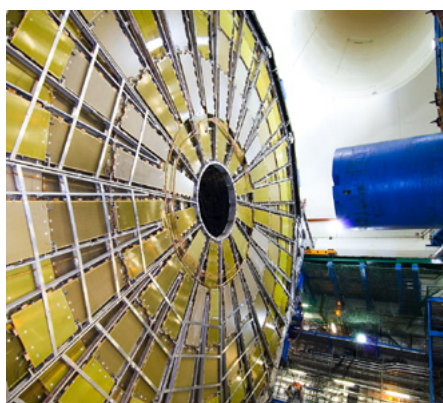


CERN'S SURVEYORS SEND SPARKS FLYING

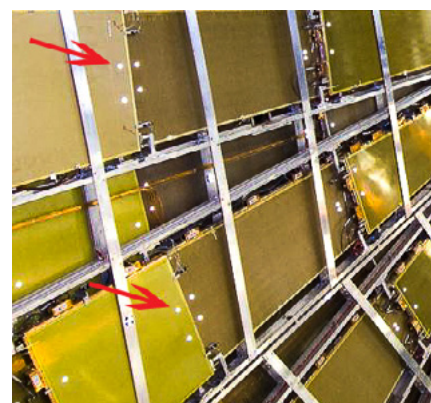
A few weeks ago, we published an article on the three-dimensional laser scanner technique used at CERN to produce 3D images of the LHC tunnels and experiments. Photogrammetry is another technique in the CERN surveyors' arsenal.



The ATLAS wheel during a photogrammetry measurement campaign. The white spots (see arrows) dotted across the wheel are the retro-reflective "dot" targets.

Used in a number of fields including topography, architecture, geology and archaeology, photogrammetry is a stereoscopy technique whereby 2D images taken from different angles can be used to reconstruct a 3D image of an object. Surveyors at CERN have been using this technique for over 15 years as a way of gaining precise information on the shape, size, deformation and position of the LHC detectors and their composite elements.

The photogrammetry used at CERN is relatively "light" in terms of the equipment required, which makes it very portable. In fact, all the surveyors in the field need is a set of retro-reflective targets, which they place all over the object being measured, and a camera with a flash linked by Wi-Fi to a laptop that processes the data. This portability means that the object can be photographed from all angles: from the ground, from scaffolding, from a ladder, or from a cherry picker, etc. "With this technique, we are able



to evaluate the conformity of prototypes or components that are under construction at CERN or elsewhere in the world," underlines Antje Behrens, surveyor for the ALICE and CMS experiments. "For example, we carried out checks during the manufacture of the ATLAS detector feet in Russia and the CMS endcaps in Japan."

Four types of retro-reflective targets are used: simple reflective dots; bands, used on flat surfaces; bar codes, whose appearance in several images allows the surveyors to position the photos correctly in relation to one another; and lastly, the cross, which is photographed first and serves to position the images in a specified coordinate system, which is then integrated into the CERN repository. Covered with these reflectors, the detectors sparkle under the flashes of the surveyors' camera.

The surveyors need an identifiable reference from which to extrapolate the



RINGING THE CHANGES IN THE OMBUDS OFFICE

After three and a half years in office as CERN's first Ombuds, the time has come for Vincent Vuillemin to pass on the baton to someone new: in January next year Sudeshna Datta Cockerill will assume the role.

(Continued on page 2)

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A word from the DG

RINGING THE CHANGES IN THE OMBUDS OFFICE

(Continued from page 1)

The position of Ombuds was created along with the CERN Code of Conduct in 2010, and it is there to provide a no-barrier, informal, neutral and confidential place to turn for all members of the personnel as well as everyone working on behalf of CERN. Through listening, advice, coaching and mediation, the Ombuds is there to help anyone at CERN who is experiencing conflict, whether real or simply a misunderstanding or breakdown in communication.

The change of Ombuds is an opportunity for me to reiterate the importance of the role, and of the Code of Conduct as a guide for how we all should conduct ourselves at work and when representing CERN under any circumstances. On the rare occasions when things start to go wrong, the Ombuds office is there to get things back on track. The key attributes of an Ombuds are independence, confidentiality and impartiality, all of which Vincent has embodied fully.

Over his time in office, Vincent has done a great job in establishing the role. His

regular messages in the *Bulletin* and on the Ombuds blog are widely read, and he has integrated the function into the wider world through establishing contacts with Ombuds in other organisations. Each year, he has brought over 90 cases to successful resolution. This relatively low number, a very small fraction of the CERN population, along with the fact that all cases have been resolved, comes as no surprise to me. While not wishing to underplay Vincent's role, I am convinced that everyone working at CERN has the best interests of the Organization at heart, and usually all that's needed to resolve a conflict is a gentle, and timely, nudge in the right direction.

While thanking Vincent for a job well done, I would also like to welcome Sudeshna to her new role. She comes well prepared: over recent years, she has occupied several positions that have allowed her to build up relevant experience, from being Head of Learning and Development to CERN's Equal Opportunities Officer and most recently leader of the Organization's Diversity Programme, a task she leaves in the very capable hands of Genevieve Guinot.

Rolf Heuer

To end, I'd like to encourage you all to revisit the [Code of Conduct](#) and dip into the [Ombuds](#) and [Diversity](#) web pages. CERN is very active in these areas – you owe it to yourselves to find out more. And should you ever find yourself in a conflict situation, don't hesitate to contact the Ombuds – she's there to help.

