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## A Siberian delivery



Preparation of the seal used to obtain a vacuum between the half-cells making up the module elements.

**On Friday, 14 September, a truck transporting the parts for two new components of Linac4, the linear accelerator that will replace Linac2 in a couple of years' time, arrived at CERN from Siberia.**

Linac4 will be the new first link in the proton acceleration chain for the LHC. Its four accelerating structures will successively increase the beam energy from 3 MeV to 50 MeV, 102 MeV and finally 160 MeV. These structures include the cell-coupled drift tube linac (CCDTL) which itself comprises 7 modules and will increase the beam energy from 50 to 102 MeV. The first two components of the CCDTL arrived at CERN on 14 September after a journey by truck of over 13,000 km.

The two modules, each weighing 2 tonnes, were disassembled to make them easier to transport. Once the acceptance procedure has been completed, the modules will be assembled and tested in SM18.

"The modules will be assembled by a Russian team, who will spend the month of October at CERN," explains Frank Gerigk, the engineer in charge of the accelerating structures of Linac4. "While they are here we will repeat the vacuum tests that were performed before the modules started off on their journey. We will then check the radiofrequency properties and the alignment of the modules on their supports before beginning the first tests at high energy." These will be crucial and are eagerly awaited since it was not possible to perform them before they left Siberia.

"The CCDTL is the only Linac4 component to be entirely produced by a team outside CERN," explains Frank Gerigk. "It's been a remarkable success, and a real pleasure to work with the Russian scientists." The project is the fruit of 6 years of close collaboration with two Russian research institutes: the All-Russian Institute of Technical Physics (VNIITF) and the Budker Institute of Nuclear Physics (BINP), which specialises in nuclear physics among other things and was the



**A word from the DG**

### Updating Europe's strategy for particle physics

These have been an important two weeks for particle physics in Europe and at CERN. From 10-12 September, some 500 physicists went to Krakow to discuss their wishes for the future of the field as input to the CERN Council's strategy group.

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## A word from the DG

(Continued from page 1)

### Updating Europe's strategy for particle physics

The strategy group is tasked with updating the European Strategy for Particle Physics adopted by Council in 2006, taking into account developments in the field over the last six years. Discussions were wide ranging, and included input from the Americas and Asia. These were particularly important, since it's vital for the field that Europe's strategy is in sync with what's happening elsewhere in the world.

I hardly need to tell you that the years since 2006 have seen monumental changes in particle physics, notably the discovery by ATLAS and CMS of a particle consistent with the Higgs boson. But it's not only the high-energy frontier of the LHC that has provided new results. There have been important advances in other areas too, neutrino science, for example, where new players such as China's Daya Bay experiment and Korea's RENO have made their mark.

In the US, the Tevatron collided its final beams after 25 years at the pinnacle of its field, and Fermilab turned its attention to the intensity frontier. Japanese physics showed remarkable resilience in recovering from the earthquake and tsunami of 2011, with facilities embarking on new programmes. All of this means that Europe's strategy is much in need of refreshment, and I wish the strategy group well as they distil the input of an intense three days into a strategy for the future.

This week at Council, it was my pleasure to inform delegates that CERN's opening to the world continues to bear fruit. An agreement with Cyprus for the granting of the status of Associate Membership as the pre-stage to Membership at CERN is ready for signature later this year. Following a fact-finding mission to Ukraine, Council has authorised CERN to begin negotiations for Ukrainian Associate Membership. And an application for Associate Membership has been received from Brazil. A fact-finding task force will visit Brazil next month with a view to reporting back to Council by the end of the year. These developments also feed into the strategy update, which will be presented to Council in Brussels next May.

Rolf Heuer

## A Siberian delivery

(Continued from page 1)

project leader. The collaboration was made possible by support from the International Science and Technology Centre (ISTC), an intergovernmental organisation set up in 1992 to help former weapons scientists redirect their skills to peaceful activities.

