provides thought-

provoking reading as it unpicks the kind of issues that are the bread and butter of an Ombud's work. There are articles that address general aspects, like the important role of empathy in management roles, stepping out of our comfort zones, or the role of respect in the workplace. Other articles cover specific issues, such as unearned advantage, which many of us may enjoy while being quite unaware that we have it, or the potential perils of a hastily written e-mail. I strongly encourage you to read these articles: I always do so!

Sudeshna Datta Cockerill will be handing over the keys to the Ombud's office to Pierre Gildemyn at the end of this month, after a career spanning 41 years at CERN and covering a range of roles in HR. I'd like to thank Sudeshna very warmly for the great work she has done with the office of Ombud, and wish Pierre every success in his new role.

*Fabiola Gianotti
Director-General*

CRAB CAVITIES GET INTO THEIR SHELLS

"The cryostat is like a high-performance thermos flask that will reduce the heat load and keep the cavities at their operating temperature. It will also protect them from the Earth's magnetic field," explains Ofelia Capatina, deputy leader of the crab cavities work package of the High-Luminosity LHC (HL-LHC) project.

The final step is the installation of the cryostat in the SPS for tests with proton beams. This will be done in January 2018, during the year-end technical stop. "These tests will be critical. They will help us validate more than ten years of research and development on superconducting crab cavity technology and trigger the launch of the series production for the HL-LHC," explains Rama Calaga, the radiofrequency physicist behind the technology and the work package leader of the crab cavity project.

In total, 16 crab cavities will be installed in the HL-LHC – eight near ATLAS and eight near CMS.

*What is a crab cavity?

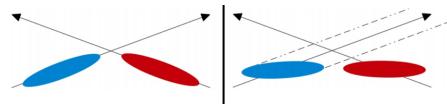
They won't pinch you and you cannot make a salad with them. The name of the cavities has nothing to do with their appearance and is merely illustrative of the effect they have on the proton bunches. The crab cavities will play an important role in the future upgrade of the Large Hadron Collider (LHC), called High-Luminosity LHC (HL-LHC). The new configuration is due to be operational after 2025 with the goal of increasing the luminosity of the LHC (the measure of its collision rate) by a factor of 10. In the present configuration, the

two counter-circulating beams meet at an angle at the collision point of the experiments. What makes the crab cavities special is their ability to "tilt" the proton bunches in each beam, forcing them to collide head-on and thus maximising the luminosity. After being tilted, the motion of the proton bunches appears to be sideways – just like a crab.

*** BE-RF, EN-ACE, EN-HE, EN-MME, EN-STI, TE-CRG and TE-VSC groups*



The string of crab cavities in the SM18 test facility.
(Image: Max Brice; Julien Ordan/CERN)



Left: Illustration of the collisions in the present configuration of the LHC where the proton bunches meet with a crossing angle. Right: Illustration of the effect of the crab cavities on the bunches. After the bunches are tilted by the transverse radio-frequency field in the crab cavities, they collide head-on at the collision point. (Image: CERN)

Iva Raynova

LHC REPORT: COLLIDING AT AN ANGLE

Why the LHC beams must cross at an angle, and how the angles can be optimised for the best performance

Since the last year-end technical stop, during machine fills and while the beams are in collisions, the crossing angles at which the beams collide in the middle of ATLAS and CMS have been routinely reduced. Reducing the crossing angle over the course of a fill allows the recovery of some of the total potential luminosity that gets lost as the beams do not collide head-on, but they need to be collided at an angle of a couple of hundred microradians. The principle of this progressive angle reduction process was demonstrated in September last year, during a Machine Development period. It was then automated during the 2016 end-of-year shutdown to be routinely used in LHC operation. After successful validation during the 2017 re-commissioning period, it has been used in every LHC physics production fill ever since.

