

A NEW ERA OF PRECISION FOR ANTIMATTER RESEARCH

The ALPHA experiment at CERN has measured a light-induced transition in antihydrogen with unprecedented precision



ALPHA experiment (Image: Maximilien Brice/CERN)

The ALPHA collaboration has reported the most precise direct measurement of antimatter ever made, revealing the spectral structure of the antihydrogen atom in unprecedented detail. The result, published on 4 April in *Nature*, is the culmination of three decades of research and development at CERN, and opens a completely new era of high-precision tests between matter and antimatter.

Measurements of the hydrogen atom's spectral structure agree with theoretical predictions at the level of a few parts in a quadrillion (10^{15}). Researchers have long sought to match this level of precision for antihydrogen, with a view to comparing the

hydrogen measurements with those of antihydrogen. Such a comparison would allow testing charge-parity-time (CPT) invariance and searching for physics beyond the Standard Model. Until now, however, it has been all but impossible to produce and trap sufficient numbers of antihydrogen atoms, and to acquire the necessary optical interrogation technology, to make serious antihydrogen spectroscopy possible.

The ALPHA team makes antihydrogen atoms and confines them in a magnetic trap.

(Continued on page 2)

A WORD FROM FRÉDÉRICK BORDRY

BEAMS ARE BACK IN THE LHC FOR THE FINAL YEAR OF RUN II

Although starting the LHC is becoming routine, it's always a thrill to see the machine come back to life after the end-of-year technical stop (YETS). There's always a sense of anticipation as we embark on another year of data taking, on this occasion for the last time before the LHC's second long shutdown, LS2. This year, the machine has been performing well right from the start. Over the first 10 days, its availability was a very impressive 88%, and we were able to progress faster than the start-up plan had foreseen. By the first week of April, we were working with nominal bunches, and providing beam splashes to the ATLAS and CMS experiments. One week later on 12 April, we had the first test collisions.

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A WORD FROM FRÉDÉRICK BORDRY

BEAMS ARE BACK IN THE LHC FOR THE FINAL YEAR OF RUN II

Such smooth progress doesn't do justice to the huge amount of maintenance work carried out during the YETS, and the task of bringing the world's most complex machine back into action. Before beams get anywhere near the LHC, the upstream accelerator chain has to be recommissioned, from the proton source through Linac 2, the PS Booster and on to the PS and SPS. That process began at the beginning of March. While it was going on, the LHC's

1560 electrical circuits were gradually powered up, and some 10,000 tests were carried out to ready the machine for beam. It's a great testimony to the quality and dedication of all the teams needed to run the LHC that so much of this work passes largely unnoticed to many of us as we check the machine's progress conveyed to us via LHC page 1 online and on screens around the lab. I warmly congratulate them for it.

As I write, we're well on course to ramp up the beam intensity towards the target of 2556 bunches per beam, passing the threshold of 1200 bunches, which will allow data taking to begin in earnest, by early May. 2018 is an important year for the LHC experiments. It's the last year of Run II with the ambitious target of recording 60fb^{-1} of data to bring the Run II total to 150fb^{-1} . May the physics begin!

Frédéric Bordry

Director for Accelerators and Technology

A NEW ERA OF PRECISION FOR ANTIMATTER RESEARCH

Laser light is then shone onto the atoms, their response measured and finally compared with that of hydrogen. In 2016, the team used this approach to measure the frequency of the transition between the lowest-energy state and the first excited state (1S to 2S transition) of antihydrogen with a precision of a couple of parts in ten billion, finding good agreement with the equivalent transition in hydrogen. The measurement involved using two laser frequencies — one matching the frequency of the 1S–2S transition in hydrogen and another “detuned” from it — and counting the number of atoms that dropped out of the trap as a result of interactions between the laser and the atoms.

The latest result from ALPHA takes antihydrogen spectroscopy to the next level, using not just one but several detuned laser frequencies, with slightly lower and higher frequencies than the 1S–2S transition frequency in hydrogen. This allowed the team to measure the spectral shape of the 1S–2S antihydrogen transition and get a more precise measurement of its frequency. The shape matches that expected for hydrogen extremely well, and ALPHA was able to determine the 1S–2S antihydrogen transition frequency to a precision of a couple of parts in a trillion — a factor of 100 better than the 2016 measurement.

Although the precision still falls short of that for ordinary hydrogen, the rapid progress

made by ALPHA suggests hydrogen-like precision in antihydrogen — and thus unprecedented tests of CPT symmetry — are now within reach. “This is real laser spectroscopy with antimatter, and the matter community will take notice,” explains Jeffrey Hangst, spokesperson for the ALPHA experiment. “We are realising the whole promise of CERN's AD facility; it's a paradigm change.”

For more information, read the full article here (<https://home.web.cern.ch/about/updates/2018/04/new-era-precision-antimatter-research>).

Ana Lopes

LHC REPORT: PROGRESSING WELL FOLLOWING A “GOOD” FRIDAY

The 2018 proton season has started well ahead of schedule

The LHC cold check-out, during which all equipment is run simultaneously as if there were beam in the machine, was completed successfully before the Easter weekend,

well ahead of schedule. The Good Friday LHC morning meeting ended with a statement that the accelerator was ready for

beam injection, signalling the start of the 2018 proton run.