CERN'S SURVEYORS SEND SPARKS FLYING

(Continued from page 1)

object's dimensions, so they define the scale of the photos using one of two methods: including a ruler of a known length in the pictures; or, for a more precise measurement, measuring the distance between two of the targets using a laser tracker. The level of precision that can be obtained using photogrammetry is remarkable. For example, when a deformation analysis was performed on the CMS tracker endcap, which is 850 millimetres in diameter, the margin of error was just 0.03 mm!

For more information on the subject, read the CMS Times article: Surveyors measure new CSC layer with photogrammetry.

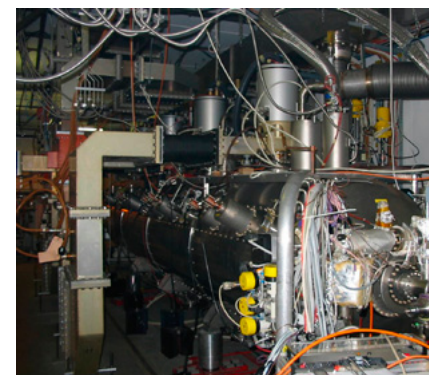
Anaïs Schaeffer



Photogrammetry measurements were made of the Alpha Magnetic Spectrometer (AMS), now installed on the International Space Station. Photo: Dirk Mergelkuhl.

LS1 REPORT: A STUBBORN CAVITY WILL SOON BE REPLACED

Testing on the LHC's replacement RF cryomodule was completed last week in SM18. This module will bring them all to design-level, replacing a faulty cavity that has been acting up since the machine's start-up.



LHC cryomodule undergoes testing in SM18.

Distributed between four cryomodules, the LHC is home to a total of 16 radiofrequency (RF) cavities. Each is designed to provide a 2 MV accelerating field... and all but one has been succeeding at this job. Ever since the machine's startup, one stubborn cavity in a Point 4 module has quenched whenever it had to stay at 2 MV. The accelerator team found that no amount of conditioning could get the cavity to behave, and the highest continuous wave voltage it could perform at was 1.3 MV.

"This was fine for physics," says Pierre Maesen, who is leading the repair and replacement of the LHC's cryomodules. "We were able to compensate for this 'missing' voltage by redistributing it across the other cavities. But in order to bring the machine to its optimum settings, the cavity has to be replaced."

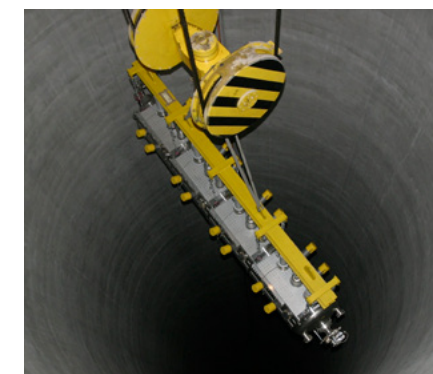
Unfortunately, an RF cavity cannot simply be swapped for another. "A cavity's acceleration field depends on the quality of its inner surface," explains Pierre. "As such, cavities can only be handled in a clean room where any dust can be cleared with ultra pure water. So even though there is only one faulty cavity, the entire module has to be removed and replaced with a new one."

Last week, the RF team completed their validation of the LHC's spare cryomodule. It is now ready for installation in the machine in January 2014. The announcement marks the end of a lengthy testing phase for the team, who had been performing leak repairs, vacuum tests and full power revalidation at cold of the module since early this year.

The faulty cavity will remain in the machine until the last possible moment, just in case there is any issue during transport of the new module. "The module's coupling devices are connected to the cavity vacuum with ceramics," says Pierre. "These ceramics may break during transport, so we will wait until the replacement module is in the tunnel before we disconnect the original." Once underground, the team will perform vacuum leak tests on site to ensure everything is in working order.

Replacing the faulty cavity is not only an opportunity to improve LHC performance, it's also a chance to resolve a mystery that has long troubled the Operations team: why is this stubborn cavity quenching? Once it's removed from its module for repair, we will find out!

Katarina Anthony



Lowering a cryomodule into the LHC tunnel in 2006.

Meanwhile, elsewhere...

The teams at the Antiproton Decelerator (AD) are currently testing the magnet BHN06 coils, which arrived back from Russia a few weeks ago after repairs.

Cabling work at LHC Points 5 and 7 is moving at a good pace, with the teams now working in two shifts.

In Sector 6-7 of the LHC, all the vacuum subsectors have been closed and tested. The teams are now proceeding with helium leak tests on the whole vacuum circuit.

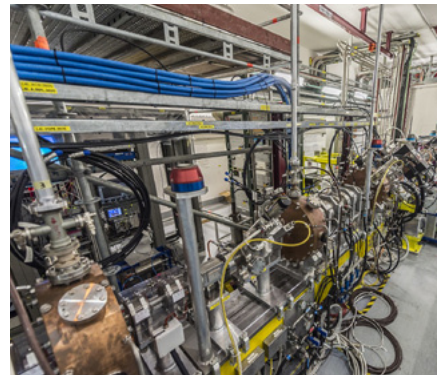
To express his appreciation to the teams involved on the work that has been successfully completed so far during LS1, and in particular as part of the SMACC (Superconducting Magnets And Circuits Consolidation) programme, CERN Director-General Rolf Heuer was present for the welding of the last W sleeve in Sector 6-7 on 28 November. In addition, we are happy to report that the accumulated three-week delay in the SMACC programme schedule has been reduced to two and a half weeks and is expected to be reduced even more over the coming weeks.