Why must the two beams be put in collision at an angle and why do we want to reduce this angle? When the two LHC beams approach each other around each of the four LHC interaction regions, encounters must be prevented in the region where the two beams share the same vacuum chamber. The solution to that problem is therefore to collide the beams at an angle of a couple of hundred microradians. But even when colliding the beams at an angle, the bunches still interact at a distance through electromagnetic fields. The angle therefore has to be large enough to provide a separation

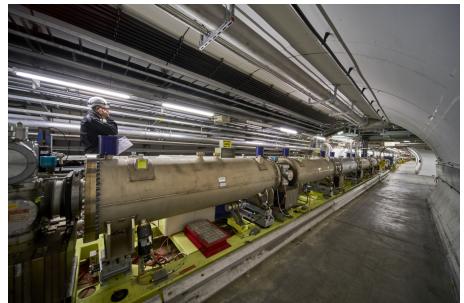
that reduces these long-range interactions between the beams to an acceptable level. However, a large crossing angle decreases the luminosity, as it reduces the overlap area of the bunches. This geometric reduction factor depends on the crossing angle as well as on the transverse beam size and the bunch length. With the present LHC beam parameters, ATLAS and CMS lose around 35% of the theoretical peak luminosity due to the crossing angle.

LHC scientists have found a way to mitigate this effect: since the beams lose intensity in collisions, and the long-range interactions thus decrease, this allows a reduction in the crossing angles. For the last few months of LHC proton physics operation in 2017, the crossing angles of the beams have been routinely reduced while the beams were in collisions. At present, the half crossing angle at ATLAS and CMS is 150 microradians at the start of collisions, and it is reduced by 10 microradians every few hours down to a minimum of 120 microradians. This increases the total integrated luminosity yield per LHC fill by up to 5%.

Decreasing the crossing angle in the LHC, with high-intensity beams colliding and all experiments recording data, is not as simple as turning a knob or pushing a button. The protection of the machine and the experiments needs to be ensured at all times, and multiple accelerator systems

need to be orchestrated for a smooth transition, including the steering magnets, the orbit feedback system and the collimators around the affected interaction points.

The LHC has just undergone a three-day technical stop. Every technical stop is followed by a short re-validation of machine operation, which includes an intensity ramp up, typically over three to four machine fills. This time the LHC crews are taking advantage of that ramp up to further squeeze the beam size at the ATLAS and CMS interaction points through a reduction of the β^* parameter from 40 cm to 30 cm. This change is expected to yield a 10% increase in the integrated luminosity for the remainder of the 2017 run.



The SPS tunnel during short a short Technical Stop in September 2017 (Image: M. Brice/CERN)

Jorg Wenninger for the Operations group

25 YEARS OF THE INTERNET SOCIETY

As part of the programme of the Internet Society annual member meeting, a live panel was hosted by CERN at the Globe of Science and Innovation



Left to right: Robert Cailliau, Alberto Pace, Ben Segal, Roxanna Radu, François Flückiger and Monique Morrow at the Swiss event of the Internet Society annual member meeting, held at CERN's Globe on 19 September. (Image: Sophia Bennett/CERN)

On 19 September, the Internet Society held their annual member meeting, Intercommunity 2017, celebrating their 25th anniversary. The Internet Society is a non-profit organisation that provides

leadership in Internet-related standards, education, access, and policy. Its mission is “to promote the open development, evolution and use of the Internet for the benefit of all people throughout the world.”

InterCommunity 2017 ran for 19 hours, with 16 live-streamed regional events worldwide. As part of the programme, a live panel was hosted by CERN at the Globe of Science and Innovation. CERN was a natural choice to host the Swiss event being one of the founding members of the Internet Society and for playing a central role in the development of the internet in Europe between 1982 and 1994.

Monique Morrow, President and Co-Founder of the Humanized Internet, Roxanna Radu, Programme Manager at the Geneva Internet Platform and Alberto

Pace, Head of the Storage group in the IT department at CERN and CERN representative at W3C and Internet Society, were joined by three CERNois having received the Internet Hall of Fame award, Robert Cailliau, François Flückiger and Ben Segal. The panel was moderated by Frédéric Donck, Director for the Internet Society European Regional Bureau. Through a lively discussion, the speakers debated if the Internet of Things would undermine the Internet of Trust.

More details about the event here (<https://www.internetsociety.org/intercommunity/2017/nodes/geneva>).

To watch the recording of the live panel: <https://indico.cern.ch/event/665740/>.