In the weeks before Easter, the injectors tuned the low-intensity single-bunch beam to make it ready for use by the LHC. The bunch intensity was set to around 5×10^9 protons (the nominal bunch intensity is around 1.2×10^{11} protons). The process for the first injections is to inject a single bunch and make it travel through the first sector (roughly 1/8 of the LHC's circumference), after which it is absorbed by collimators, which are closed further than usual. The operations team measures the trajectory of the bunch through the arc and makes adjustments where necessary, before opening the collimators for the next injection to allow the beam to travel through two sectors. This process is repeated until all sectors have been corrected and the trajectory of the beam is deemed sufficiently good. This process resulted in beam 1 (clockwise) circulating at 12.17 p.m. on Good Friday and beam 2 (anti-clockwise) following only 20 minutes later, an impressive six days earlier than scheduled.

Once these circulating beams were established, the real beam commissioning work started. The functioning of the beam instrumentation was checked, the different feedback systems adjusted, the optics measured and corrected and the collimators aligned to protect the machine against excessive beam losses in unwanted places, such as the superconducting magnets. All this is easily said in a single sentence, but it takes many shifts and a substantial number of experts to complete the work.

The initial beam commissioning is done without colliding the beams in the experiments. First collisions had been scheduled to take place with only a few bunches on Monday, 23 April. However, thanks to the faster than expected progress and small number of minor issues encountered, two beams, each consisting of two nominal bunches, were collided in all experiments at 11.13 a.m. on Thursday, 12 April.

Following these first collisions, a period of alternating commissioning and intensity ramp-up will take place. The final beam commissioning steps will be interleaved with colliding beam being provided for the experiments, with the number of bunches increasing stepwise. Each step will require at least 3 cycles and an accumulated stable beam time of 20 hours. Experts will then evaluate the measurements taken on the different systems and establish formal approval to go ahead with the next step. Again, this process will be repeated until the maximum number of bunches per beam (2556) is established.

During the January LHC performance workshop in Chamonix, it was agreed that collisions with 1200 bunches per beam would mark the start of serious data taking. If all goes well, this should happen around 4 May – again, well-ahead of schedule.

Rende Steerenberg

IMPROVING THE QUALITY OF WORKING LIFE AT CERN

CERN has decided to fight stress, which can have negative health effects



Bien dans son travail

As announced by the Director-General in October last year, a working group has been established to foster a better quality of working life at CERN and, in particular, to identify, remedy and prevent stress in the workplace.

This multidisciplinary working group comprises people from the Human Resources (HR) department, the Health, Safety and

Environmental protection (HSE) unit and the Staff Association, as well as the Ombud. Part of their work has been to analyse the stress prevention measures taken by other organisations and firms across Europe.

"At CERN, everyone knows that we have the Medical Service, the Ombud, the Staff Association and the HR department," explains project leader and member of the HR department, Marie-Luce Falipou. *"But we need to develop parallel mechanisms to enhance the quality of working life for all CERN contributors."* A three-pronged approach has been defined to achieve this aim: **reduce** stress factors, help people **detect stress** and cope with it better and, finally, provide **support**.

The working group will take stock of the situation at CERN by asking people to complete a survey that will be sent by e-mail, and by setting up focus groups. This will form the basis of a dedicated stress prevention programme that will be tailored to the Organization's needs. Professor Philippe Sarnin, a specialist in the psychology of work and organisations at the University of Lyon, will provide his expert assistance throughout the project.

"Work has great benefits for our health and our morale because it allows us to broaden our horizons and interact socially," Marie-Luce adds. *"But working conditions are key and can sometimes, regrettably, cancel out these beneficial effects. That is why it's essential to promote the quality of working life."*

As part of the awareness-raising campaign, the HR department is organising a seminar on 2 May at 2:30 p.m. in the Globe of Science and Innovation, entitled:

"The ingredients of well-being at work"

Introduction by James Purvis, Head of the Human Resources Department

Presentation by Professor Philippe Sarnin, specialist in the psychology of work and organisations at the University of Lyon.

Save the date and register on Indico: <https://indico.cern.ch/event/721300/>.

Anaïs Schaeffer

HAPPY 25TH BIRTHDAY, ALICE!

A well-attended jubilee event, held at CERN on 21 March, celebrated 25 years of the ALICE collaboration

The ALICE collaboration celebrated its 25th anniversary at a jubilee event on 21 March. The well-attended event was an occasion to share personal recollections of the first days of the experiment and retrace the milestones of its history.

On 1 March 1993, the recently formed ALICE collaboration submitted a letter of intent to the CERN LHC Committee, proposing the construction of a heavy-ion experiment dedicated to the study of the physics of strongly interacting matter produced in nucleus-nucleus collisions. The design of the experiment was optimised to determine, in the laboratory, the properties of quark-gluon plasma, the primordial state of matter that prevailed for a short time after the Big Bang. The letter of intent was also the first official document in which the ALICE acronym for “A Large Ion Collider Experiment” was used.

During the 25 years that followed, a strong collaborative effort was put into conceiving, designing, building and operating the ALICE experiment. This venture was rewarded with unprecedented advances in

the measurement of the physical properties of quark-gluon plasma and with the discovery of new phenomena, from the observation of a completely new regime for the formation of open and hidden charm hadrons to the detection of collective effects and strangeness enhancement in small colliding systems.

