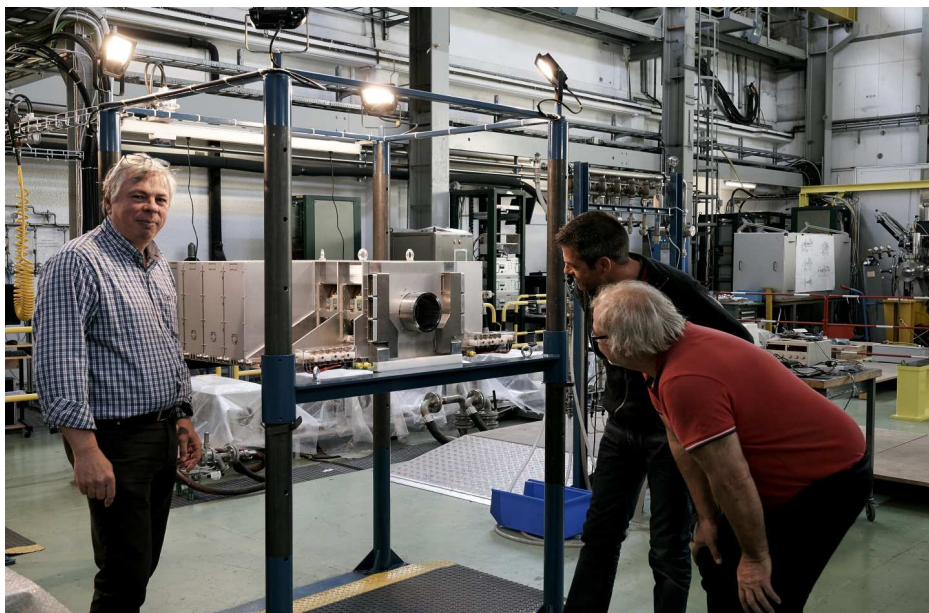


A NEW ACCELERATION SYSTEM FOR THE PS BOOSTER



Mauro Paoluzzi (left), project leader for the PS Booster's new radio-frequency system, in front of the first completed radio-frequency cavity. (Image: Maximilien Brice/CERN)

The refurbishment of the accelerator complex is under way in CERN's workshops. The total replacement of the acceleration system of the PS Booster—the second link in the accelerator chain—is one of the major projects within the LHC Injector Upgrade (LIU) programme of work to ready the LHC injector chain for the High-Luminosity LHC upgrade. At the start of June, the teams celebrated an important milestone: the completion of the assembly of the first new-generation accelerating cavity. Another 27 cavities are currently in production. They will be installed in the accelerator during Long Shutdown 2 in 2019-2020. Once they're in place, the PS Booster will be capable of accelerating higher-intensity beams and at a higher energy of up to 2 GeV, compared with just 1.4 GeV today. The injector will be connected to the brand-new Linac4 facility at the same time.

The PS Booster's new acceleration system is based on radio-frequency cavities built using a composite magnetic material called FineMet and developed by the Japanese firm Hitachi Metals. "The great advantage of this material is that it gives the cavities a wider bandwidth, from 0.6 to 18 MHz," Mauro Paoluzzi, the project leader, explains. "A single cavity can cover all the required frequency ranges!" In a circular accelerator, at low energies, the frequencies of the accelerating cavities have to increase as the speed of the particles increases. The radio-frequency system is also used to manipulate the beam in various ways, which requires a wider range of frequencies.

(Continued on page 2)

A WORD FROM ECKHARD ELSÉN

EPS-HEP 2017 - A LANDMARK CONFERENCE

My congratulations go to the organisers of EPS-HEP 2017, which took place in Venice last week. It was an excellent conference, covering a great range of topics with a programme that led to one clear conclusion: the various disciplines that make up fundamental physics are coming closer and closer together. Particle physics, astrophysics and cosmology have always asked very similar questions about the origin of the universe. Today, they are becoming increasingly linked, providing complementary approaches to finding the answers.

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A WORD FROM ECKHARD ELSEN

EPS-HEP 2017 - A LANDMARK CONFERENCE

I have to start with a look at the contribution from CERN. EPS-HEP was the first large conference at which results from the full 2016 LHC dataset were presented. In many ways, they were tantalising. Electroweak results showed the extraordinary precision that can be achieved by the LHC experiments, auguring well for the future. The Higgs particle is being explored as a possible portal to new physics. Searches are pushing the mass limits for new particles well into the TeV range, and while the lack of new particles may look disappointing, appearances can be deceptive, and in this case most certainly are. We know there is physics beyond the Standard Model, we just don't know what it is yet. Long-standing theories seem to be receding under the experimental onslaught of the LHC, bringing new dynamism to the theory community. This in turn is setting very clear directions for the LHC's future experimental programme.

I was impressed with the progress that has been made on experimental analysis techniques, which are leading to results hitherto unthinkable at a hadron collider. Jets are linked to the underlying beauty quarks and used to reveal the Higgs branching to fermions. The results on heavy flavours are clear examples, epitomised on the one hand by LHCb's discovery of a doubly charmed baryon and on the other hand by the intriguing hints for deviations from lepton universality. Heavy flavour analyses continue to be a vast source of physics and possibly surprises.