Henry Thomas Bennie

CERN SCHOOL OF COMPUTING 2017: A SUCCESSFUL 40TH EDITION

Since 1970, the CERN School of Computing has trained more than 2600 participants from 80 countries in scientific computing



Occasionally, even physicists and computer engineers dress up! Here, CERN School of Computing 2017 students attend the official Opening Gala Dinner. (Image: Nikos Kasioumis/CERN)

The CERN School of Computing (CSC) is one of the three schools that CERN has set up to deliver knowledge relating to the Organization's main scientific and technical pillars – physics, accelerators and computing. The first CSC was held in Varenna, Italy in 1970. Since then, the School has visited 21 countries, and has been at-

tended by over 2600 students from five continents and 80 countries. The aim of the two-week programme is to promote advanced learning and knowledge exchange in scientific computing among young scientists and engineers involved in particle physics or other sciences.

Since 2002, CSC has offered a diploma upon successful completion of an optional exam. In addition, since 2008 the university hosting the CSC has reviewed the school's academic programme with a view to incorporating the CSC in its official teaching programme. As a result, a formal certificate of 5 to 6 ECTS Credit Points (European Credit Transfer System) is awarded by the host university. Those credit points are recognised in Europe for any PhD or Master's programme. Since 2005, the CSC management has also run the inverted CSC (iCSC, “Where students turn into teachers”) and since 2013 the thematic

CSC (tCSC). The idea behind the inverted school is to invite CSC alumni to become teachers themselves, at a short school of three to five half-days, held at CERN in the winter. The thematic CSC is a one-week school that covers a particular topic in greater depth – the topic for tCSC 2017 was “Efficient Parallel Processing of Future Scientific Data”.

In 2017, the 40th CERN School of Computing took place in Madrid, Spain, organised in collaboration with the *Universidad Politécnica de Madrid* (UPM). It welcomed 63 students selected from among 110 applications, from 37 different universities and institutes, representing 26 nationalities. The usual intensive academic programme (52 hours of lectures and exercises) was complemented by a particularly rich social programme, including scientific visits at UPM, a guided tour of Madrid and a pub quiz, among other activities. The

students particularly enjoyed the special sports afternoon, where many tried kayaking, stand-up paddleboarding (SUP) or archery for the first time. At the end of the school, 59 students passed the optional exam – 14 of them with distinction!

Applications for CSC and tCSC 2018 will open in early 2018 – to find out more, please visit: <https://csc.web.cern.ch/>.

published in the CERN Courier in 2013 (<http://cerncourier.com/cws/article/cern/55330>).

Mélissa Gaillard

THE SCINT CONFERENCE CELEBRATES ITS 25TH ANNIVERSARY

The SCINT 2017 conference on scintillation and its applications took place between 18 and 22 September



The participants of the SCINT 2017 Summer School on scintillation and its applications in Chamonix. (Photo: SCINT organising committee)

Twenty-five years after its first session, the SCINT conference returned to its birthplace. SCINT was launched in 1992 by Paul Lecoq, who at the time was the spokesperson for the new Crystal Clear collaboration (RD18 experiment), and every two years brings together more than 200 experts – theorists, engineers, representatives of industry and users – in scintillation and its applications. This year, for its 14th session, SCINT celebrated its quarter-century in Chamonix.

Scintillators are used in many different fields: nuclear and high-energy physics, astrophysics, medical imaging, non-destructive testing, safety devices, etc. In the form of crystals or fibres, they convert high-energy radiation into light pulses and can thus be used to detect the pres-

ence of ionising radiation and to obtain data about its energy level, trajectory and characteristics.

In 2017, 273 participants attended the event, including many manufacturers of scintillator crystals and detection specialists, who presented their latest innovations on 18 stands and held discussions with scientists during a dedicated afternoon session.

Since the very start, SCINT has witnessed and driven significant advances in the field of scintillation, in both academia and industry. In 1992, the scintillation properties of lead tungstate ($PbWO_4$) were presented for the first time. This material was later adopted by the CMS and ALICE experiments at the LHC. That year also saw the announcement of the discovery of cerium-doped lutetium oxyorthosilicate (LSO), a crystal now widely used in positron emission tomography (PET) scanners.

"The discussions at SCINT between specialists in different fields are one of the strengths of the conference," says Etienne Auffray, spokesperson of the Crystal Clear collaboration and Chair of the SCINT 2017 conference. *"They have resulted in significant advances in our understanding of scintillation mechanisms and the development of new materials and innovative devices, and have helped to en-*

courage technology transfer between high-energy physics and applications as diverse as medical imagery, industrial process control, and nuclear safety and non-proliferation."