Spokesperson Federico Antinori opened the jubilee event, before four speakers – Emanuele Quercigh, Jürgen Schukraft, Chris Fabjan and Luciano Musa – talked about the conception, infancy and build-up of the ALICE experiment and the plans for its future, respectively. Back in October 1990, at the Aachen workshop, ideas about nucleus-nucleus collisions and a possible heavy-ion physics programme at the future Large Hadron Collider had been discussed. A couple of months later, some 60 physicists gathered at CERN to initiate “a serious experimental effort towards a heavy-ion detector capable of measuring ultra-relativistic heavy-ion collisions at LHC energies” and the so-called Heavy Ion Proto Collaboration (HIPC) was created.

This would later evolve into the ALICE collaboration.

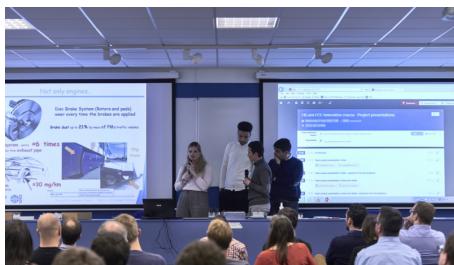
In March 1992, at the “Towards the LHC Experimental Programme” meeting in Evian, scientists put forward an expression of interest. The letter of intent followed in 1993 and the technical proposal in 1995. The dedication demonstrated by the international collaboration in building and installing the detector is still a key feature of the ALICE collaboration, which is not only harvesting the results of the work done throughout the past 25 years, but also laying the foundations for important future measurements, thanks to the upgrade activities and long-term plan.

The presentations were followed by celebrations, including projections of historic pictures portraying the ALICE members and the detector. Attendees included collaborators and invited guests, who reminisced and exchanged anecdotes of the experiment’s history, and toasted a fruitful continuation of activities.

Virginia Greco

YOUNG RESEARCHERS BECOME INNOVATORS

CERN researchers demonstrate entrepreneurial potential during the HL-LHC and FCC Innovation Course



One of the three teams presenting their project (Image: CERN)

Early this year, the High-Luminosity Large Hadron Collider (HL-LHC) and the Future Circular Collider (FCC) teams organized for the first time an Innovation Course for young researchers in their last year of association with CERN. Developed in

collaboration with IdeaSquare and CERN Knowledge Transfer (KT), this course was aimed at providing the participants with an insight into their future career perspectives, beyond their scientific experiences at CERN.

By means of hands-on learning tools, they explored opportunities of applying KT technologies and Design Thinking practices in order to think as innovators and develop their own entrepreneurial project. Nineteen creative ideas were pitched during the course, and finally the participants teamed up for three selected projects. After several weeks of intense teamwork, the course concluded on 21 March with a final presentation event.

The first project – “CERN rides” – is a ride-sharing app for the CERN community. Since many people commute to CERN in their own vehicles, the team estimated that using this app and sharing rides would save up to 1.5 tonnes of CO₂ per day and nine working days per year of sitting in one’s car in traffic. Moreover, it would help address the shortage of parking spaces on site as well as difficulties related to public transport. More than 80% of CERN people could be potential users. Marta Alcaide, the team leader, aims to fully develop the app over the next 18 months and help solve CERN’s commuting issues.

The “Green Disc Brake System”, is another creative project proposal, aimed at

developing a sustainable device for disc brakes in cars to trap the harmful particles emitted during braking. Traditional braking systems emit six times more harmful particles than exhaust pipes, which increases air pollution leading to high rates of lung disease. Working as a trap and filter, this system would not only improve air quality in cities, it would also allow heavy and rare metals to be collected and recycled. The team, which is led by Alessio D'Andrea, has already built a prototype of the device and plans to test it on CERN vehicles soon.

The third project is called “**Kinesis**” and is a wearable resistance trainer with embedded energy harvesting. It is a motor unit with a microcontroller that, when worn, typically on one's leg, can generate energy from the performance of simple movements. It could be used to solve issues associated with a sedentary lifestyle, medical limitation of motion or muscle atrophy in space, or simply to charge wearable technology. Manuele Narduzzi and his team now aim to develop prototypes of a device that is simple, ecological and safe to use.

Generating a lot of curiosity and feedback from the audience, the presentations were promising and the young researchers expressed their hopes to see the projects materialise. Lucio Rossi, head of the HL-LHC project, awarded diplomas and congratulated all the participants on their creative ideas and hard work. Following up lively discussions about opportunities and challenges, the event paved the way to new encounters and future collaborations at CERN.

Cristina Agrigoroae

INSPIRING TOMORROW'S CODERS

A Django Girls workshop that took place at CERN recently gave several girls and women their first taste of coding



A studious atmosphere at the workshop (Image: Sophia Bennett/CERN)

CERN develops and hosts various activities to encourage female students to take up science subjects and women to enter the fields of science, technology and engineering. The Django Girls workshop that took place on 23 and 24 March at CERN's IdeaSquare is the latest such initiative.

Django Girls is a non-profit organisation that provides free programming workshops and educational materials. The goal of the foundation is to promote education for the public, including computer science education for women.

For the workshop at CERN, the IT department, the Education, Communications and Outreach (ECO) group and the Diversity Office joined forces with over 15 enthusiastic volunteer mentors, co-ordinated by the Women in Technology Community. Between them, they organised the workshop for the third consecutive year. IdeaSquare provided the perfect setting for the participants to get the most out of what was, for many, their first experience with coding.