Rolf Heuer, CERN Director-General, with Frédéric Bordry (on his left), Head of CERN's Technology Department, during the welding of the last W sleeve in Sector 6-7.

BRINGING UP BEAMS

Last month, commissioning began on CERN's newest linear accelerator: Linac4. As the replacement machine for Linac2, Linac4 will take a negative hydrogen ion beam to a staggering 160 MeV. We check in to see how the Linac4 team is preparing its machine for its new role as the first link in the accelerator chain.



The Linac4 3 MeV beam line, with the ion source in the back, the RFQ in the middle and the chopping line in the front.

On 14 November, members of the Linac4 collaboration and the CERN Operations Group were brought together for their first "real day" in the Linac4 Control Room. Together, they successfully accelerated their first hydrogen ion beam to 3 MeV. It was an exciting moment for everyone involved and marked the start of one of the most critical commissioning phases for the new accelerator.

At the start of the Linac4 beam line sits the CERN-made Radio Frequency Quadrupole (RFQ). This vital piece of machinery takes the beam from 45 keV to 3 MeV in just 3 metres and also plays a key role for CERN's entire accelerator chain: "Beam quality is decided in these first metres of the machine," says Alessandra Lombardi, who is heading up Linac4's commissioning. "The RFQ is not only responsible for the first stage of acceleration, it's also where we prepare the beam for further acceleration down the line. It's where we define the characteristics of the beam, where we form its emittance and where we define its current. After this point, these characteristics can only be degraded."

So although this is just the beginning of a three-year-long commissioning phase, it is an important time for ensuring the overall quality of the beam. "At this energy, we also chop the beam – removing micro bunches – in order to prepare it for injection into the PS Booster," says Carlo Rossi, RFQ project coordinator. "By chopping the beam at this energy, we take away at the earliest possible moment the part of the beam that we know we will lose at injection. It is a tricky process, as we need to remove selected micro-bunches without disturbing the rest of the beam. The

settings of this chopper are essential for the overall quality of the beam."

After commissioning to 3 MeV is completed in February 2014, subsequent radiofrequency (RF) accelerating structures will be installed in stages. The Linac4 team is using a temporary measurement line to check the beam at each stage. Once satisfied, the measurement line can be removed and the next RF element can be installed and tested. "Although this is complex and time consuming for those carrying out the installation," says Alessandra Lombardi, "this step-by-step approach allows us to check the accelerator components as they are being installed."

Although **only a few months into installation**, more than half of the Linac4 infra structure is already in place. Not only are the RFQ and Medium-Energy Beam Transport (home to the beam chopper) in their final locations, the majority of the RF klystrons on the surface have been installed. "After years of working with several teams (including EN-EL/CV and GS-ASE/SE) to complete and prepare the Linac4 hall, our focus now lies solely on the installation and commissioning of the machine itself," explains Julie Coupard, who is in charge of the Linac4 installation. "By the end of next year we will be commissioning the machine at 100 MeV – at the same time it can become a back-up for Linac2 – and by 2016, we will be commissioning the 160 MeV design energy."

Katarina Anthony

Made (and moved) by CERN

Linac4's RFQ was the first of its kind to be completely constructed and brazed at CERN. This was an important advantage for the Linac4 team: the central production location dramatically reduced the risk of damage from transport, and allowed them to achieve greater precision in the machining and alignment.

However, the RFQ still had to be moved around the CERN site! "Getting the RFQ from the test stand to the Linac4 hall was a major feat," says Carlo Rossi. "It is a 1.5 tonne machine set to a 100-micron precision, so we were understandably worried about damaging the quality of the accelerator." CERN's transport team used special equipment, including a truck with pneumatic suspension, to ensure the RFQ's safe arrival.

Read more about the challenging construction of the Linac4 RFQ ("**Sixteen silver wires to assemble 350 kg of copper**") and the testing of the RFQ module ("**Testing begins on Linac4**") in the CERN Bulletin.

Different energies, different cavities

As Linac4 accelerates particles in the non-relativistic regime, the velocity of the beam changes as it becomes more energetic. While this is a (relatively) simple physics principle, it requires some complex adjustments from the Linac4 team: "As the beam becomes more energetic and faster, we have to change the type of RF cavities along the accelerator line," says Alessandra Lombardi. "Different cavities are better adapted to handle different beam energies"

In addition to the RFQ, the Linac4 accelerator is home to 3 types of RF structures: Drift Tube Linacs (DTL) will take the beam to 50 MeV; Cell-Coupled DTLs (CCDTL) will take it to 100 MeV; and, finally, **PI-Mode Structures (PIMS)** will take it up to 160 MeV.

CERN FELLOWS, DON'T SPLASH THAT CASH!

When their CERN contracts expire and they leave the Organization, Fellows recoup the amounts paid into the Pension Fund by and for them every month. If they invest this money well, right from the outset, it can grow into a nice little nest-egg by the time they reach retirement age.