The members of the Crystal Clear collaboration are currently participating in several European projects, including Intelum (a Marie Skłodowska-Curie RISE project), ASCIMAT (a Twinning project) and FAST (COST Action). *"Thanks to COST TD1401: FAST (Fast Advanced Scintillator Timing) and the ASCIMAT project, we have been able to support the participation of 18 students in the first SCINT Summer School, which took place between 14 and 17 September, bringing the total number of participants to 56 (including several from industry),"* adds Etienne Auffray. *"The students were able to acquire valuable knowledge about scintillation mechanisms and detectors before the start of the conference, which was a resounding success!"*

To find out more about Crystal Clear, read the article (<http://cerncourier.com/cws/article/cern/66566>) published in the CERN Courier to celebrate the 25th anniversary of the collaboration.

Anaïs Schaeffer

BRAIN POWER VS. PASSWORD MANAGERS

Your passwords deserve the same care and attention as your car and house keys, your credit cards or your Smartphone

The primary entry point to your digital life is your password. Your Facebook password to meet your friends, your Instagram password for sharing your photos, your Amazon and PayPal passwords for buying stuff, your iCloud password (or similar) for all your photos, music and videos, and your CERN “NICE” password for your professional activities for the Organization. A lost password means full exposure: with your password, an adversary can dig deep into your private (and professional!) life. Imagine someone who's able to roam through your flat – but much more clandestine. It's not rocket science that your passwords deserve the same care and attention as your car and house keys, your credit cards or your Smartphone. Their loss can have a significant impact on your life...

A good password is something you can easily remember, is unique for each computing service, has never been shared with someone else, and is sufficiently complex that it cannot be guessed by humans or automatic tools (like so-called dictionary attacks trying out every word in a dictionary and even combinations thereof). Unfortunately, “memorable”, “unique” and “sufficiently complex” seem to contradict each other for the average human brain. Brain power seems to be too limited nowadays to recall several dozens of password/site combinations. What seemed to be easy for my grandma, remembering hundreds of phone numbers and whom they belong to, seems to have become difficult today. And the usual hints of:

- Choosing a line or two from a song or poem, and using the first letter of each word. For example, “In Xanadu did Kubla Khan a stately pleasure dome decree!” becomes “IXdKKaspdd!”;
- Using a long passphrase like the sentence “In-Xanadu-Did-Kubla-

Khan-A-Stately-Pleasure-Dome-Decree!” itself or mathematical formulas like “ $\sin^2(x)+\cos^2(x)=1$ ”;

- Alternating between one consonant and one or two vowels with mixed upper/lower case. This provides nonsense words that are usually pronounceable, and thus easily remembered. For example: “Weze-Xupe” or “DediNida3”;
- Choosing two short words (or a big one that you split) and joining them together with one or more punctuation characters between them. For example: “dogs+F18” or “comP!!UTer”

do not work for everyone.

The easiest thing to do, of course, is to reduce the number of passwords: your Google or Facebook account can already be used for services outside the Facebook and Google realms. And CERN is also actively working on a “federated identity” solution so that you can use your CERN username and password to access computing services at other institutes and universities – and vice versa! In addition, there is nothing to stop you using easy passwords like “123456” for websites on which you do not expose anything personal, have no financial risk, and where an adversary cannot create havoc (e.g. newsletter subscriptions). If you seldom access those pages, you might even forget those passwords and reset them only once needed...

For more important computing services, you might want to consider using a password manager to store all your different passwords and protect them with a very strong, complex and long master password. There are many technical solutions on the market: “Lastpass”, “Keepass”, Apple “Keychain” or even the built-in pass-

word managers within Internet Explorer, Firefox, Safari (i.e. Apple “Keychain”) and Chrome. But before you start using any of them, please consider whether you are fine with putting all your eggs in one basket. If the device running your password manager is compromised, all your passwords are potentially compromised and not only the ones you recently typed into that device; if the password manager is ill-conceived or turns out to be vulnerable, all your passwords are at risk, too (see, for example, this slightly biased old article (<http://www.thewindowsclub.com/chrome-firefox-how-passwords-plain-text-ie9>)); if that device is lost, the only hope left is your brain power. Furthermore, what about the risk of loss of control? Some solutions, like “Lastpass”, push your passwords into the cloud. In the end, it is your choice regarding the balance between convenience and risk.