A group of 36 girls and women of 21 different nationalities attended the event, which kicked off with the organisers' words of welcome. The Deputy Head of the IT department, Maite Barroso Lopez, gave a talk sharing her own fascination with technology with the audience and discussing CERN IT's motivation for supporting diversity.

The participants received mentoring from computer scientists, physicists and engineers at CERN, as well as from the wider local community. The dedicated professionals tutored them in creating and pub-

lishing their own websites, in small groups. The participants were taken on a guided tour of the ATLAS Visitor Centre and received CERN t-shirts. The friendly atmosphere was the icing on the cake, according to one of the students, who said “This initiative allowed us to discover programming, as well as the CERN ambiance. It was truly open to all – it was fantastic!”



The volunteers of the Django Girls workshop attending the talk by the Deputy Head of CERN's IT department, Maite Barroso Lopez (Image: Sophia Bennett/CERN)

Ioanna Koutava

FOR WOMEN IN SCIENCE INTERNATIONAL RISING TALENTS VISIT CERN

L'Oréal-UNESCO "For Women in Science" international rising talents met Fabiola Gianotti during their visit to CERN



Seven L'Oréal-UNESCO "For Women in Science" international rising talents with Fabiola Gianotti, CERN Director-General (Image: Julien Ordan/CERN)

On 27 March, seven L'Oréal-UNESCO *For Women in Science* international rising talents visited CERN, following the 20th edi-

tion of the international award ceremony, which took place at the UNESCO headquarters in Paris on 22 March. A total of 15 international rising talents received grants as prizes, alongside the five laureates, Heather Zar, Mee-Mann Chang, Caroline Dean, Amy T. Austin and Janet Rossant.

As part of their prize, many of them attended a course on intellectual property in the life sciences at the World Intellectual Property Organization (WIPO), which brought them to Geneva and allowed them to visit CERN and meet Fabiola Gianotti. During their visit they also saw the

Synchrocyclotron, the ATLAS visitor centre and the Microcosm exhibition.

This image shows, from left to right, biological scientist Selene Lizbeth Fernandez Valverde from Mexico; Areej Abuhammad from Jordan who works on fundamental medicine; biological scientist Anna Kudryavtseva from Russia; Fabiola Gianotti, CERN's Director-General; microbiologist Ibtissem Guefrachi from Tunisia; material engineer Yukiko Ogawa from Japan; biological scientist Danielle Twilley from South Africa; and medical engineer Hiep Nguyen from Vietnam.

Kate Kahle

READY TO GET MOULD ON YOUR WALLS?

VolMeur Collection: when inappropriate storage conditions of LEP photo slides generate art



Do you have old photographic slides at home, capturing images from the 20th century in a 24x36mm plastic frame and requiring a projector to see them properly? If you

have, and you are keen to keep them in good condition, check them out from time to time. Improper storage may well cause your memories to degrade. But this also means you may be sitting on a cache of unpredictable pieces of art, thanks to the creative helping hand of mould! This is what happened to dozens of CERN slides from the 1980s that were recently discovered in very poor condition on the site.

After some 30 years of slow degradation, the mould (bacteria) growing on the slides had slowly eaten away at the gelatine (proteins) on the surface. The slides were mostly copies of negatives dating from the time of LEP's construction. While CERN was looking for matter at 10^{-18} cm size, the 10^{-3} cm micro-organisms were happily digesting our Organization's photographic heritage!

Fortunately, the mould had attacked only a few hundred slides, in contrast to the 120,000 black and white and 300,000 colour photos that CERN has succeeded in preserving over the years. And a few of the mouldy slides have duplicates where

the original image continues to exist unaffected.

The mould monsters likely came to life in damp conditions, and, through the transfer of enzymes to the surface of the slide, broke down the organic matter on its surface before absorbing the digested nutrients. Together with an abundant supply of slide film food, the mould spores had absolutely ideal conditions to successfully colonise the slides.

The resulting propagation seems as tricky to predict as cosmic particles crossing the earth and appears to be completely random! Colours and shapes in the original images have been altered in a chaotic way, while the underlying framework of the original photography has kept its design. The end result is a fascinating collision between physics, chemistry, biology and art.

So far, 25 of these slides have been digitised and printed and they form part of a growing image library known as the CERN "VolMeur Collection" (the name deriving from the surnames of the two members of

CERN personnel who have been working on capturing these images in the context of the CERN Digital Memory Project).

The nascent collection was recently printed and exhibited at CERN, and there were many enquiries from people interested in purchasing mould for their walls! The CERN Digital Memory Project, working with the CERN Photo Club, is therefore offering an opportunity to purchase a limited number of these unique prints.

30 copies of each image will be printed by a professional laboratory in Geneva in ei-

ther 40x60 or 60x80 cm sizes, with prices starting from 300CHF. The printing will be on Chromaluxe® aluminium sheets, using a process known as Subligraphie® which uses a special press that reaches a temperature of 200 degrees Celsius to melt the printing inks into the metal. The result is a long-lasting, lightweight, fireproof, waterproof, scratch-proof and UV-resistant print. No mould will attack these!

The sale of these prints will allow the CERN Digital Memory Project to pay for the digitisation and printing of further similar slide images for the CERN VolMeur Collection, thereby expanding the image

stock. This will allow CERN to create a unique exhibition resource for the Organization.