As employed members of the CERN personnel, Fellows are members of the Organization's Pension Fund. Accordingly, a specific amount is withheld from their salary every month (see first box) and, as the months go by, this gradually accumulates into their transfer value (i.e. their capital). When their contracts expire, Fellows may opt to transfer that money directly into another pension fund (subject to the national laws of the destination country and, unfortunately, not possible everywhere), or take it in cash. This is because only employed members of the personnel who have at least five years of service with the Organization are entitled to remain beneficiaries of the CERN Pension Fund for life*. But the capital accumulated by Fellows after three years of service at CERN is upwards of 31,000 CHF, a tidy little sum!

But what should I do with this capital? "Fellows have several options for making their money grow," says Théodore Economou, Chief Executive Officer of the CERN Pension Fund. "Given that transfers to other pension funds aren't possible everywhere, I believe that investing the money remains one of the best options, especially given the variety of investment vehicles available - savings accounts, life insurance, real estate (especially when added to capital already saved separately)... and the list goes on." Even though retirement probably seems a (very, very) long way off to most Fellows, they must understand that it's never too early to make the right choices.

Why invest this money? Let's do a rough calculation: take a Fellow aged 25 who leaves CERN after three years of service. As mentioned above, the Fellow will recoup

approximately 31,000 CHF. Now, if he or she decides to invest this money in a savings account at an interest rate of 1.25%, a lump sum of 46,500 CHF will have accumulated by the time of retirement, let's say at 65. But if the same former fellow places the same 31,000 CHF on the same savings account at the age of 45, the amount accrued 20 years later will be only 38,750 CHF.

Of course, each case is different, so the idea is not to give personalised advice. The CERN Pension Fund's Benefits Service is happy to inform Fellows of their rights according to the **Rules and Regulations of the CERN Pension Fund**. We invite all Fellows to contact:

CERN Pension Fund Benefits Service

Building 5 – 5th floor

Offices 019 - 021 - 023

+41 22 767 87 98

+41 22 767 91 94

e-mail: Pension-Benefits@cern.ch

Alternatively, visit the Pension Fund's website: <http://pensionfund.cern.ch/en/>

Offices are open to all members and beneficiaries on **Tuesdays, Wednesdays and Thursdays from 9.30 a.m. to 11.30 a.m. and from 2.30 p.m. to 4.30 p.m.** or by appointment.

**Please be aware that it is possible to purchase years of service if you are transferring funds from another pension fund into the CERN Pension Fund.*

Anais Schaeffer

Fellows and the Pension Fund

Fellows who have dissected their latest salary statement will have noticed that a contribution for the CERN Pension Fund has been withheld from their gross salary this month, like every month, as follows:

- 674 CHF for Fellows who arrived at CERN before 1 January 2012, and
- 752 CHF for those who arrived on or after 1 January 2012.

Specifically, these amounts correspond to 11.33% of the Fellows' reference salary for those who joined CERN before 1 January 2012 and 12.64% for those who arrived on or after 1 January 2012. The contribution rate was adjusted by the CERN Council in 2011.

The reference salary, which currently stands at 5,948 CHF, applies to all Fellows, **whatever their gross monthly salary may be**, and may be indexed to the cost of living.

The amount to which Fellows are entitled when they leave CERN – currently 31,477 CHF after three years of service – corresponds to 14.7% of the Fellows' reference salary, calculated over three years.

Please note that the **Rules and Regulations of the CERN Pension Fund** are the sole authority when it comes to the pension rights of CERN Fellows. Fellows are therefore warmly invited to consult this document or to contact the Pension Fund's Benefits Service for further information.

MACHINE MAINTENANCE: THE RULES OF THE GAME

GCO, GMIO, GSPO – ever heard of them? These acronyms stand for the “roles” that best practices identify as vital to successful maintenance management. CERN’s Maintenance Management Project (MMP) team is working with the technical departments to ensure that they implement these procedures when they deal with the maintenance of the collider and its injectors and infrastructure.



The participants of the workshop on asset and maintenance management (AMMW2013), which took place at CERN in November.

Since its creation in 2012, CERN’s Maintenance Framework Implementation Office (MFIO) has been promoting the deployment of harmonised maintenance management methods across the BE, GS, EN and TE Departments. “The definition and identification of the Group Coding Officers (GCO), Group Maintenance Information Officers (GMIO) and Group Spare Part Officers (GSPO) are one of the best practices that should be adopted each time a maintenance programme is started at CERN,” explains Goran Perinić, one of the leaders of CERN’s Maintenance Management Project (MMP).

Thanks to the project, today CERN can count on methods and tools developed to facilitate the management of maintenance documentation and spare parts. In addition, the technical teams involved in machine maintenance programmes can now use

EAMLight, a new user-friendly Computerised Maintenance Management System (CMMS) interface that has a number of functionalities including an improved link with the planning and scheduling tools.

Although very young, the MMP was mature enough in 2013 for its performance to be reviewed and future plans to be discussed. “2013 was a good time for the MMP team to verify how well we are doing in asset and maintenance management compared with other organisations,” confirms Goran Perinić. “Therefore, we decided to hold a three-day workshop on asset and maintenance management (AMMW2013) in November to gain an insight into the problems and solutions of other organisations and to review the situation at CERN at the same time.”

The AMMW2013 workshop welcomed 77

participants from 12 organisations, mostly European accelerator laboratories. The event featured 40 technical presentations and – as a unique highlight – a keynote speech by former ESA astronaut Michel Tognini who spoke of the challenges associated with the maintenance of space equipment and instruments. “The workshop allowed us to share best practices with other organisations that face similar challenges,” concludes Goran Perinić. “One of the recurrent messages underlined in various presentations was the importance of common databases for asset and maintenance management data as the starting point for further improvements.” The goals of MMP for 2014 are therefore already set!