However, whatever you decide, also consider enabling multi-factor authentication solutions where possible. You use this already for your online bank transactions, and Google, Facebook, Twitter, and others offer similar protection! Multi-factor authentication will also soon come to CERN for privileged access to computing services, the Technical Network and for financial transactions (see our Bulletin article on “Pimp up your password”).

Do you want to learn more about computer security incidents and issues at CERN? Follow our Monthly Report (http://cern.ch/security/reports/en/monthly_reports.shtml). For further information, questions or help, visit our website (<http://cern.ch/Computer.Security>) or contact us at Computer.Security@cern.ch.

The Computer Security Team

THE GLASSBOX REOPENS

The restaurant area for official lunches and dinners has been renovated to create an elegant and high-tech setting



After three months of work, a remodelled Glassbox combining elegance and high-tech features reopened its doors last week. The restaurant area, generally reserved

for official lunches and dinners and distinguished visitors, was officially reopened last Monday by the Director-General.

Part of the renovation work was completed by the Finnish artist Ilona Rista, whose decorative designs already adorn the Main Auditorium. As in the Auditorium, the wall panels are made from light-coloured wood imported directly from the forests of Finland, incorporating a central sculpture with an illuminated animation evocative of a particle collision, a work entitled "Interactions".

The wall panels also incorporate screens that are able to display photos of key moments in the history of CERN or images of relevance to important visitors.

Finally, the area is modular, allowing several groups to be hosted at once.

The attractive refurbishment is the result of the collaborative efforts of several of the Laboratory's services and contractors.

Corinne Pralavorio

Official communications

REGISTRATION AND CUSTOMS CLEARANCE OF VEHICLES IN THE 431 K AND CD SPECIAL SERIES (“GREEN PLATES”)

The French Ministry for Europe and Foreign Affairs has informed CERN that the procedures for the registration and customs clearance of vehicles in the 431 K and CD special series (“green plates”) will be digitised, in order to simplify and accelerate them, as of either the last quarter of 2017 or the first quarter of 2018. Applications will be submitted online via a website run by the Ministry (in the meantime, a simplified process for paper-based applications will be introduced).

In addition, the processing of registration certificates for vehicles in the 431 K and CD special series will be managed centrally by the *Préfecture de police* in Paris and no longer by the *Sous-Préfecture* in Gex.

As is currently the case, CERN's Installation Service will submit the application files to the Ministry and will take responsibility for following them up (including with the *Préfecture de police* in Paris).

Relations with the Host States service
www.cern.ch/relations
relations.secretariat@cern.ch
Tel.: 72848 / 75152

Installation Service
installation.service@cern.ch
Tel.: 74407 / 74493

Announcements

SCIENCE AND MEDIA: WHEN FACTS ARE NOT ENOUGH...

All CERN researchers, staff and students are invited to a panel discussion entitled "When facts are not enough...", held as part of the European Broadcasting Union's (EBU) News & Technology Seminar. Currently in its 9th edition, this annual event brings together TV journalists, technicians and engineers from all the public broadcasters in Europe. Over a day and a half from 3-4 October, participants will discuss how to translate new technology ideas into practical examples of good journalism and relevant news. The EBU chose CERN to host this year's Seminar as a unique cen-

tre of scientific discovery and technological innovation.

The panel discussion takes place at **11:45, on Wednesday 4 October, in the Main Auditorium.**

Moderated by CERN's James Gillies (IR/SPE), the panel will discuss the constraints around communicating scientific facts today, using CERN as a case study and starting point for reflexion.

Besides CERN's Head of Press, Arnaud Marsollier, the panel includes Walter Quattrociocchi Assistant Professor, University of Venice, Carol Rubra, Head of Health and Science Unit at the BBC, and Freya Blekman, Research Professor in Elementary Particle Physics at the Vrije Universiteit Brussels.

This session will be an excellent opportunity to hear directly from media professionals, communicators and scientists on the role of the media in informing citizens about science, technology and research in today's world.