One clear area of interplay between the physics of the very small and the physics of the very large is dark matter. We know it's there through the influence it has on visible matter, but we don't know what it is. Techniques in particle physics and cosmology could tell us, but we'll need to work together to unveil the full story. If dark matter interacts only through gravity, then finding it will be very difficult for accelerator-based studies, though missing energy signals could nevertheless play a role. If there is a residual interaction with some known particles, then accelerators will be leading the hunt for direct detection. This is an area that's particularly active as old theories fall by the wayside and new ones emerge: we may still be desperately seeking SUSY, but it's far from the only show in town.

Neutrino physics is very vibrant and varied right now. The various mixing angles are starting to be measured well. Nova and T2K are zooming in on the value of the CP-violating phase, which seems to be large, while discussion continued in Venice about the hypothetical particles known as sterile neutrinos. These neutrinos are particularly elusive since they only interact through gravity, but, since they could be relatively heavy, they're interesting candidates for dark matter. Analyses from experiments like Fermilab's MiniBooNE are hot on their trail, and will soon be complemented by the ICARUS detector, which is on its way to its new home as one of the short baseline experiments at Fermilab.

Meanwhile, cosmology is rapidly becoming a precise science as results on gravitational waves are showing. LIGO's conclusion that there could be an abundance of black holes in the galaxy with masses higher than previously thought possible is particularly intriguing – could black holes constitute a significant quantity of dark matter? And what mechanisms are at work to generate such massive black holes? New data has the potential to give us the answers quite soon. As another example of precision cosmology, LIGO has given us a limit on the mass of the graviton at less than $7.7 \times 10^{-23} \text{ eV}/c^2$: unimaginably small even for those of us working in particle physics.

Whether we're investigators of the tiniest constituents of matter, or ponderers of the vastness of the universe, we are all in this together and the links that bind us are now closer than ever. I left Venice reinvigorated and looking forward to the results that will be coming our way soon, ranging from new insights from gravitational waves to the neutrino sector yielding up its secrets, while experiments at CERN continue their fabulous journey of discovery. EPS-HEP 2017 showcased a field that's very much on track, with many exciting developments just around the corner.

*Eckhard Elsen
Director for Research and Computing*

A NEW ACCELERATION SYSTEM FOR THE PS BOOSTER

Currently, three different ferrite cavity systems are needed to cover frequencies from 0,6 to 18 MHz in the PS Booster, whereas the new cavities cover the entire range.

The project began in 2012 in the framework of a collaboration with KEK. The Japanese laboratory had already developed wide-

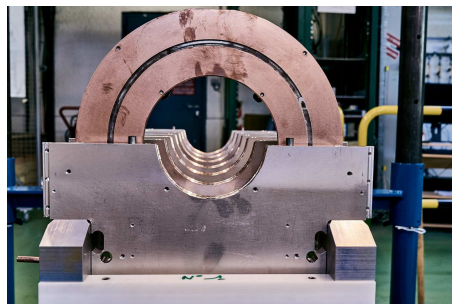
band cavities for KEK and J-PARC and was cooperating with Hitachi Metals to develop magnetic alloys for the accelerators. KEK financed 132 of the 340 magnetic discs at the heart of the PS Booster's new cavities, and was responsible for testing the components delivered.

The technology has been intensively tested at CERN. "A cavity of a similar type had been installed at CERN for the first time in 2004, in the LEIR, the Low-Energy Ion Ring," Paoluzzi explains. "But we wanted to test it under real-life conditions in the PS Booster." Two cavities were therefore installed in one of the four rings of the PS Booster in 2014 and tested in 2015.

Following these conclusive tests and the publication of a report by an international group of independent experts, the CERN Management gave the green light for the cavities to be used.

They were connected to new solid-state power amplifiers manufactured in Spain. Highly efficient low-level electronics, which ensure that the system can be used to its full potential, were developed at CERN. The vacuum chambers were built in Germany, while the other components came from France, Denmark, the UK, Turkey and Slovakia. The teams have

started to assemble the remaining 27 cavities. All the components will be delivered to CERN by the end of the year.



One of the PS Booster's new radiofrequency cavities being assembled. These cavities will be installed in the accelerator during the Long Shutdown 2 between 2019 and 2020 (Image: Maximilien Brice/CERN)

Corinne Pralavorio

OPINION: THIS ARTICLE “MERITS” YOUR ATTENTION

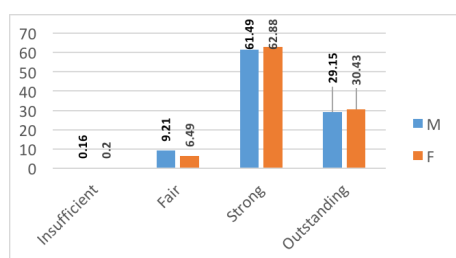


Figure 1 Distribution by gender.

The new MERIT scheme was introduced in 2016, following the recommendation of the five-yearly review. It has been developed as a lighter performance appraisal process, with four performance qualifications: insufficient, fair, strong and outstanding. The suggested CERN-wide distribution of these qualifications is 6-12% fair, 57-63% strong and 27-33% outstanding and HR are pleased to report that this distribution has been met for 2017 (9%, 62% and 29%). HR has analysed the distribution across several axes and some of the results (by contract type and gender) can be found below.

- Distribution by gender

We were pleased to observe no gender bias in this exercise, and the results for men and women are very close. The overall ratio of men to women at CERN is 80:20 (more information on CERN's overall demographics may be found in the CERN Personnel Statistics at this link, which were presented to the TREF delegates in May).

- Distribution by contract type

Concerning the distribution by contract type we see that the total percentage of outstanding and strong between staff members with LD and IC contracts is almost identical. There is however a higher proportion of 'outstanding' among the LD population, which is consistent with previous observations under the MARS, MAPS and MOAS systems.