The seven modules of the CCDTL took two and a half years to produce. Two further modules are due to be delivered to CERN in December this year, and the final three will follow early next year. Just a few more thousands of kilometres to be covered before we can raise a vodka toast to the CCDTL!

Caroline Duc



Due to traffic authorisation problems in Switzerland, it was not a Russian truck but a Swiss one that delivered the modules to CERN.

## LHC Report: Tests of new LHC running modes

On 13 September, the LHC collided lead ions with protons for the first time. This outstanding achievement was key preparation for the planned 2013 operation in this mode. Outside of two special physics runs, the LHC has continued productive proton-proton luminosity operation.

The first week of September added another  $1 \text{ fb}^{-1}$  of integrated luminosity to ATLAS's and CMS's proton-proton data set. It was a week of good and steady production mixed with the usual collection of minor equipment faults. The peak performance was slightly degraded at the start of the week but thanks to the work of the teams in the LHC injectors the beam brightness – and thus the LHC peak performance – were restored to previous levels by the weekend.

The LHC then switched to new running modes and spectacularly proved its potential as a multi-purpose machine. This is due in large part to the LHC equipment and controls, which have been designed with a great deal of flexibility. The machine's repertoire was extended to colliding protons with lead ions and also "unsqueezing" proton beams at the collision points to  $1000 \text{ m beta}^*$  for the experiments TOTEM and ALFA.

After Christmas the LHC will resume colliding protons with ions for the final period of physics data taking. Even though the LHC does not, in principle, change magnetically, proton-ion operation is a challenge for the



Celebrating proton-ion collisions.

RF system in the LHC and its synchronization with the SPS. The proton and ion beams are injected and ramped with different RF frequencies, and to collide these beams the frequencies have to be locked again, a process called re-phasing. Despite a 36 hour break to repair a vacuum leak that occurred at one of the LHC wire scanners (used to measure the transverse beam size), the first  $4 \text{ TeV}$  proton-lead collisions were recorded by the LHC experiments on 13 September – an outstanding achievement for all the teams involved.

Finally, after a short round of performance-related tests the LHC went back to its bread-and-butter of  $4 \text{ TeV}$  proton-proton physics, reaching the goal of  $15 \text{ fb}^{-1}$  for ATLAS and CMS before the start of the five day Technical Stop #3 on the morning of Monday 17 September.

Verena Kain for the LHC team

# Interview with Agnieszka Zalewska

**On Thursday, 20 September, the CERN Council elected its new President to take over as of 2013. Agnieszka Zalewska is the first woman and the first Polish physicist to fill this position. The Bulletin interviewed the President on the day after her election.**

**CERN Bulletin: Your involvement with CERN dates back to the 70s. Tell us about your career at CERN.**

Agnieszka Zalewska: I got involved with CERN in 1970, when I joined the Krakow group working on the K<sup>+</sup> proton interactions recorded at the 2 metre Bubble chamber experiment at the PS. This was for my diploma thesis. I continued my collaboration with CERN during my PhD, working on the analysis of high-multiplicity events from the same experiment.

After receiving my PhD in 1975, I came to CERN for the first time to work in the S136 experiment. I was then involved in the WA3 experiment and, for over 15 years, in the DELPHI experiment at LEP. It was a very interesting time because, in the early 80s, work had begun on the silicon vertex detector with VLSI read-out electronics in Peter Weilhammer's and Bernard Hyams' group.

Since 2000 my work has primarily centred on neutrino physics. I have been involved in the ICARUS experiment at Gran Sasso (Italy) and the T2K experiment at JPARC (Japan).

I have learnt about how CERN functions also by working in various committees: ACCU, the SPSC, the CERN Research Board, the SPC and, of course, as a Polish delegate to the CERN Council since January 2010.



Newly elected Council President, Agnieszka Zalewska.