INNOVATE AND INSPIRE: JOIN THE LHC CREATE HACKATHON



Building on the success of CMS Create, this year's LHC Create hackathon is brought

to you by the CMS and ATLAS experiments. Four teams of contestants will have two days to design and build an interactive exhibit intended for the public. The exhibits should introduce the world of particle physics and address the "why?" of CERN's research.

CERN people (staff, students, users, etc.) are encouraged to join the *LHC Create* hackathon for two days of productive fun! Participants will have a chance to collaborate with external actors, as teams will mix four CERN-affiliated people with two student designers from the Geneva IPAC design school. The hackathon will take place at IdeaSquare, where labs, workshops and a large supply of components and material will be made available for the construction of the exhibits.

Teams will be also advised by professionals in the fields of physics, product design, communication and tourism. The winning

team will be selected by a panel of four judges with criteria weighted as:

- Scientific content: 30%
- Suitability for visits: 30%
- Product design: 30%
- Reproducibility: 10%

After two days of fun, work and pizza, the teams will present their prototypes at the Globe in front of the panel of judges and members of the public. Prizes include ski passes, restaurant vouchers, spa treatments and tickets for the Automnales. The winning exhibit will also be re-engineered and turned into a permanent exhibit to be displayed at CERN and in the tourist information offices of the Pays de Gex region.

If you have a creative mind, a taste for teamwork and challenges, join us! Register at: <http://lhccreate.web.cern.ch/>.

NEW PROCEDURE FOR SENDING ITEMS BY REGISTERED/EXPRESS MAIL

As part of the traceability enhancement work undertaken by the SMB department, new procedures for sending items by registered and express mail are being introduced from Monday 25 September.

Henceforth, anyone wishing to use such services must create a ticket on the CERN Service Portal.

From the Service Portal, search for the key words "registered mail" or "express mail", complete the relevant form and then print

out the voucher to be enclosed with the documents.

Alternatively, you can follow the direct links below:

- for registered mail (<https://cern.service-now.com/service-portal/report-ticket.do?name=Recommende-regisetered&se=mail-interna l-distribution>),
- for express mail (<https://cern.service-now.com/service-portal/report-ticket.do?name=Send-Exp ress-mail&fe=mail-office>).

The aim of the new procedure is to simplify and optimise the services provided by the CERN Mail Office. The new system also provides for the automatic tracing of items sent.

We remain at your disposal for any further information.

The Mail Office

WORLD TEACHERS' DAY@CERN: EMPOWERING SCIENCE TEACHERS



This year, join us in celebrating the World Teachers' Day 2017 with a special event at the CERN Globe of Science and Innovation on 5 October.

For the very first time, we will welcome Matt Parker to CERN. Matt is a well-known stand-up comedian and mathematics communicator, or as he likes to call himself 'Standup Mathematician'. Matt switched from being a normal high-school maths teacher to a nomadic maths speaker, giving talks about maths in schools around the world. He will share his favourite methods for capturing the attention of teenagers and engaging them in mathematics.

A panel of experts, moderated by Matt Parker, will take his cue to discuss what CERN does to empower teachers and

to promote scientific education, especially within the CERN & Society programme and in the context of the United Nations' 2030 agenda for Sustainable Development.

You can find more info on the dedicate webpage (<http://cern.ch/go/9BbP>). We look forward to celebrating with you!

Kindly register (<https://giving.web.cern.ch/civicrm/event/register?id=24&reset=1>) as places are limited.

CERN AT THE UN GENEVA OPEN DAY



On 7 October, the *Palais des Nations* will open its doors to the world for the UN Geneva Office's 2017 Open Day. CERN will be there, showcasing the research and innovation that is carried out at the Laboratory.

This will be an opportunity to visit the magnificent *Palais des Nations* building before it is closed for renovation, as well as

to discover the Sustainable Development Goals (SDGs) around which the UN's 2030 agenda for sustainable development is based. Just by carrying out its mission, CERN contributes to five of the 17 SDGs. The way in which CERN contributes to these goals will be highlighted on the CERN stand, both through its contents and by our volunteers, who come from different areas of CERN.