Better cartography of our staff

The introduction and initial mapping of Benchmark Jobs (BMJ) has produced a more accurate picture of the Organization and HR has analysed more than 400 requests to change BMJ, the majority from supervisors and relating to a BMJ in the same grade span. As a result, our personnel database is now more up to date and will better reflect reality when we next report to our Member States.

Change of grade (promotions)

This year some 127 interviews were carried out regarding potential changes of grade. Overall, around 10% of eligible staff have been proposed for a change of grade.

Better precision (rounding)

Not surprising for a Laboratory whose core business is precision measurements: some of you have reported that while your salary is correct, the third decimal of the percentage shown on your pay slip does not correspond to your own calculation from the MERIT exercise. This is because the percentage is derived from the rounded salary figure. HR would like to reassure you that while salaries are rounded to the

nearest Swiss franc, behind this figure the unrounded figure is stored for future use to avoid any long-term cumulative effects of rounding.

Your feedback is key

As this is the first exercise under the new MERIT system, your feedback will be essential to get a real view as to what worked well and what could be improved, and to feed into a global review of the process. Please send your feedback and suggestions to your MERIT coordinator, your hierarchy, your HRA, or directly to james.purvis@cern.ch. HR will consolidate all the feedback received, including further analysis at September's SCC, for follow-up of the 2017 MERIT exercise with the Extended Directorate this autumn.

And meanwhile, back in HR...

The implementation of the first MERIT exercise is just one of the key areas on which HR has been working. In the past months, we have been listening to people from all corners of the Organization, and have been able to identify a number of areas that are now top priority, including:

- Recruiting the 80 additional staff described in the Green Paper submitted to Council in December,
- Working on an effective, viable and transparent Internal Mobility process,
- Providing a supportive work environment, monitoring and mitigating stress to create a healthy work place for all,
- Reviewing Investigation Procedures,

- Devising a clear External Mobility policy,
- Reviewing the induction programme to make it an inclusive experience for all categories of newcomer.

There is much more, including the validation of skills acquired through experience; developmental conversations; streamlining administrative processes such as travel and school fee reimbursements; upgrading many of the HR informatics tools (Learning Management System, Applicant Tracking System, HR software and reporting capabilities); and last, but not least, ensuring proactive and sustainable workforce planning across the Organization.

The CERN Staff Association are actively involved in the key working groups for the majority of these projects.

CERN is respected and recognised not just as a successful, world-renowned physics laboratory but also as a great place to work, and its mission and values make for an exciting and challenging work environment. Ultimately, we are all responsible for fostering and preserving this great work environment and I would therefore like to thank each and every one of you for your commitment and drive in achieving this together.

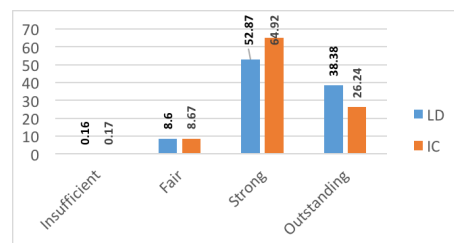


Figure 2 Distribution by contract type.

James Purvis HR Department Head on behalf of the HR Department

GIOVANNI PASSALEVA TAKES THE HELM OF THE LHCb COLLABORATION



The new LHCb spokesperson, Giovanni Passaleva. (Image: Sophia Elizabeth Bennett/CERN)

Giovanni Passaleva of the National Institute for Nuclear Physics (INFN) in Florence, Italy, is the new spokesperson of the LHCb experiment, taking over from Guy Wilkinson. During his three-year mandate, which started on 1 July 2017, he will lead a collaboration of about 1200 people from 72 physics institutes across the globe.

After graduating from a high school specialising in classical studies, Passaleva studied physics in Florence in the 1980s, when the discovery of the Z and W boson – for which the Italian physicist Carlo Rubbia was awarded the Nobel Prize in physics – raised a wave of enthusiasm in the Italian physics community. He completed his PhD on the L3 experiment at the Large Electron-Positron Collider (LEP) in 1994, working on the design and construction of the L3 vertex detector. He has been a member of the LHCb collaboration since 2000, when he started working on the construction and commissioning of the multi-wire

proportional chambers for the LHCb muon system. After becoming the muon system project leader in 2008, in 2014 he became the LHCb Upgrade Detector Coordinator.

Passaleva takes the reins in a successful period for the collaboration, which in recent months has recorded many interesting results on flavour physics measurements. But it is also at a delicate historical moment, where the current experiment operations must be carried out alongside all the activities for the LHCb upgrade. “We are in a transition phase: after the R&D, we will be moving to construction, and the installation phase is approaching fast,” says Passaleva. “However, 2018 will still be a data-taking period: more data are needed to complete several fundamental physics analysis streams. Run 2 data are a gold mine that must be exploited fully,” he remarks. “Being forced to deal with both activities at the same time, the collaboration is in a ‘superposition of states’. High on my priority list is the optimisation of the organisation of the collaboration so that we will be prepared to take on all the challenges and opportunities that are facing us in the near future.”

The LHCb upgrade involves running at higher luminosity and a complete change of the trigger system and, as a consequence, a complete overhaul of the read-out electronics and the redesign of several sub-detectors including innovative solutions. The new trigger will be fully software-based and will process all the data, which is sent 30 million times per

second by the detector. “This improvement truly represents a paradigm shift for high-energy physics experiments, where the classical sequence of detector – trigger – data on tape – event reconstruction – analysis will be substituted with a detector – trigger-analysis approach,” he adds. “We are leading the way with a new method of doing particle physics, which will most probably be adopted by future high-luminosity experiments.”