Antonella Del Rosso

A NEW AWARD FOR THE CERN PENSION FUND

Recently, the CERN Pension Fund was awarded the 2013 Investment and Pensions Europe (IPE) Award for “Best Use of Equities”. IPE is the leading European Pension Fund industry publication.

The award recognized CERN’s implementation of capital preservation principles in equities, referring in

particular to CERN’s innovation with the development of “asymmetric” equity strategies.

The awards were judged by a panel of 65 European pension fund executives, experts and consultants. In addition, CERN was selected by the judges as a finalist for “Best Public Pension Fund” in

Europe. This award was won by the UK government’s Pension Protection Fund.

CERN Bulletin

PACMAN – AN INNOVATIVE DOCTORAL PROGRAMME FOR CLIC

The final network project funded under the European Commission’s Seventh Framework Programme (FP7), Marie Curie Actions, held its kick-off meeting at CERN on 20 November 2013.

PACMAN – a study on Particle Accelerator Components Metrology and Alignment to the Nanometre scale – is in the final stage of recruiting 10 PhD students to do research on beam instrumentation, metrology, micrometric alignment, magnetic measurements, nano-positioning and high-precision engineering. The students will acquire multi-disciplinary expertise in advanced engineering combined with a broad span of transferable skills. “PACMAN gives us the opportunity to attract students to CERN at a key moment in the CLIC study,” said Frédéric Bordry, Head of CERN’s Technology Department. “This is also an ideal opportunity to further develop CERN’s networks with industry and universities.”

“The project is a golden opportunity for students to gain exposure to leading-edge technology and to work with academic and industrial leaders in this key field,” confirms Hélène Mainaud Durand, PACMAN project leader. “It is also a great opportunity to build further bridges and foster new links in science, technology and business.”

PACMAN is the last of the FP7 Marie Curie Actions to start at CERN. In December, the European Commission will publish its next Framework Programme, Horizon 2020 – look out for news of further funding possibilities then!

CERN Bulletin



WAMAS: AN EVENT TO DEVELOP SYNERGIES BETWEEN RESEARCH AND INDUSTRY

On 19-20 November, CERN hosted the first Workshop on Advanced Materials and Surfaces (WAMAS) in the framework of EIROforum, a network of Europe’s largest inter-governmental research organisations.

“The intent of the workshop was to promote the importance of materials and surfaces technology in the research programmes of European organisations,” explains Enrico Chesta, CERN’s Technology Transfer Section Leader and chairman of the EIROforum Working Group on Innovation Management. “Events like WAMAS help support the involvement of industry with scientific institutions because they facilitate the translation of the available expertise into commercial applications.” The event was organised with the support of EuCARD-2 and Enterprise Europe Network (EEN) through the Rhône-Alpes Chamber of Commerce and Industry.

meetings between entrepreneurs and researchers to discuss new opportunities.” An innovative feature of the workshop was the catalogue of “technology profiles” submitted by the companies and organisations, and distributed prior to the event. This gave the participants the chance to plan the meetings they were interested in in advance.

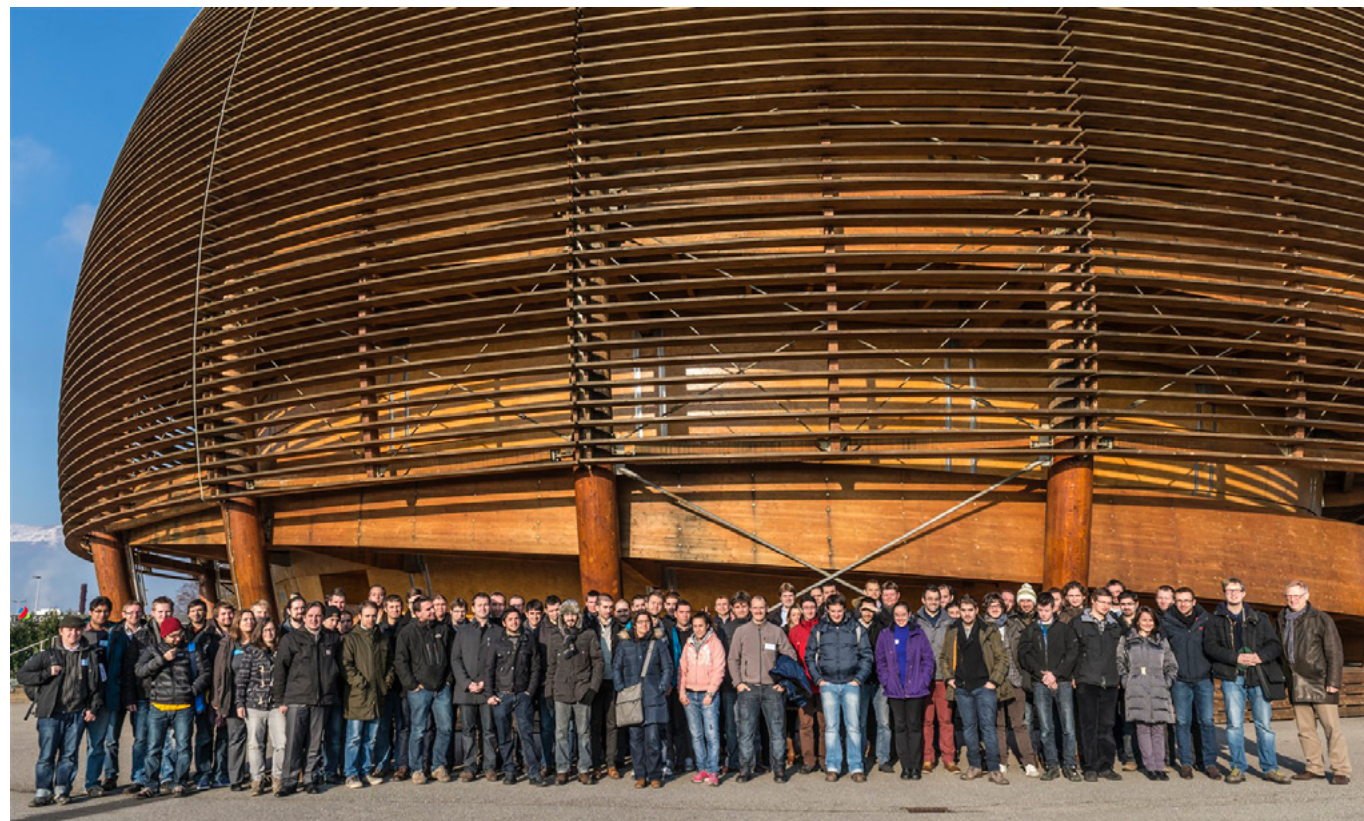
“It was a very successful initiative, as confirmed by the large number of participants, the 300 meetings requested and the very positive feedback we’ve received so far,” continues Enrico Chesta. “The WAMAS event was an opportunity for CERN and the other EIROforum institutes to share their know-how in complex technological fields, thus supporting the competitiveness of their industrial partners.”