On our compact stand, we plan to have a cross section of a real LHC magnet – a starting point to explain the innovation and technology that underpin the groundbreaking science carried out at CERN. Visitors will be able to take a virtual reality tour of the CMS cavern and of the CERN Data Centre. Against a backdrop image

of the LHC tunnel, visitors will learn more about the history of CERN and about the nature of international scientific collaboration, including its contribution to peace and diversity.

It promises to be a fascinating day, where many of the international organisations that

make Geneva such a special city will come together. So do come along!

For the event's full programme, click here (<https://openday.unog.ch/programme/>) .

CENTRAL HEATING BEING TURNED ON

As of Monday 18 September 2017, the central heating will be progressively turned on throughout CERN. Within the next few days, all buildings will have heating.

We thank you in advance for your understanding.

SMB Department - Site Engineering

TIME TO REGISTER FOR 'EXPANDING YOUR HORIZONS'



A workshop participant discovering what happens when a balloon filled with air is immersed in liquid nitrogen – "Any cooler and you'll freeze 2015 Edition". (Image: Sophie Baron)

Saturday, November 18, 2017, "Expanding your Horizons - Geneva" (EYH) will hold its fifth biennial event for young girls, to encourage them to study science, technology, engineering and mathematics (STEM). The event will be held at the University of Geneva (Uni Mail).

"Expanding your Horizons" is a free event that caters for girls from the ages of 11 to 14 years old living in Geneva and the surrounding region. Workshops, held in French and in English, will be packed with activities to show the 450 girls taking part that science and technology are fun and

interesting. Parents are also invited to participate in a panel discussion on ways to encourage and support their daughters' interest in STEM at school. Thanks to the contribution of about 30 volunteers, CERN will be participating in EYH 2017 with four different workshops and a stand at the "Discovery Fair".

Feel free to pass the messages to girls aged 11-14!

To know more and register: www.elargisteshorizons.ch.

Ombud's corner

THE LAST WORD

In conflict situations, there is a tendency to want to have the last word and be proven 'right' and yet, that may actually be the 'wrong' way to go about resolving an argument, whether it is face to face or through an exchange of e-mails. Instead, the wise approach would be to focus on listening to the other person in order to reach an understanding of the matter at hand before seeking a solution together.

Does it matter who has the last word? Having the last word in an argument may make us feel like we have the upper hand but in actual fact it only deepens the rift between us. The more we focus on our own positions, the less we are able to hear the other point of view and, rather like the tourists who just repeat their questions louder instead of trying to adapt their language to their audience, we lose the opportunity to fine-tune our arguments towards more mutually acceptable outcomes.

Wanting to have the last word may also lead us into 'attack mode' where we end up challenging our interlocutors rather than addressing our differences, leaving them on the defensive and unwilling to even consider any alternatives to their own positions. As long as they remain in this frame of mind, the situation becomes a contest of wills, with each side believing that any shift implies giving in to pressure from the other while their own legitimate concerns go unaddressed.

Alternatively, the desire to have the last word may stem from a need to justify ourselves, and the corresponding reluctance to back down from a previously stated position, even in the face of apparently valid counter arguments, is deemed non-negotiable. Indeed it often comes down to a situation where people's egos become identified with their positions, and the objective merits of the actual issue are clouded in a power struggle that leads nowhere.

The key to effective conflict resolution, therefore, lies in taking the time to understand the interests underlying the different positions, and working side by side to attack the problem, rather than each other.

By understanding each other's goals, exploring options for mutual gain, and then agreeing on objective criteria by which to judge a situation, we may work towards a joint decision, which allows us to settle our differences and move forward.

Conflicts are often rooted in people's perceptions and understanding the other person's thinking is not just a means to an end, it is an essential key to problem solving. Acknowledging another person's point of view, perhaps even admitting its legitimacy within a given context, does not mean that we agree with it. It does however provide us with crucial information as to where our interests converge and points us towards the way in which we can hope to resolve

our differences while still remaining true to our values and preserving our relationships.

Listening enables us to understand others' perceptions, feel their emotions, and hear what they are trying to say. By acknowledging them, we also give them the satisfaction of being heard and understood. It is only when people feel they have been heard that they in turn are open to considering alternatives and, ironically enough, it is by not focusing on having the last word, that we are actually able to ensure that we have our say...

Sudeshna Datta Cockerill