“Many of the concepts developed for the LHCb upgrade can be tested with the existing experimental setup,” explains Passaleva. “It’s very rewarding seeing people excitedly proposing innovative ideas about how to apply new analysis methods, or developing and testing revolutionary trigger selection strategies,” he notes happily.

Passaleva pays tribute to his distinguished line of predecessors: “I’m taking over from Guy Wilkinson, who did a tremendous job in keeping the collaboration active and healthy. Together with Monica Pepe-Altarelli, they put in place many fruitful initiatives and I definitely want to embrace their managerial style. I am especially determined to maintain and further improve the ‘LHCb style’, where people with new ideas, especially young members of the collaboration, are provided with guidance and the necessary organisation to grow and succeed. I am counting very much on Chris Parkes, LHCb’s new deputy spokesperson, to help me in this formidable endeavor.”

Exciting times ahead: “In current high-energy physics, the development of modern computing techniques has become as crucial as building faster and more sensitive detectors. More efficient software algorithms are bound to become integral parts of future high-luminosity detectors, and I will work to make sure that LHCb becomes a pioneer in this field.”

Read more about LHCb recent results:

- LHCb announces a charming new particle (<http://home.cern/about/>

[updates/2017/07/lhcb-announces-charming-new-particle](http://home.cern/about/updates/2017/07/lhcb-announces-charming-new-particle))

- LHCb finds new hints of possible Standard Model deviations (<http://home.cern/about/updates/2017/04/lhcb-finds-new-hints-possible-standard-model-deviations>)
- Cosmic collisions at the LHCb experiment (<http://home.cern/about/updates/2017/03/cosmic-collision-s-lhcb-experiment>)
- LHCb observes an exceptionally large group of particles (<http://home.cern/about/updates/2017/03/lhcb-observes-exceptionally-large-group-particles>)

[03/lhcb-observes-exceptionally-large-group-particles](http://home.cern/about/updates/2017/02/standard-model-stands-its-ground))

- The Standard Model stands its ground (<http://home.cern/about/updates/2017/02/standard-model-stands-its-ground>)
- New source of asymmetry between matter and antimatter (<http://home.cern/about/updates/2017/01/new-source-asymmetry-between-matter-and-antimatter>)

Stefania Pandolfi

THE DAY I MET MARIE CURIE'S GRANDDAUGHTER



Langevin-Joliot at the Globe talking about her exceptional family and the current status of women in science (Image: Julien Ordan/CERN)

At the beginning of the twentieth century in Thoiry, a small village close to CERN, there was a very talented chef, Hermann Leger. People came from all over Europe to taste his dishes and enjoy his warm welcome, and well-known scientists were no exception.

On 25 July 1930, the International Commission for Intellectual Cooperation (from the *Soci  t   des Nations*), which included Albert Einstein and Marie Curie, took an afternoon off to go there for dinner.

When the “*Thoiry se transforme en musique*” concert was announced for 1 July 2017, I hoped to invite some special guests who had been part of Thoiry’s history. H  l  ne Langevin-Joliot (a physicist, Emeritus Research Director in Fundamental Nuclear Physics at the CNRS in Orsay, France, the granddaughter of Pierre and Marie Curie, and the daughter of Fr  d  ric Joliot and Ir  ne Curie) came to my mind. I asked if we could have the honour of her presence at the concert and also take her on a visit to CERN’s laboratory and its experiments and you cannot imagine how thrilled I was when she accepted.

Once Langevin-Joliot arrived, she was given a whirlwind tour of CERN and Thoiry, visiting ATLAS, AMS, NA62 and, later in the week, ISOLDE, CMS, the synchrocyclotron and LHCb. She also accompanied me to visit what remains of the Hotel Leger, and into the centre of Geneva, where we sought out places her grandmother had mentioned in letters to her daughter when she came to Geneva every July, from 1922 until her death.

After agreeing to share some more of her stories and memories, Langevin-Joliot gave a fascinating talk on her life and some of its more interesting moments at the Globe of Science and Innovation. Her story inspired many, and the Globe was so full that many people could not get through the doors.

Musicians from the village of Thoiry, the *Echo du Reculet*, had the honour of starting the evening with a musical sonification of the famous photo of Marie Curie and Albert Einstein, made possible by the sonification algorithms of Domenico Vicinanza and Genevieve Williams, and accompanied by a slideshow explaining the context.

The next day we held the concert, with Langevin-Joliot as the guest of honour. It was an incredible event: the hall was packed with people excited to hear how Thoiry sounded when transformed into music. Vicinanza and Williams had sonified several images and stories, from the Jura landscape, the village and the history of Thoiry, to the famous meeting and dinner at the Hotel Leger between Briand and Strasemann in 1926 (both Nobel Prize winners), and two poems celebrating Thoiry.

For the grand finale, the orchestra played a sonification of the movements of the director (recorded a few months before), while the director simultaneously generated music with accelerometers, creating a very special and never-before-heard duet.

It was a very intense week, full of emotions. What a woman! What vitality! I was touched by what my children told me when she left: “We liked her very much, she is a very nice lady. We were really impressed that you two were talking as if you had known each other for a long time!”