**Bulletin: You will take over as of January 2013, when the LHC will be preparing for the technical stop. How will the role of CERN and the CERN Council develop over this period?**

AZ: The LHC should remain the first priority of CERN and should be of prime interest to the CERN Council. The role of the Council is also to aid in the completion and implementation of the European Strategy for Particle Physics. The coming years will be fascinating but demanding. We will prepare the LHC for running at its design energy and we will further develop the global approach to particle physics projects.

The scientific quality of CERN is recognized worldwide. From a Polish perspective, CERN was the first European institution of which Poland became a member. For us, it was a model for international collaboration and a gateway to Europe. The quality of CERN's scientific programme has been achieved thanks to the exemplary skills of the CERN personnel and of the researchers engaged in the experimental groups in the Member States and all over the world.

**Bulletin: How will your life change as President of the CERN Council?**

AZ: It's a great change in my life. It will be a lot of work. Working for the Council will be my first priority and I will dedicate as much of my time to it as it requires. I will still be based in Krakow and will continue my research work, but will often visit CERN.

I have many things to learn; it's a very demanding job. I will profit from my previous experience and will interact a lot with the current Council President, Michel Spiro, whom I will replace in 2013.

**Bulletin: Life will change also for your family...**

AZ: Yes, but my husband is also a physicist and he understands the constraints very well. My four children are all grown-up now.

Yesterday I received very nice e-mails from many colleagues in many countries – another way of observing the international character of CERN! From my family? My grandson sent me an SMS to congratulate me! He is 8 years old.

Antonella Del Rosso and Katarina Anthony

# Proton-ion collisions: behind the scenes of an exotic interaction

**Protons to the right, ions to the left: the basic principle of proton-ion collisions at the LHC might seem straightforward. However, this is an almost unprecedented mode of collider operation, certainly unique at the energy provided by the LHC. In addition to being a remarkable technical achievement, this interaction between a proton and an ion can potentially contribute a lot to the understanding of the properties of matter in its primordial state.**

Prior to last week, the LHC had only collided protons with protons and lead ions with lead ions. These were indeed the two operational schemes the LHC was designed for. However, since science can often evolve in directions that were not necessarily expected at the beginning of a project, over the years the scientific community has become more and more interested in the hybrid type of interaction – that between protons and ions. Last week's collisions were only a test for the teams involved in the operation of the LHC, in preparation for the four week run in 2013. But why are these collisions so interesting to physicists?

"The relevance of studying this type of interaction is twofold," replies Urs Wiedemann from CERN's Theory Unit. "In addition to being a benchmark for ion-ion collisions, proton-ion collisions could provide valuable insights into a so-far unexplored region of QCD, the model that describes the behaviour of, among other things, nuclei, protons and quarks, in which novel phenomena are expected to occur."

From observations at the LHC and in other colliders we already know that when two ion beams are collided, a new state of matter is formed: the quark-gluon plasma (QGP). This is the hot and dense matter that existed in the initial moments of the Universe. At the LHC, the properties of this state can be probed by studying how high-

energy particles produced in the collision are stopped inside this matter. "To better understand what this quenching of high-energy particles can tell us about the QGP properties, we want to study how the same processes are attenuated when they occur in the cold nuclear matter present in proton-ion collisions," explains Urs Wiedemann. "The quenching of high-energy particles is only one of several measurements where cold nuclear matter effects can provide the benchmark information needed to improve our understanding of heavy ion collisions."

For the first time last week, a beam of high-energy protons was collided with a beam of lead ions in the LHC. The collision energy was more than ten times higher than that of previous experiments. The hope of the scientific community is that these collisions will also provide insight into a phenomenon known as "parton saturation" in QCD. "From the theory we know that, when we look inside a particle composed of quarks and gluons, such as the proton, the number of its basic constituents varies depending on the magnifying lens with which we observe it, that is, the physical scale given by the momentum transfer," says Urs Wiedemann. "And if one keeps the magnification scale constant and increases the energy of the particle, theory tells us that the number of constituents (partons) seen at this scale increases. But at a still-unknown high energy, there are fundamental reasons to

expect that this growth of the number of constituents with energy must be saturated."