The sale will open to the general public in two weeks' time, but, prior to that, purchasing precedence is being given to CERN personnel and retirees who wish to place advance orders.

If you would like to order an image, please email volmeur@cern.ch for more details or get in touch via the dedicated web site <http://cern.ch/volmeur>. Prints will be sold on a first come, first served basis.

COMPUTER SECURITY: CERN SECURE PASSWORD COMPETITION... NOT!

Our “Secure Password Competition” announced in the last Bulletin was too easily spotted as an April Fools’ gag... Congratulations!

OK. Apparently, our “Secure Password Competition” announced in the last *Bulletin* was too easily spotted as an April Fools’ gag... Congratulations to those who didn’t fall for it. And a “keep smiling” message to those who did :) Apologies if you were hoping to meet peers using a similar password...

In fact, an important cornerstone for computer security at CERN (but also elsewhere) is the secrecy of your password. Remember that, as things stand, your password is in many cases your only key to and protection for a computing service (or, in the case of CERN, all computing services through CERN’s Single Sign-On portal). Losing that key means losing any protection for your documents and data. Losing your CERN password to a malicious attacker allows them to misuse CERN’s computing resources: spamming the world with your e-mail address, instantiating virtual machines in the computer centre to illegally generate crypto-coins, downloading digital journals from the CERN Library that are paid for by CERN, spying on your work in order to later attack the computing services or control systems you work on or manage, or misusing your computer to attack others at CERN or outside CERN. At home, losing your computer’s protection puts your personal life at risk: your Facebook profile, your Twitter feeds, your Instagram posts, your Internet banking, but

also your photos and videos stored locally. And your privacy in general: with your computer’s password attackers can take it over completely and log every keyboard stroke you make, watch you on your webcam, or listen to you and your surroundings using the built-in microphone.

Hence, your password must be yours alone and must remain yours alone. CERN does not store your password but just a “hash” of it – a mathematical fingerprint properly protected by the CERN IT department’s identity management professionals. The Service Desk and the Computer Security Team do not know your password. And do not want to know it. There is no need to tell them. If they need to access computing resources protected under your account, there are procedures for this that do not require your password (see the subsidiary rule to the CERN Computing Rules on “Third-party access to users’ accounts and data”). Also, there is no need to share your password with other third parties like your colleagues or supervisor. They should never ask for it. If they do, let us know the reason and we’ll find a solution to avoid it. Remember that your password is like your toothbrush: you don’t share it and you change it regularly.

Hence, too, your password must not be guessable. Make it sufficiently complex by using a mixture of letters, symbols

and numbers. The longer, the better. Think of sentences: “In Xanadu did Kubla Khan a stately pleasure dome decree!”. Or, if you are of a mathematical mindset, use formulas: ‘ $\Delta X^*\Delta P = h/2\pi$ ’ (for physicists*), ‘ $a^{**2}+b^2=sqr(c)$ ’ (for engineers and technicians*). In any case, do not reuse your passwords. Have different ones for different services. CERN deserves one; Facebook another. Your bank definitely a third. If you struggle to remember them all, use a password vault like ‘Keepass’, Apple’s ‘Keychain’ or even the built-in password managers within Internet Explorer/Edge, 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. Or you could consider creating a few small baskets for different purposes.

Remember what is at stake: at home, nothing less than your private life. At CERN, the Organization’s operations and reputation. Both are worth protecting. Thanks for making the effort!

**Please folks, do not all use these examples. We do already. Be creative and invent your own.*

”

The Computer Security Team

Official communications

VISIBLE WEARING OF BADGES – TWO WEEKS TO GO

In two weeks, it will become obligatory for all people on the CERN site to wear visible ID badges at all times. Everything you need to know about this new policy is available here: <https://home.cern/cern-people/official-communications/2018/03/visible-wearing-badge-instructions-0>

TAXATION IN FRANCE - MEMORANDUM CONCERNING THE ANNUAL INTERNAL TAXATION CERTIFICATE 2017 AND THE DECLARATION OF INCOME FOR 2017

You are reminded that the Organization levies an internal tax on the financial and family benefits it pays to the members of the personnel (see Chapter V, Section 2 of the Staff Rules and Regulations) and that the members of the personnel are exempt from national taxation on salaries and emoluments paid by CERN.

The Organization would like to remind members of the personnel that they must comply with the national legislation applicable to them, in particular for any other income they may receive (cf. Article S V 2.02 of the Staff Rules).

I - Annual internal taxation certificate for 2017

The annual certificate of internal taxation for 2017, issued by **Finance and Administrative Processes Department**, is available since 9 February 2018. *It is*

intended exclusively for the tax authorities.

1. If you are currently a member of the CERN personnel you received an e-mail containing a link to your annual certificate, which you can print out if necessary.
2. If you are no longer a member of the CERN personnel or are unable to access your annual certificate as indicated above, you will find information explaining how to obtain one at the following link (<https://admin-eguide.web.cern.ch/en/procedure/annual-internal-taxation-certificate>).

In case of difficulty in obtaining your annual certificate, send an e-mail explaining the problem to service-desk@cern.ch.

II - 2017 income tax declaration form in France

The 2017 income tax declaration form must be completed following the general indications available at the following address (<https://admin-eguide.web.cern.ch/en/procedure/income-tax-declaration-france>).