Rosaria Marraffino



NEW ARRIVALS

On Tuesday 2 December 2013, recently-recruited staff members and fellows participated in a session in the framework of the Induction Programme.



HR Department

Computer Security

NO CERTIFICATE, NO CHOCOLATE

Are you already ready to use “certificates” to log into CERN or to connect to the global “eduroam” wireless network? No, I am not talking about your birth certificate, medical certificates or academic certificates. I am referring to “certificates” used for authentication where you would usually use a password.

These digital certificates are a valid alternative to cumbersome passwords. Like the aforementioned personal certificates, a digital certificate is an official document that proves who you are or your qualifications. Your personal digital CERN certificate is tied to your digital identity at CERN. In that respect, a digital certificate is like a password. It is a credential that you must not share with anybody else! With your digital certificate, I can impersonate you and take over your mailbox, your web sessions and more...

Digital certificates bind your digital identity to a public/private-key infrastructure (PKI). This is based on a simple mathematical fact: multiplication is easier than division, hence the difficulty of factorising prime numbers (take, for example, “8633=89*97” and now think of prime numbers with thousands of digits). Through a sophisticated algorithm, this difficulty is transferred into a pair of certificates: a “public” one and a “private” one.

The public certificate can be shared, so that others can encrypt e-mails so that only you can read them when you use your private certificate. Similarly, your private certificate can be used to prove that you are you if I know your public certificate. At CERN, your certificate is signed by the CERN Certification Authority as a proof of

identity. Of course, this is highly simplified, but it might give you an idea of what is happening behind the scenes...

In the High-Energy Physics community and at CERN, certificates are used in many places. For example, to submit analysis tasks to the Worldwide LHC Computing Grid (WLCG), you need a certificate issued by CERN or by your home institute. CERN is part of the International Grid Trust Federation (IGTF/EUGridPMA), which establishes trust at the policy and technical levels within the Grid community. It ensures that your CERN certificate is recognised by all the IGTF partners worldwide — a great example of global trust among peers.

If you want to log into CERN via the CERN Single Sign-On portal, a CERN certificate is a valid means. A second certificate would need to be stored on your CERN access card if you are requested by certain web services to provide a second means of identification (i.e. in addition to something you know (your password), you provide something you have (your CERN access card certificate)).

You can also use your certificate to digitally “sign” your emails and, thus, prove that they are really from you. Last but not least, thanks to the CERN Networking Group, your CERN certificate can be installed on

your smart-phone, tablet or laptop. This way you can benefit from a free, easily accessible wireless connection wherever the “eduroam” wireless network is available

In order to benefit from a digital CERN certificate, create your own at the [CERN Certification Authority](https://ca.cern.ch/) and follow a simple procedure to install it on your PC, laptop, tablet or smart phone. But remember: this certificate is to be treated like your toothbrush (or your password); you must not share it with anyone else. If it, or a device where it is stored, is lost or stolen, please revoke your certificate immediately at the CERN Certification Authority in order to avoid misuse of your CERN computing account!

For further information, visit the CERN Certification Authority website : <https://ca.cern.ch/> or the Computer Security website. : <https://cern.ch/security> Or, contact us at Computer.Security@cern.ch.

If you want to learn more about computer security incidents and issues at CERN, just follow our Monthly Report.