"This saturation happens," he continues, "when the density of partons becomes so large that any further growth in density is compensated by the probability that these partons meet and recombine. This saturation phenomenon is expected to set in earlier in lead nuclei than in protons, simply because they contain more partons. In the absence of an electron-ion collider, proton-nucleus collisions are our best choice for making progress on the question of at what scale this parton saturation phenomenon arises in QCD. And by increasing the centre-of-mass energy of proton-nucleus collisions by more than a factor 10 over previous experiments, we open up a wide, previously unexplored energy range relevant for addressing this question."

Thanks to the proton-lead collisions at very high energy, the LHC experiments could be the first to observe this phenomenon. A first physics run with regular proton-lead collisions will start in January 2013. A large portion of the experimental approach to provide a solution to the mystery will need to be redesigned...

Antonella Del Rosso

*For more technical details about the production of proton-ion collisions, read this week's LHC Report.*

## President of the Slovak Republic visits CERN

On 11 September 2012, the President of the Slovak Republic, Ivan Gašparovič, visited CERN accompanied by the First Lady and a delegation of 67, including the Deputy Prime Minister, the Minister of Foreign Affairs, the Minister of Economy and the Ambassadors of the Slovak Republic to Switzerland, France and the Office of the United Nations.

The visit by representatives of the Slovak Republic follows the Slovak Republic's hosting of the CERN Accelerator School in the region of Bratislava. After being welcomed to CERN in the morning by CERN Director-General Rolf Heuer, the members of the Slovak government were given the opportunity to get a glimpse of the LHC and to visit the ALICE experiment at Point 2.

The President and other members of the Slovak delegation then met representatives of Slovak universities and industries at an exhibition of their work in the hall of Building 500. The President then briefly spoke to Slovak journalists and signed the VIP visitors book. The visit lasted two and a half hours. It ended with an exchange of presents and a last handshake and then it was time to go.

Caroline Duc



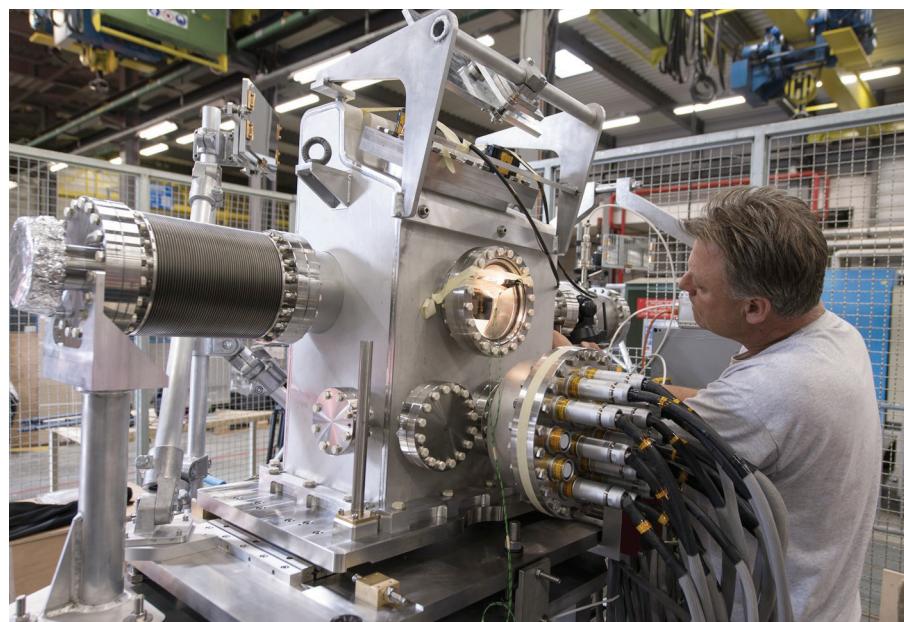
# Delving into the heart of materials

In the middle of September, the HiRadMat platform was equipped with a new test bench designed by CERN teams, which should provide a greater insight into how matter behaves when impacted by high-energy, high-intensity particle beams.