IF YOU HAVE ANY SPECIFIC QUESTIONS, PLEASE CONTACT YOUR LOCAL “SERVICE DES IMPÔTS DES PARTICULIERS” (SIP, private citizens’ tax office) DIRECTLY

This information does not concern CERN pensioners, as they are no longer members of the CERN personnel and are therefore subject to the standard national legal provisions relating to taxation.

Human Resources Department

TAX DECLARATION: FOR THE ATTENTION OF MEMBERS OF THE PERSONNEL AND PENSIONERS LIVING IN FRANCE - EXCHANGE RATE FOR 2017

Exchange rate for 2017

For 2017, the average annual exchange rate is **EUR 0.89 for CHF 1.**

Human Resources Department

SWISS NATURALISATION FOLLOWING THE EXCHANGE OF A C PERMIT FOR A DFAE “CARTE DE LÉGITIMATION” OR A CI PERMIT

The Swiss authorities have informed CERN that a person who has exchanged a C permit for a DFAE “*carte de légitimation*” or a Ci permit is still entitled to apply for naturalisation after 1 January 2018, the date on which the new law and ordinance on Swiss nationality came into force (cf. *Bulletin* article of 9 April 2015, <https://home.cern/fr/cern-people/official-communications/2015/04/new-law-swiss-nationality>).

The person concerned must, of course, meet the other requirements imposed by the federal and cantonal legislation in the place of residence. Furthermore, the person must supply a copy of their DFAE “*carte de légitimation*” or Ci permit, indicating the date on which the C permit was exchanged. As a general rule, minors are included in the naturalisation application, but, when they reach the age of 12, certain requirements are considered separately.

Persons who have exchanged a B permit for a DFAE “*carte de légitimation*” or a Ci permit do not meet the requirements to apply for naturalisation.

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

ADMINISTRATIVE CIRCULAR NO. 21 (I) (REV. 2) - SPECIAL LEAVE | ADMINISTRATIVE CIRCULAR NO. 21 (II) (REV. 2) – SPECIAL LEAVE FOR PROFESSIONAL REASONS AND PERSONAL CONVENIENCE

Administrative Circular No. 21 (I) (Rev. 2) entitled “*Special leave*” and Administrative Circular No. 21 (II) (Rev. 2) entitled “*Special leave for professional reasons and personal convenience*,” approved by the Director-General following recommendation by the Standing Concertation Committee after its meeting on 16 November 2017 and finalized by written procedure on 29 November 2017, are available via the following links:

- <http://cds.cern.ch/record/2309851>
- <http://cds.cern.ch/record/2309852>

These circulars cancel and replace Administrative Circular No. 21 (Rev. 1) entitled “*Special leave* (“AC 21”) as from 1 January 2018.

The sole substantive modification reflected in AC 21 (I) (Rev. 2) is the removal of Section VII on “*Special leave for professional reasons and personal convenience*”, from the previous AC 21, and to exclusively treat the subject under a new Administrative Circular: AC 21 (II) on “*Special leave for professional reasons and personal convenience*”.

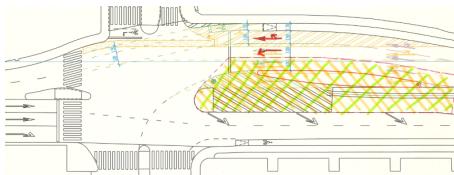
AC 21 (II) details the procedure as well as the terms and conditions under which special leave for professional reasons and personal convenience may take place. Of particular note is the introduction of a Review Committee, appointed by the Head of Human Resources Department, to ensure special leave requests are treated consistently and to recommend to the Director-

General whether to grant the request. The terms of reference of the Review Committee will be established under a separate document and will include whether there is an interest to the Organization in the proposed activity and whether the special leave may be remunerated or unremunerated. Under the new circular, the initial duration of special leave may henceforth be granted for up to three years, renewable for up to another three years. AC 21 (II) also requires that requests be submitted six months prior to their proposed commencement.

Human Resources Department

Announcements

APRIL 2018: TRAFFIC DISRUPTION AROUND CERN'S GATE B



Work to create a central traffic island near CERN's Gate B on the Route de Meyrin is taking place from Monday, 16 April to Wednesday, 25 April. This work has been commissioned by the State of Geneva (Transport Department).

The closure of a lane for traffic coming from Saint-Genis-Pouilly and the repro-

gramming of the traffic lights have greatly disrupted traffic from that direction and have caused many traffic jams in the neighbouring Pays de Gex.

At CERN's request, a meeting was held on Monday, 16 April between representatives of CERN, the State of Geneva and the company Marti, which is responsible for the work. The following was agreed:

- From Wednesday, 18 April, between 7 a.m. and 9 a.m., the Transport Department will set the traffic lights near Entrance B to continuous flash-

ing mode and traffic officers will direct vehicles.

- Marti will do its utmost to reopen the second lane from Saint-Genis in the direction of Geneva.
- From Tuesday, 17 April to Wednesday, 25 April included, CERN will **exceptionally** extend the opening hours of Gate E to allow access to the Meyrin site from 7 a.m. **to 2 p.m.** Members of the CERN personnel are invited to use this gate to go to work or to return from their lunch break, so as to reduce the amount of traffic on the Route de Meyrin as much as possible.