On 25 July 1930, the International Commission for Intellectual Cooperation (from the Soci  t   des Nations) visited the Hotel Leger in Thoiry. The delegation included Marie Curie (seated far left) and Albert Einstein (seated third from the left). (Image: CERN)



Paola Catapano (left) interviews Hélène Langevin-Joliot in Thoiry about the reasons why her grandmother came to Geneva and Thoiry around 1930. The Echo du Reculeut band is in the background (Image: Giordina Brown)



During her trip, Langevin-Joliot (middle) visited much of CERN and even managed to fit in a trip to the underground caverns of LHCb (pictured) and CMS



Chiara Mariotti (left) and Hélène Langevin-Joliot under the street sign dedicated to her grandmother

Chiara Mariotti

COMPUTER SECURITY: STOP SPAM!

Did you know that about 83% of all messages destined for CERN are flagged as spam and rejected? The IT department's e-mail service works hard to overcome the permanent wave of spam messages trying to pour into CERN... just recently, we deployed a dedicated appliance that automatically analyses our e-mails for malicious content. But in the end, some spam, particularly the most sophisticated messages, makes it through. At this stage, it is up to you to identify it. Here are some ideas to make your lives easier.

Of course, there is our usual advice: "STOP – THINK – DON'T CLICK" ("Protect your click") and our campaigns for spotting malicious e-mails ("One click and BOOM... (Reloaded)"). On the other hand, why not reduce e-mail traffic in general and make our lives easier when we are trying to identify genuine and valid e-mails?

* First of all, let's stop spamming ourselves over and over again (see also "Save our inboxes! Use e-mail wisely"). While the "CC" and "BCC" fields leave plenty of space to fill up, do we really need to add everyone and his or her dog? Shouldn't we limit ourselves to sending e-mails to those that have a need-to-see? Do we really need to click "Reply All" just to say "Thank you" to the sender – in particular if you "Reply All"

to an e-group with hundreds of members! Also, 100 people in the "To" or "CC" boxes does not make any sense and might be an invasion of privacy. Here, the "BCC" box is better. And, is the e-mail (and any ping-pong e-mail exchange!) necessary at all or wouldn't it just be nicer to visit the recipient and buy him or her a coffee?

* Signing e-mails using your CERN certificate would help too. On the basis of your digital signature, the CERN recipient can be assured that the e-mail has really been sent from your CERN e-mail address and not been spoofed by a malicious attacker... You can easily enable e-mail signing by following these instructions (<http://espace.cern.ch/mmsservices-help/ManagingYourMailbox/Security/Pages/Digital-Signature-and-Encryption.aspx>). The only limitation is that, as CERN certificates are currently not recognised outside CERN, this signature only works for CERN mailboxes...;

* Finally, if you manage a system for sending automatic e-mails (on behalf of CERN), don't make them look like spam! The sender should clearly point to your service (and not be an obscure tag). Ideally, the sender should be listed in CERN's phonebook; the subject should be clear and precise; the introduction should directly address the recipient by his or her name used at CERN (as listed in the phonebook); the message text should be flawless, contain no typos, and be precise; embedded URLs and web links should be written out in full and should point to websites hosted at CERN (starting with "HTTPS://cern.ch/..."); attachments should also have clear titles and should be introduced in the text; and your e-mail should have a signature that makes it clear from whom and why this e-mail has been sent.

While these steps won't eradicate external spam, they could reduce internal "spam" and allow us to focus on "real" e-mails. If you still receive spam, please report it to spam-report@cern.ch (or submit a ticket (<https://cern.service-now.com/service-portal/report-ticket.do?name=phishing-spam&se=computer-security>)).

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 EUROPEAN RESEARCH COUNCIL CELEBRATES TEN YEARS



The roundtable discussion during the event called « 10 Years of ERC : Aiming for the Stars » organized as part of the celebrations marking the tenth anniversary of the European Research Council. (Image : Julien Ordan/CERN)*

The roundtable discussion during the event called « 10 Years of ERC : Aiming for the Stars » organized as part of the celebrations marking the tenth anniversary of the European Research Council*. (Image : Julien Ordan/CERN)

On 6 July, the Globe of Science and Innovation hosted an event as part of the celebrations of the tenth anniversary of

the European Research Council (ERC). The ERC awards significant grants to high-calibre scientists to allow them to carry out cutting-edge research in institutes in the European Union or in associated countries such as Switzerland.

The ERC's Scientific Council held its plenary meeting at CERN from 4 to 7 July. The Swiss Confederation's State Secretariat for Training, Research and Innovation and the Euresearch information network decided to take this opportunity to arrange an event called "10 Years of ERC: Aiming for the Stars". Mauro Dell'Ambrogio, the Swiss Confederation's Secretary of State for Training, Research and Innovation, Jean-Pierre Bourguignon, President of the ERC, and Michael Hengartner, President of swissuniversities, spoke about the importance of the ERC in Europe and Switzerland. François Longchamp, President of the Geneva State Council, also gave a speech on the Canton of Geneva's support for CERN and for research in general.

Secretary of State Dell'Ambrogio was joined by Reinhilde Veugelers, member of the ERC Scientific Council, Matthias Egger, President of the Swiss National Science Foundation, Martin Vetterli, President of EPFL, and Fabiola Gianotti, Director-General of CERN, for a roundtable discussion on the role of the ERC and fundamental research in Europe. Finally, Robert Jan-Smits, Director-General for Research and Innovation at the European Commission, presented the outlook for the EU's next research framework programme. The evening concluded with an official dinner hosted by the Secretary of State.