The HiRadMat – High Irradiation to Materials – facility is designed to test the resistance to high-intensity beams of materials or components destined for particle accelerators. As part of the EU programme EUCARD, which finances a number of R&D projects including one to develop new materials for protecting the LHC against accidental beam losses, CERN's Mechanical and Materials Engineering (MME) Group, supported by teams from the EN, BE, TE and PH Departments, has designed a machine capable of testing six different materials in a single experiment. In total, twelve rows of up to ten 40-mm-diameter samples can be subjected to a series of high-intensity proton pulses.

"With the power of accelerators increasing, research into the behaviour of materials under extreme conditions of temperature and pressure is becoming more and more urgent," says the experiment coordinator Alessandro Bertarelli, who is also Head of the PE Section in the Engineering Department's Mechanical Design Office. "Our facility is the first to capture - simultaneously and in real time - the shock wave and the surface movement brought about by the impact of the beam and, at the same time, to record images of the sample fragments being projected upon impact." These tests will help validate the simulation models and understand the mechanisms which regulate behaviours of matter at these extreme conditions.

No fewer than 244 strain gauges, 36 temperature gauges and a laser doppler vibrometer are connected to a 4 MHz fast acquisition system – 4 million measurement points per second – which are triggered at the passage of the beam. In addition, a high-speed camera operating at an image every 50 µs (20,000 frames per second) will be built into the system. It took a whole year of development to prepare such a high-performance acquisition system.



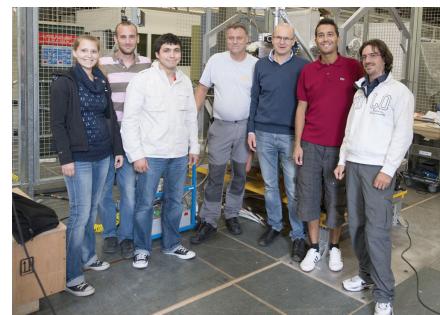
Section of the new machine where images of the sample fragments being projected upon beam impact are recorded.

Before this complex system was inserted into the HiRadMat tunnel in mid-September, each component was individually tested and checked. Since no previous system had ever reached these acquisition rates and strain levels in such an environment, numerous tests had to be performed in order to validate the measurements of the strain gauges.

Testing will start in the first week of October. Once the test bench has been positioned in the tunnel, the samples will be bombarded by beams from the SPS with an energy of 440 GeV and an intensity varying from  $10^{10}$  to  $10^{13}$  particles. The data recorded in real time will give information to a precision of a few percent (less than 10%). Corrections will be made in the processing of the data and the reconstructed signal will provide even better results. Complementary tests will then be performed on the samples to measure their mechanical properties

after irradiation. But it will take at least one month for the radiation levels in the experimental area to fall sufficiently for it to be safe for the samples to be handled. What secrets will the materials reveal? We await the answer with bated breath...

Caroline Duc



Part of the team working on the new HiRadMat facility.

## Old-fashioned flash bulbs get the job done!

Numerous technical problems had to be overcome by the MME team designing the test bench, notably the requirement for all the components in the experimental facility to be radiation-hard. Since the high-speed camera and the laser vibrometer are sensitive to radiation, they had to be located in a bunker 40 m from the experiment. The images were conveyed to the camera's lens by a system of mirrors and flashes. For the high-speed camera, high-luminosity flash-bulbs had to be installed above the impact zone, but the closer the impact, the closer the radiation! Modern-day flash-bulbs contain semi-conductors which cannot survive in such an environment, so the Group's engineers had to get hold of photographic flash-bulbs from the 1970s and 80s and adapt them in order to solve this problem. So you can see that CERN is definitely keeping up with fashion - vintage is "in"!