Computer Security Team



Seminars

FRIDAY DECEMBER 13, 2013

- 11:00 TH Cosmo Coffee EPFL/CERN/UNIGE Discussion Sessions
- 14:00 Particle and Astro-Particle Physics Seminars **Towards an understanding of jet substructure** TH Conference Room

SUNDAY DECEMBER 15, 2013

- 13:00 HUPP Group - Turkish students meetings **HUPP Top**

TUESDAY DECEMBER 17, 2013

- 14:00 TH String Theory Seminar

Constraints on 2d CFT partition functions

 TH Conference Room

SUNDAY DECEMBER 22, 2013

- 13:00 HUPP Group - Turkish students meetings **HUPP Top**

Official news

HEALTH INSURANCE FOR "FRONTALIERS"

The French government has decided that, with effect from 1 June 2014, persons resident in France but working in Switzerland (hereinafter referred to as "frontaliers") will no longer be entitled to opt for private French health insurance provision as their sole and principal health insurance.

The right of choice, which was granted by the Bilateral Agreement on the Free Movement of Persons between Switzerland and the European Union and which came into force on 1 June 2002, exempts "frontaliers" from the obligation to become a member of Switzerland's compulsory health insurance scheme (LAMal) if they can prove that they have equivalent coverage in France, provided by either the French social security system (CMU) or a private French insurance provider. As the latter option of private health insurance as an alternative to membership of LAMal will be revoked under the new French legislation that will come into force on 1 June 2014, current "frontaliers" who have opted to subscribe to a private French insurance provider will be obliged to become members of the CMU. Those who have opted for membership of LAMal will be able to retain it, and future "frontaliers" will have the choice between membership of LAMal or the CMU.

Please note that this measure does not concern members of the CERN personnel who are insured by the CERN Health Insurance Scheme (CHIS), as they do not have "frontalier" status.

The CERN Director-General has requested clarifications from France, via its Permanent Mission in Geneva, as to whether spouses and partners of members of the CERN personnel insured with the CHIS and having the status of "frontaliers" will be able to continue to use the CHIS as their sole and principal insurance provider without being a member of the CMU. The Organization is also in contact with international organisations in Geneva and the French Association of International Civil Servants regarding this matter.

The HR Department will inform the personnel as soon as clarifications are received and, in the meantime, the latest information is available on the CHIS website: <http://cern.ch/chis>

HR Department

END-OF-YEAR CLOSURE 2013/2014

As announced in Weekly Bulletin No. 4-5/2013, the Laboratory will be closed from Saturday 21 December 2013 to Sunday 5 January 2014 inclusive.

This period consists of:

- 4 days of official holiday, i.e. 24, 25 and 31 December 2013 and 1st January 2014;
- 6 days of special paid leave in accordance with Article R II 4.38 of the Staff Regulations, i.e. 23, 26, 27, 30 December 2013, and 2, 3 January 2014;
- 3 Saturdays, i.e. 21, 28 December 2013 and 4 January 2014 and 3 Sundays, i.e. 22, 29 December 2013 and 5 January 2014.

The first working day in the New Year will be Monday 6 January 2014.

Further information, in particular the condition applicable to members of the personnel who are required to work during this period, is available from Department Secretariats.

Human Resources Department
Tel. 73903/79257

Training

A NEW MAGNET FOR THE LHC MOCK-UP

This year, the safety training centre on the Préessin site acquired a mock-up of the LHC, which simulates the work and safety conditions in the tunnel.

A new dummy quadrupole has just been added to the magnet chain, making the mock-up even more realistic. The new facility, which was a joint endeavour by the TE, GS, BE and EN Departments, will significantly improve the quality of the various training

courses held at the centre, particularly the course on the use of self-rescue masks.

To consult the safety training catalogue and/or sign up for radiation protection training, please go to: <https://cta.cern.ch>.

For further information, please contact the Safety Training and Awareness service by telephone on 73811 or 79935 or by e-mail to safety-training@cern.ch.

HSE Unit



Photo: Christoph Balle.

ARE YOU A PROJECT LEADER, PSO, GLIMOS?! ARE YOU IN LINE TO BE ONE?

You can count on a Safety training course to assist you in:

- respecting CERN Safety rules and agreements with the Host States;
- ensuring that applicable Safety rules/practices are respected or that acceptable Safety measures are known and implemented in your project/experiment;
- creating Safety files/folders for your project/experiment;
- obtaining HSE Safety Clearance.



Sign in to CTA : https://cta.cern.ch/cta2/?p=110:9:206361360118135::X_STATUS,X_COURSE_ID:D,4754

HSE Unit

GENERAL AND PROFESSIONAL FRENCH COURSES

The next session will take place from 27 January to 4 April 2014. These courses are open to everyone working on the CERN site and to their spouses.

Oral Expression

This course is aimed at students with a good knowledge of French who want to enhance their speaking skills. Speaking activities will include discussions, meeting simulations, role-plays etc.

The next session will take place from 27 January to 4 April 2014.

Writing professional documents in French

These courses are designed for non-French speakers with a very good standard of spoken French.

The next session will take place from 27 January to 4 April 2014.

For registration and further information on the courses, please consult our web site or contact Kerstin Fuhrmeister (70896 - language.training@cern.ch).

PERSONAL DEVELOPMENT AND COMMUNICATION COURSES – PLACES AVAILABLE

There are places available in some personal development and communication courses taking place between February and June 2014.

For more information on the course, consult the training catalogue. You can then sign-up online.