** From left to right: Reinhilde Veugelers, member of the ERC Scientific Council, Fabiola Gianotti, Director-General of CERN, Mauro Dell'Ambrogio, the Swiss Confederation's Secretary of State for Training, Research and Innovation, Matthias Egger, President of the Swiss National Science Foundation, and Martin Vetterli, President of EPFL.*

BIKE2WORK 2017: CERN SMASHES ITS PREVIOUS RECORDS



To celebrate the 140 395 kilometres pedalled by the CERN teams taking part in Bike2Work 2017, many of the participants took part in a parade around the CERN site on 16 June. (Image: Max Brice/CERN)

Once again, the Swiss Bike2Work competition brought together a large number of CERN cyclists – no fewer than 214 teams (831 participants), 72 teams more than in 2016! – putting CERN in fourth place in the 2017 competition in terms of the number of teams, behind the MIGROS group (376 teams), the Swiss post office (287) and the City of Zurich (250), but ahead of the ETHZ (212) and EPFL (191) universities in Zurich and Lausanne respectively.

Bike2Work is a healthy living initiative involving companies across Switzerland, and in May and June this year it inspired 54 780 participants from 1 885 companies to take to the saddle for their daily commute, while simultaneously promoting a sustainable approach to transport.

This year, the CERN teams smashed the 2016 record (97 091 km) by cycling 140 395 kilometres (three times the circumference of the earth and the equivalent of 20 217 kg of CO₂!). More than 25% of CERN's employed members of personnel took part, putting the Laboratory in first place among companies comprising between 1 000 and 5 000 employees. Congratulations to the CERN cyclists, who have set the bar very high for next year! Bike2Work 2018 is going to be a real challenge...

And of course, the cycling season at CERN doesn't end after May and June, but carries on all year round with the Bike to CERN challenge. Sign up now here! (<https://espace.cern.ch/bike2CERN/fr/Pages/default.aspx>)

If you have any comments or suggestions about cycling at CERN or mobility in general, contact the CERN mobility working group (<https://cern.service-now.com/service-portal/service-element.do?name=Mobility-wg>).

You can find all the results from Bike2Work 2017 here (<http://www.biketowork.ch/en>).

Bike2Work: facts and figures for 2017

- Participating companies/organisations: 1 885
- Teams: 14 547
- Participants: 54 780
- Kilometres cycled: 12 697 250
- CO₂ equivalent (kg): 1 828 404



Reyes Alemany Fernandez and her son Daniel, who attends the CERN Kindergarten. At just 5 years old, Daniel was the youngest participant in Bike2Work 2017.

COUNTING SHEEP!



The CERN sheep tuck into their dish of the day. (Image: CERN)

A bucolic atmosphere reigns as 70 sheep and two rams hungrily graze on the land between CERN's buildings. A few days ago, the flock, which belongs to CERN's resident shepherd, Enrico D'Ippolito, could be found in front of the Globe of Science

and Innovation (photo). Since the start of this week, our woolly friends have been enjoying the grass around the ATLAS experiment. The flock "maintains" 5 hectares of land on the Meyrin site and 20 hectares on the Prévessin site, lending a hand (or rather teeth) to keep the grass under control in an efficient and natural way. Sheep have been present on the CERN site in summer for more than 45 years, since Enrico's father brought the first flock here in the 1970s.

After ATLAS, the sheep will be sent further afield, first atop the Intersecting Storage Rings (ISR), then to CERN's second main site, in Prévessin, France.

If you happen to come across a sheep that has strayed from the flock, please contact

the Fire Brigade (on 74444) or the Guards Service (on 78878) so that they can get in touch with Enrico D'Ippolito.

And some final advice: please don't feed (or scare!) the sheep, and avoid approaching the rams... let's just say they're not the friendliest of beasts!

To find out more about CERN's rich biodiversity, see this article (<http://home.cern/about/updates/2015/09/birds-and-beams-biodiversity-cern>), which was published in 2015.

Anaïs Schaeffer

CERN WELCOMES EUCYS 2016 PRIZE-WINNER



EIROforum prizewinner at EUCYS2016, Vladislav Gadalov, visits CERN in June 2017 (Image: Livia Lapadatescu)

As part of the 2016 European Union Contest for Young Scientists (EUCYS), held in Brussels, Belgium, EIROforum

awarded 18-year-old Vladislav Gadalov a visit to CERN for his work in the field of computing.

After succeeding at the national level in Belarus, Vladislav presented his project at the final round of EUCYS in September 2016. The project, entitled "Geneces – a cloud ecosystem", is a software that aims to provide smartphones with increased computing power via the cloud.

Geneces outsources all the operating processes of a mobile device to a remote server, and the result is transmitted to the phone in the form of an image or sound. As such, smartphones using this software can run powerful applications and operat-

ing systems usually only available via computers.

The software can be optimised for different types of hardware for better performance. Indeed, Vladislav has also developed a prototype of the 'AirPhone' – a smartphone specifically optimised for use with cloud computing, which allows 5-7 days of moderate use without charge.

Due to its specialised algorithms and optimisation, AirPhone became the fastest Remote Control System to date. The AirPhone can be used with low speed mobile internet and provides a gaming mode with 3G internet connection. AirPhone also won the Grand Award Prize in Computer

Science and Special Prize by Oracle Academy at the 2017 Intel International Science and Engineering Fair.

During his stay, Vladislav met with CERN computer scientists and students, and vis-

ited the extensive computing facilities and CERN experiments.

Vladislav aims to continue his studies in computing and he would like to return to

CERN at some point in his professional career.