# All change at the CERN UBS branch

**UBS branches across the country are being modernised, and the CERN branch is no exception. The Bulletin brings you a preview of the project, which will get under way in January 2013.**

The changes at the UBS branch in CERN's Main Building will be no simple facelift. The entire bank will be renovated, transforming the present relatively confined premises into an open and attractive area. "The renovation of the UBS branches is part of a wider campaign designed to further enhance our customer relations," explains Ezio Mangia, the head of the CERN branch.



Mock-up of the renovated UBS branch.

The UBS bank currently occupies three sets of premises in CERN's Main Building (two on the ground floor and one in the basement). "By the end of the work, which is scheduled to be completed by the middle of next year, CERN customers will benefit from a new area with open-plan counters and "hole-in-the-wall" machines accessible to disabled users. Depending on the type of service

they require, customers will be directed to new 'advice' areas in the basement or to the premises next to the post office for financial services," explains Ezio Mangia.

The project features new furniture, open spaces where confidentiality will nevertheless be maintained, an elegant and welcoming atmosphere, and new enclosed booths offering greater privacy. "The new premises of the UBS bank will blend very well with the style of the newly renovated Main Building," says Myriam Veyrat, the person in charge of the Main Building's renovation project.

UBS will continue to provide its customers with the full range of services while the work is in progress. "The cash machines and counters will be temporarily relocated but will remain in service. Some inconvenience will be unavoidable, however, especially in terms of noise," says Myriam Veyrat. For this reason, conferences and other events scheduled to take place in the Main Auditorium have had to be moved to other locations.

The work will begin in January 2013 and should be completed by June. If these photos have whetted your appetite for more information about the new-look UBS, a preview is on display at the bank's Petit-Saconnex branch.

*Antonella Del Rosso*

## Display windows

The Staff Association is receiving an increasing number of requests from artists wishing to display their work on the ground floor of the Main Building. To help it to meet the demand, new display cabinets as well as a new display area (see photo) are in the offing. The project will create more attractive facilities for artists to display their work. Situated in front of the outdoor courtyard, on the main route to Restaurant No. 1, they will be ideally located to attract the attention of passers-by. A touch of colour and appropriate lighting will complete the display area, which will be inaugurated shortly.