For advice, you can contact:

Erwin Mosselmans, tel. 74125, erwin.mosselmans@cern.ch

Nathalie Dumeaux, tel. 78144, nathalie.dumeaux@cern.ch

Kerstin Fuhrmeister, tel. 70896, Kerstin.fuhrmeister@cern.ch

Personal Development & Communication Training	Session dates	Duration	Language	Availability
Communicating Effectively	18 – 19 March & 15 – 16 April	2	English	2
Gestion de temps	Module 1 – 10 February 2014 (am) Module 2 – 21 March 2014 (am) Module 3 – 5 May 2014 (am)	1.5	French	12
Managing time	Module 1 – 10 February 2014 (pm) Module 2 – 21 March 2014 (pm) Module 3 – 5 May 2014 (pm)	1.5	English	10
Communicating to Convince	18, 19 March 2014	2	English	6
Savoir gérer les discussions difficiles	Module 1 – 24 March 2014 Module 2 – 31 March 2014 Module 3 – 16 June 2014	3	French	8

Take note

CERN CAR STICKERS FOR 2014

The stickers on your vehicles will cease to be valid at the end of 2013. We kindly request that you inform us as soon as possible if you no longer own a vehicle that is in our records. In particular, please inform the CERN Registration Service (Building 55, first floor) if you receive a sticker for a vehicle that you no longer own.

Stickers for 2014 are valid immediately and can be displayed as soon as you receive them.

The Guards Service will continue to allow cars displaying a 2013 sticker into the CERN site until no later than 31 January 2014. After that date, the Guards Service will be obliged to deny access to any vehicles not displaying a valid sticker.

Please see Operational Circular No. 2 for more details.

We wish you a pleasant day and happy holidays,

GS/DI security and access control service

CERN INFIRMARY CLOSED FOR BUILDING WORK

The CERN Infirmary (Bldg 57, ground floor) will be closed from 11 December 2013 to 19 January 2014 due to building work.

A minimum service will be provided during this period by nurses and doctors, on the first floor of the Medical Service, bldg. 57.

For any questions, please contact the nurses (**73802**) or the secretariat (**73186 / 78435**).

Note: no complementary examination (audio, visiotest, EFR, etc.) will be possible.

Thank you for your understanding and seasons greetings!

Medical Service Team

CINÉGLOBE INVITES YOU TO PARTICIPATE IN A POSTER DESIGN COMPETITION

For its 2014 publicity campaign, CinéGlobe invites CERN people to participate in a poster design competition. The entries are now on display on the Pas Perdu in the main building, and the CERNois are invited to vote for their favourites.

CinéGlobe is the international festival of short films inspired by science that takes place every two years at CERN, in the Globe of Science and Innovation.

From 18 to 23 March 2014, CERN will host the fourth edition of the festival. The mission of the CinéGlobe Film Festival is to challenge the commonly perceived divisions between science and art by demonstrating that they are both essential to interpreting our world.

Open to short film creators from around the world, the CinéGlobe festival is truly international, the first three editions having attracted more than 4,000 entries from more than 100 countries around the globe. In addition to screening some 60 short films, CinéGlobe also hosts musical events, special feature film screenings and panel discussions, open to all both inside and outside CERN.

To vote for the best poster, use the ballot box on the Pas Perdu. For further information, please email info@cineglobe.ch.

Neal David Hartman

START OF NEW RESEARCH AND INNOVATION PROGRAMME, HORIZON 2020

The overall EU budget for 2014-2020 was approved on 20 November, with €79 billion allocated for the Horizon 2020 Research and Innovation programme.

The first calls and final work programmes in Horizon 2020 will be published on 11 December 2013 and the programme will officially start on 1 January 2014.

In preparation for the next major programme, the CERN EU Projects Office has launched a redesigned website to keep you informed and to alert you to opportunities in Horizon 2020: cerneu.web.cern.ch.

Organised by Euresearch, the Swiss launch event will take place from 14 to 17 January 2014. This four-day conference will offer the possibility to discover the new European Framework Programme for Research and Innovation.

The event is open for registration: www.launch-h2020.ch.

LECTURE AT THE GLOBE | "FROM THE HIGGS BOSON TO THE SEARCH FOR NEW PHYSICS: THE PROSPECTS FOR THE LHC PROGRAMME AT CERN"

Christmas lecture (in French, with simultaneous interpreting into English): "From the Higgs boson to the search for new physics: the prospects for the LHC programme at CERN", by Philippe Bloch.

**Globe of Science and Innovation
Route de Meyrin, 1211 Genève
Monday 16 December 2013 at 8:30 p.m.**

The discovery of the Higgs boson, which was the subject of this year's Nobel prize for physics, has brought us the missing piece of the Standard Model of particle physics. However, many observations (such as the predominance of matter over antimatter in the Universe, the existence of dark matter observed by cosmologists and even the fact that the Higgs boson has a relatively small mass) underline that our knowledge of the structure of matter and its interactions is incomplete.

A wide-ranging programme of research spanning several decades to come thus awaits us at the LHC. Philippe Bloch will begin his lecture by giving us the latest news on the Higgs boson, and will then go on to explain how developments at the LHC and its experiments, which will resume in 2015, will explore these fundamental questions about our Universe.

Philippe Bloch is an experimental physicist, a member of the CMS experiment at the LHC, and is currently the Head of CERN's Physics Department.

» Suitable for all audiences - entrance free

» Seating is limited - booking essential:

**+41 22 767 76 76 or
cern.reception@cern.ch**