Jennifer Toes

Official communications

CERN HEALTH INSURANCE SCHEME (CHIS): NEW RULES AS OF 1 SEPTEMBER 2017

The new Rules of the CERN Health Insurance Scheme (CHIS) will come into effect on 1 September 2017.

The main changes are as follows (references to the relevant articles of the Rules are shown in square brackets):

1. * **Terminology** Main Members of the CHIS will be classified according to their type of membership:
 - **Compulsory Members:** those who are under a statutory obligation to be members of the CHIS;
 - **Post-Compulsory Members:** those who choose to continue their cover beyond the period of obligatory or subsidiary membership; and
 - **Voluntary Members:** associated members of the personnel who join the CHIS on a voluntary basis.
2. * **Changes affecting Voluntary Members:**
 - From 1 September 2017: no new voluntary membership will be possible. [III 3.01]
 - From 1 January 2018: continued voluntary membership will be possible under the following conditions [XV 1.03]:
 - the Main Member must hold a **valid carte de légitimation**; otherwise, membership will automatically terminate on 31 December 2017 or on the last day of validity of the *carte de légitimation* [III 3.02]
 - an application for continuation of membership must

be submitted to UNIQA before 31 December 2017 (the relevant form will soon be available from UNIQA). [XV 1.03]

3. * **Changes affecting certain couples:**
 - Couples who are both Main Members will be required to remain Main Members until both of them are entitled to end their membership (today, the first to retire often becomes a dependent of the active spouse). [II 1.02]
4. * **Changes in benefits:**
 - Alternative therapies: treatments by recognised osteopaths, etiopathy therapists and chiropractors [II 3.11] may be reimbursed without a medical prescription, up to a maximum of five sessions per calendar year (for what concerns the period running from 1st September to 31st December 2017, this equates to two sessions). [VI 1.04]
 - **Voluntary Members** will no longer benefit from long-term care benefits, nor from the *specific* (100%) occupational accident and illness insurance (note: treatments under this heading will be reimbursed under the usual rules).
5. * **Changes in contributions:**
 - For any membership starting or ending during a given month, main contributions will be calculated *pro rata temporis*. [V 1.02]
 - Changes to the supplementary contributions for spouses

who are not themselves Compulsory Members and who use the CHIS as their primary health insurance will come into effect on 1 March 2018; these changes will be announced in detail later.

- In addition to staff members, fellows and CERN pensioners, former MPEs (e.g. those receiving unemployment benefits from the Organization or awaiting a deferred pension) will be requested to provide CERN with information on their spouse's primary health insurance and professional income. A supplementary contribution will be required where the spouse uses the CHIS as his or her primary health insurance and receives a gross monthly income above 2500 CHF.

Please note that this is an overview and summary of the main changes ; Members are invited to refer to the full text of the new CHIS Rules to determine their full rights and obligations.

Separate notifications will be sent to those members who need to take special action or who are affected by specific changes. CHIS members who are not members of the CERN personnel (in particular, CERN pensioners) will receive information by post.

Finally, as of 1 August 2017, all CHIS members will be able to contact UNIQA (+41.22.767 27 30 or uniqa.assurances@cern.ch) to obtain further information.

Announcements

ORGANISING PRIVATE TOURS OF CERN

Each year, CERN takes more than 120 000 visitors on guided tours, in addition to those who visit only the permanent exhibitions. However, the number of requests for tours continues to grow and more are refused than accepted. The capacity for visitors is limited due to the constraints of the visit points, the times at which they can be visited, the number of trained guides and transportation.

People working at CERN, meanwhile, have always had the possibility of organising "private tours". Recently, more and more of these private tours have been arranged as a way to circumvent the rejection of a group tour request.

Some tours have even been arranged without the Visits Service being informed or in contravention of certain rules: for example, the group includes too many visitors, the

guide is not trained, the group is taken to a prohibited area, the tour clashes with an officially registered tour, etc. In cases such as these, the organiser bears sole responsibility for any repercussions.

These "pirate" tours not only hamper the work of the Visits Service but also increase the risk of accidents if safety rules are not respected and give the impression that alternative, non-official routes can be used to circumvent the rules.

The Visits Service has therefore published on its website the procedure and conditions applicable to the organisation of private tours: <https://visit.cern/tours/private-visits> (a CERN computing account is required to access the page).

The Visits Service would like to thank all CERN colleagues in advance for respect-

ing these rules, which are designed to ensure that all requests for CERN tours are handled fairly.

The Visits Service is still willing to consider requests that do not meet all these conditions if they are justified. No exceptions to the safety rules will be made under any circumstances.

Please note that some experiments and departments have their own procedures for tours that are limited to visit points for which they are responsible.

For information, all guided tours will soon have to be registered on the Visits Service's system to allow the systematic identification of all visitors to the CERN site.

The Visits Service

ANNUAL CLOSURE OF THE POST OFFICE IN PRÉVESSIN (BLG. 866)

Annual closure of the building 866 Post Office (Prévessin) foreseen from Monday 31 July until Friday 25 August inclusive.

WEB OF SCIENCE & JOURNAL CITATION REPORT NO LONGER AVAILABLE

Since beginning of July 2017, Web of Science (multidisciplinary bibliographic database, featuring citation searching and metrics of impact) and Journal of Citation Report (source of the Impact Factor) are no longer available via the CERN Scientific Information Service.

The cancellation of the service is an implication of the Medium Term Plan, which requires budget restrictions across the Organization

Please do not hesitate to contact the Library to provide feedback and to get ad-

vice on information retrieval under the new circumstances.