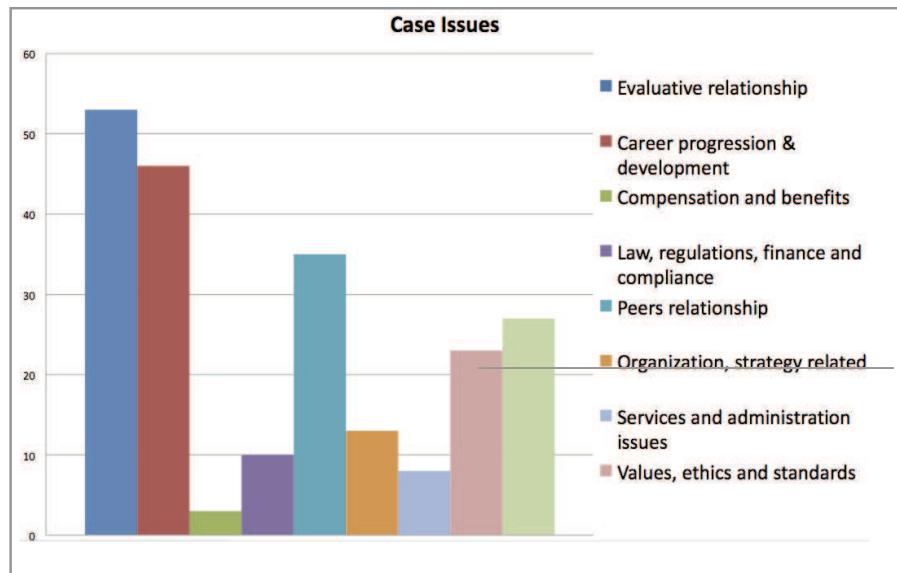
## Ombuds' Corner Le coin de l'Ombuds

# Speech for the defense of leadership

"First, leadership is a process that is not specifically a function of the person in charge. Leadership is a function of individual wills and individual needs, and the result of the dynamics of collective will organized to meet those various needs. Second, leadership is a process of adaptation and of evolution; it is a process of dynamic exchange and the interchanges of value. Leadership is deviation from convention. Third, leadership is a process of energy, not structure. In this way, leadership is different from management – managers pursue stability, while leadership is all about change."\*

Once again, during the 2011-2012 year, like the first year of my function, around one half of the issues reported to the Ombuds had to do with evaluation ("evaluative relationship") and career progression and development. These two categories are linked to the role of managers or leaders. This is also usually the case in other institutions, where managers are promoted to such a function due primarily to their outstanding technical skills, and not so much by taking their potential for human leadership - or their lack thereof - into consideration. Scientific excellence in research, education and innovation is the cornerstone of our culture. The Laboratory would gain even more efficiency by promoting a corresponding excellence in human leadership.

Ultimately, all case issues have an impact on the work and dedication of our personnel; a respectful workplace environment is the



Number of cases by issue during the period July 2011 to June 2012.

best guarantee of the highest effectiveness in all our missions\*\*. That calls for leadership driven by good ethics, beyond pure management and control.

### Conclusion:

From the many cases that I have seen, I believe that our culture should equally promote and include a culture favouring an excellence in leadership. How? By making use of the new tool we have: the integrated Competency Model.

Vincent Vuillemin

\* "Leadership and Change: The Case for Greater Ethical Clarity", by Bernard Burnes and Rune Todnem, Journal of Business Ethics (2012), 108:239-252 and "The nature of Leadership", by R.A. Barker (2001), Human Relations, 54(4), 469-494.

\*\* See the column by Sharone Bar-David, in Canadian HR Reporter, November 15, 2010 © Copyright Thomson Reuters Canada Ltd., November 15, 2010, Toronto, Ontario, (800) 387-5164. Web site: www.hrreporter.com



News from the Library

## Digital signage: what is it?

As you might know, "digital signage" is a form of electronic display that shows information, advertising and other messages in both public and private environments.

If you visited the Library lately, you probably discovered that something has changed in the way we inform library users of how our collections and services are evolving. A screen has now replaced the traditional shelf or showcase where libraries usually display new book acquisitions. This new digital showcase dynamically displays new book and ebook acquisitions in the Library, new titles available in the Bookshop, and most downloaded ebooks.

The same content will be soon displayed also on the CERN digital signage network.

CERN Library

## Got a call from "Microsoft"? The social way infecting your PC

Have you recently been called by "Microsoft Security"? At home!? Then beware: these are fake calls trying to make you install malicious software on your (home) PC!

This scam is currently prevalent throughout the Geneva area, targeting many different international organizations and companies. If you receive such a call, just ignore it and hang up. If you have fallen for this scam and followed their pleas, please contact us at Computer.Security@cern.ch.

This kind of scam is called "Social Engineering". Some "Microsoft" call-centre agent informs you that your PC is infected and will try to convince you to download some software from the web. If you do – BANG – your PC is compromised and your local data is at stake. In other Social Engineering scams, the attackers are trying to convince you giving them your password or sensitive documents.

Thus, recall that the real Microsoft will never call you – and definitely not on your home number. Nor will Apple, the CERN Computer Security or the CERN Service Desk (unless you have asked them to). If someone does, just ignore them and hang up, and let us know at Computer.Security@cern.ch. In particular, if someone was asking for your password.