CERN'S TECHNICAL COMPETENCIES ARE UPDATED

CERN developed and implemented its Competency Model (CCM) combining technical and behavioural competencies in 2011, with the aim to provide coherent criteria throughout organisational processes to drive performance and continuous development of staff. While the behavioural competency model is well established, technical competencies have to be regularly reviewed to properly reflect the Organization's needs.

The first update of the technical competencies comes into effect this month following the work by three senior members of

staff appointed by Management: Giovanna Lehmann Miotto, Philippe Lebrun and Sylvain Weisz. Each of them was responsible for selected domains of competencies and worked with more than 100 experts across CERN.

When asked about her experience of the process, Giovanna Lehmann Miotto said "we tried to keep the competencies at a level to ensure that they would not expire with the next round of technologies", concluding that "personally, it has been an enriching experience because it has been an opportunity to meet many experts

around CERN that otherwise I would probably never had the occasion to meet".

The CERN Competencies apply across all CERN HR processes from talent acquisition to performance management and learning & development, and these updated technical competencies will be integrated and reflected accordingly.

To find out more, visit the CCM web page.

Human Resources Department

PRESENTATION OF THE BOOK “CERN: SCIENCE BRIDGING CULTURES”

CERN: Science Bridging Cultures provides a glimpse into CERN's many activities, highlighting its nature as a centre of knowledge creation and a true melting pot of skills. Devised, edited and assembled by Marilena Streit-Bianchi, a former member

of staff, the booklet brings together texts written by CERN scientists, project leaders, department heads and directors. It contains illustrations by the Mozambican artist Justino António Cardoso and has been translated into several languages.

The booklet will be presented to H.E. Pedro Afonso Comissário, Ambassador of the Permanent Mission of Mozambique to the United Nations, on 27 April at 2.00 p.m. in the IT Amphitheatre (Building 31).

The presentation will be followed by a drinks reception.

Everyone is invited to attend.
More information and the full programme here (<https://indico.cern.ch/event/723119/>).

FIXED PHONES: DISCONTINUATION OF PREFIX “10” TO CALL FRANCE

As of 1st of May 2018, it will no longer be possible to use the prefix “10”, which could be used to replace the French international code 0033 until now.

Please consult the following web pages for the different modalities of calling:

- For the traditional and IP Alcatel phones: <https://information-technology.web.cern.ch/book/fixed-phones/instructions-using-phones-cern-traditional-and-ip-alcatel>
- For the Skype for Business (Lync) numbers: <https://information-technology.web.cern.ch/book/lync-ip-phone-service/faq#How can I call Geneva, Switzerland or another country>

CS group, IT Department

24 MAY: 2018 CERN RELAY RACE

The CERN Running Club, in collaboration with the CERN Staff Association, is happy to announce that the 2018 Relay Race will take place on Thursday, 24 May. As is the case every year, it will consist of a round trip of CERN's Meyrin site in teams of six. It is a fun event and you do not have to run fast to enjoy it! Registrations will be open from 1 May to 22 May on the Running

Club website, where you can also find full details of the race and how to register: <http://runningclub.web.cern.ch/content/cern-relay-race>.

A video of last year's race is available here: <http://cern.ch/go/Nk7C>.

As every year, there will be live music and other events starting at noon on the lawn in front of Restaurant 1, and many CERN associations and clubs will be present with information stands. The Running Club's partners will also be participating in the event, namely Berthie Sport, Interfon and UNIQA.

CERN Running Club

REMINDER: PROCEDURE FOR REMOTE ACCESS TO LIBRARY E-RESOURCES

Since December 2017, there is a new authentication procedure to access online resources made available by the Library from outside CERN.

As a consequence, from now on, URLs of online resources (= articles, ebooks, databases) made available by the Library must, for remote access, be prefixed by: <https://ezproxy.cern.ch/login?url=>.

As an example, to access this article: <https://www.sciencedirect.com/science/article/pii/S0168900217310045> you need to modify the url as follows: <https://ezproxy.cern.ch/login?url=https://www.sciencedirect.com/science/article/pii/S0168900217310045>.

To simplify access, we advise you to install a bookmarklet (working on all browsers: Chrome, Safari, Firefox, Internet Explorer - javascript must be enabled). All instructions on how to install this Bookmarklet are available on this page (<http://library.cern/resources/remote>).

Please note that:

- Inside CERN, the access works as usual.
- This service works for CERN Computer account only.
- The access will only work if the CERN Library has a subscription to the resource. Please check the availability on the CERN document

server or on the Library resources webpage.

- No authentication is needed for Open Access resources.
- The old Proxy system remains active for the time being, but is not maintained anymore.

In case of any problem or to provide feedback, please contact : library.desk@cern.ch.

More information available on the Library website.

CERN Library

CLOSURE OF THE CERN RESTAURANTS IN SPRING

- **Easter:** Restaurants 1, 2 and 3 will be closed from Friday, 30 March to Monday, 2 April included. Normal service will resume on Tuesday, 3 April. The cafeteria in Building 40 will remain open from 8 a.m. to 10 p.m. the whole week-end.
- **1 st May:** Restaurant 1 will be open from 7 a.m. to 10 p.m. Restaurants 2 and 3 will be closed on Tuesday, 1 May.
- **Ascension day:** Restaurant 1 will be open from 7 a.m. to 10 p.m. Restaurants 2 and 3 will be closed

on Thursday, 10 May and Friday, 11 May. Normal service will resume on Monday, 14 May.