More information on the Library website (<http://library.cern/>).

CERN SUMMER STUDENT WEBFEST: WEEKEND OF SCIENCE & CREATIVITY



The webfest is a weekend of fun and creativity. Find out more on the event website.

Are you passionate about science? Do you like communicating that passion to the general public? Then come along to the 2017 CERN Summer Student Webfest on the weekend of 21 to 23 July! The event is a grassroots initiative, open to all summer students, staff and users. It aims to spark new ideas and innovation for the future of web-based education about CERN, the LHC and particle physics, as well as in humanitarian aid, development and health.

The CERN Summer Student Webfest is a weekend of online web-based creativ-

ity, modelled on the gatherings (sometimes called hackfests or hackathons) that energise many open-source communities. You can work with like-minded students and CERN staff to design and build demos of the web apps you would like to see online. Prizes will be awarded to the best projects.

Participants in the CERN Summer Student Webfest will work in teams to design applications that encourage the public to learn more about science and, in particular, CERN's work. Projects can range from designing online games for kids to creating citizen-science projects and developing low-cost mobile-phone-based cosmic ray detectors. Examples of past projects can be found on the Webfest website.

Although primarily targeted at CERN and CERN openlab summer students, the event is open to people of all ages at CERN with a passion for web-based science outreach and education. You do not have to be a software or hardware expert to contribute: many types of skill sets are needed, from writing and designing to physics and engineering.

So, come along for the weekend and create, innovate and educate about science on the web!

Kick-off

Project ideas will be presented at a kick-off event on Friday, 21 July, from 4.00 p.m. to 6.00 p.m. Participants will organise themselves into teams to work on the most exciting pitches. The kick-off event will also

introduce a range of tools for web development, creating online educational tools and contributing to science online.

Submitting your ideas

Anyone participating can pitch a project; pitches consist of short (less-than-five-minute) presentations. Participants are encouraged to submit their project ideas via a tool on the Webfest website in advance, for the best chance of forming a well-defined team.

Where will the participants work?

Teams will work on their Webfest projects primarily in CERN Restaurant 1. As the location is an open-space environment, there will be plenty of opportunity for interaction, both between participants and with the various technical experts taking part in the event. CERN openlab will provide meal tickets for participants.

Presentations and winners

The event will wrap up on Sunday, 23 July at 4.00 p.m., with a judging panel reviewing the results (based on five-minute 'lightning talk' presentations by the teams) and awarding prizes.

Many thanks to our sponsors and organisers...

The event is organised by CERN openlab. Our event partners also include Citizen Cyberscience Centre, crowdAI, Citizen Cyberlab project, the Port and the Mozilla Science Lab.

Orestis Galanis

Ombud's corner

BULLYING IN THE WORKPLACE

'A team of scientists heated a pan of water to a high temperature. Then they tried to put a live frog into it. The frog jumped out immediately. A second frog was put in a pan of cold water that was gradually heated to boiling. That frog never tried to jump. It was boiled to death.'

This parable was used in a book called 'The Bully at Work' to illustrate the insidious nature of bullying or moral harassment and the impact that it can have on the environment and the individuals targeted by it. Workplace bullying can be defined as the *repeated* undermining or mistreatment of one or more individuals that takes the shape of a variety of actions, ranging from work interference, exclusion or even willful sabotage, to threatening or intimidating behaviours and verbal abuse.

Examples of bullying behaviour can vary between the more visible actions of repeatedly criticising someone in public, spreading gossip or innuendo, shouting abuse or generally making discriminatory or offensive remarks on the one hand, and the more subtle forms of impeding performance, such as withholding information or resources, setting unrealistic goals or constantly changing work guidelines, systematically blocking applications for train-

ing or sidelining people and undervaluing their contributions.

Bullying behaviour follows a repetitive pattern of actions aimed at undermining people to the point that they are no longer able to perform, thus leading to a loss of morale and productivity that affects the health and wellbeing of the whole team. It is typically characterised by an underlying lack of respect or concern for the people or the environment concerned. It is not to be confused with differences of opinion, constructive feedback or fact-based management actions, which, on the other hand, are motivated by a genuine wish to advise, guide or restore performance.

People who are targeted by bullying do not always realise what is happening at the outset: instead, they often react by questioning their own understanding of the situation, sometimes even beginning to doubt their own competence and, before they know it, they may find themselves trapped in a downward spiral from which it is very hard to recover.

It is therefore extremely important, if you believe you are being bullied, to react early and to address the situation, either yourself or with the help of your hierarchy, your HRA or the Ombud, by clearly identifying the un-

acceptable behaviour and requesting that it stop.

If informal measures such as mediation or direct intervention seem inappropriate or insufficient, it may be necessary to resort to formal action. For this, it is important to keep a factual journal of day-to-day events, including dates, times, e-mail exchanges and names of any witnesses, as well as detailed descriptions of the interactions concerned, as it is not only the actions in themselves but also the number, frequency and patterns of behaviour that will help determine whether the actions do indeed amount to bullying or harassment and how the problem will be addressed.

CERN's Operational Circular No. 9 defines bullying or moral harassment of this kind as "unwelcome behaviour that has the effect of violating a person's dignity and/or creating a hostile work environment. . . [which is] . . . contrary to the principles of equal opportunity, non-discrimination and mutual respect. . . [and]. . . detrimental to health and safety at the workplace and the good functioning of the Organization in general", and outlines the policy and procedures with which to address it.

Sudeshna Datta-Cockerill