- **Whit Monday:** Restaurant 1 will be open from 7 a.m. to 10 p.m. Restaurants 2 and 3 will be closed on Monday, 21 May.

Obituaries

FERDINAND HAHN (1959-2018)

It was with great sadness that we learned that Ferdi Hahn had passed away on 4 March 2018: an enthusiastic and highly skilled colleague, and an openhearted friend.

Ferdi first came to CERN in 1987 as a technical student from the University of Wuppertal, when he joined the EF division and the DELPHI Barrel RICH project. As part of his diploma thesis, he participated in the photon detector project, SYBIL, a TPC-like drift chamber with single photoelectron detection: a prototype of the DELPHI Barrel RICH system. SYBIL consisted of a test setup, in which single electrons were produced by a laser inside a gas volume of a drift tube and detected by a multi-wire proportional chamber with anode and cathode readout. Here, Ferdi became very much acquainted with all hard- and software aspects of such a test programme, both in the innumerable technical matters and in the analysis of the data taken. From 1990, as a CERN fellow he was heavily involved in the commissioning of the drift tubes of the RICH detector, a particularity of the DELPHI experiment, followed by the development of the temperature control of the Barrel RICH. Later, Ferdi completed his PhD with the measurement of the differential cross-sections of charged kaons and protons at LEP with the DELPHI detector, taking advantage of the unique RICH system.

In 1995, Ferdi joined the Particle Physics Experiments Division as a member of the Gas group in DELPHI. As section leader in TA1 and deputy group leader of the DELPHI detector unit, he perfected the operation of the many and complex DELPHI gas systems, while at the same time he structured the LHC gas working-group, an essential step towards a very professional and efficient development of common gas systems for all the LHC experiments.

After having led the Detector Technology group of the Physics department between 2007 and 2008, Ferdi then took over the technical coordination of the NA62 experiment. Without his considerable commitment and his great competence with the many experimental aspects, this experiment would probably never have reached its current excellent state. Through the preparation of the Technical Design Report and the coordination of the entire installation of the experiment, his exquisite capability of bringing collaborators from all kinds of cultures together was clearly an asset for the success of the project.

Knowing that the NA62 experiment was operating smoothly, Ferdi happily accepted to support the Physics Department Head as deputy in 2015. As part of the management, he was in charge of the coordination of the technical groups in the department, including the planning of personnel. With his pleasant patience and his exemplary communication skills, he solved numerous tricky problems.

Ferdi was treasured as a close colleague by many; it was a pleasure to work with him. His open character and ready smile made it easy to discuss things together, even when the discussion involved complicated issues. He was enthusiastic and full of energy, always ready to help. His friendly way of dealing with people was backed up by a deep competence in technical issues. He was one of a kind, and will be sadly missed.

Our deepest sympathy goes to his wife, son and family.

His colleagues and friends



Ombud's corner

MEDIATION: FINDING COMMON GROUND

Vanja and Marek are no longer on speaking terms. Vanja took over the group six months ago and has been working to make the service more customer-oriented. But Marek thinks the most important thing is technical excellence. He thinks Vanja's making compromises and following the latest fad, giving customers too much of a sales pitch rather than focusing on developing innovative technical solutions. Marek also feels harassed by Vanja, and it's only on his colleagues' insistence that he's agreed to try mediation before filing a complaint.

Mediation is an informal meeting organised by a third party, aimed at resolving differences between two people. Successful mediation relies on a few conditions being met:

- the two parties participate voluntarily : Vanja and Marek both agree to the process and no one forces them to take part;
- both parties commit to finding a fair solution that suits everyone: neither Vanja nor Marek seeks an advantage over the other; they pursue a common goal ;
- the discussions focus on the future : Vanja and Marek refrain from air-

ing grievances and focus on improving their relationship;

- all conversations remain confidential.

My role as mediator is:

- to remain neutral and impartial: I won't side with either Vanja or Marek;
- to refrain from suggesting solutions myself: Vanja and Marek must come up with the answers themselves, through discussion;
- to facilitate conversation between the two parties so they can find common ground.

How does mediation work?

First, I'll prepare the conversation by holding separate meetings with Vanja and Marek. During these meetings, I'll make sure I fully understand the situation, the different points of view, the emotions involved and, above all, what's at stake for each party. This will prepare us for the group discussion. Then, when we all sit down together, Vanja and Marek will each have the chance to speak in turn, with no interruptions. I'll use this opportunity to sum up

what I've heard, focusing on their shared interests, before letting them speak again so they can discuss their situation and find a solution. After this conversation, Vanja and Marek should be able to resolve their differences and agree on concrete actions, as well as on what steps to take if one of them breaks the terms of the agreement.

After the mediation, Marek understood that customers wanted to be able to monitor progress over the course of the project. He therefore committed to making himself available and keeping them informed. Vanja, meanwhile, realised Marek needed some independence and promised to stop interfering in his relationship with his customers.

So, if you find yourself in an impossible situation with a colleague, consider using the mediation service provided by the Ombud and CERN's Human Resources department!

If you'd like to comment on any of my articles or suggest a topic that I could write about, please don't hesitate to e-mail me at Ombuds@cern.ch .

Pierre Gildemyn