Better be aware and proactive! Recall that your passwords are yours – and only yours. No legitimate person will ever ask for it: not the CERN Service Desk, the Computer Security nor your supervisor. Also, PayPal, Facebook, Google, Apple, Microsoft, UBS, etc. will never ever ask you for your passwords. Regularly patching your Windows or Linux PCs, as well as

Apple Macs, is mandatory and the best line defense your PC/Mac can have – at home as well as at CERN. For Windows and Macs it is even strongly recommended to run anti-virus software. The CERN anti-virus is also available for free for your home PC or Mac. Finally, taking care (STOP – THINK – CLICK!) when browsing the web or opening emails is a good habit protecting your assets.

Follow those easy hints for a basic level of computer security awareness... at CERN as well as at home!

Computer Security Team

## Gilles Trachez (1969-2012)



We are deeply saddened to announce the death of our friend and colleague Gilles Trachez. A senior technician in electro-mechanics, and at CERN since 1992, Gilles was a unique example of vibrant energy, with a broad smile and a hearty laugh even when facing utmost difficulties.

Gilles put vigour, flexibility and creativity at the service of the development of the superconducting magnets for the LHC, and in practice all main LHC magnets contain a part of his work. He followed critical contracts for the supply of magnet shells and laminations, and we have fond memories of the visits to a supplier in the Basque region of Spain, ending, after long working days, in happy evenings spent in the local 'sidrería'. Similarly, we recall long nights spent designing and assembling a polymerization oven to provide an urgent solution for the insulation of the LHC dipole cold bores. Gilles always had a smile on his face, and never hesitated to help a colleague.

In the same spirit, he battled against a long illness with courage and perseverance, until he passed away on Saturday, 8 September 2012. Gilles remains in our memories as a person of exceptional energy, strength and love for life. His passing is a terrible loss. Gilles will be deeply missed by all who knew him. Our thoughts are with his family, his friends and all who were close to him.

*His colleagues and friends from TE-MSC group.*

We deeply regret to announce the death of Gilles Trachez on 8 September 2012. Gilles Trachez, who was born on 15 November 1969, worked in the TE Department and had been at CERN since 1 November 1991. The Director-General has sent a message of condolence to his family on behalf of the CERN personnel.

Social Affairs  
Human Resources Department

# PARTNER's farewell

PARTNER, the Particle Training Network for European Radiotherapy, was launched in 2008 with the support of the European Commission. Its scope was to train young researchers in hadron therapy and, in doing so, aid the battle against cancer. Last week, a meeting in Pavia (Italy) celebrated the end of the project and its numerous accomplishments.



Participants à la récente réunion de PARTNER se tenant à Pavie (Italie).

PARTNER was funded by the European Commission (within the FP7 framework) with a budget of 5.6 million euros, and involved ten institutes and two private companies from around Europe. The project has helped to train a new generation of highly specialised professionals in hadron therapy, a field that is truly multidisciplinary. The 29 Marie Curie researchers, who all came from different backgrounds, had the opportunity to be trained in a wide range of subjects, such as physics, medicine, radiobiology and information technology. The latest results from some of their research projects will be collected and published in a special issue of the Journal of Radiation Research later this year.

Between training courses, scientific conferences and general meetings, the PARTNER researchers had a travel-intensive life. Some of them calculated that they had accumulated over 80,000 km of globetrotting over their years with the project. "PARTNER was truly a huge success for training," says Manjit Dosanjh, life sciences advisor at CERN and PARTNER Co-ordinator. "Several of our young researchers have received prizes and awards for their outstanding research. The PhD theses and publications that they produced while with PARTNER will be very important for their future careers." Indeed,

for many of them a bright career has already started in various institutes and hospitals involved in hadron therapy around the world.

PARTNER had a further positive, but unexpected, outcome: not only have the researchers become highly educated professionals, but also close friends. "The ties they built during the project will live on. This network will be an invaluable asset for their own future as well as that of the community of hadron therapy experts," says Manjit Dosanjh. "Emotions were running high at this last meeting in Pavia. These young people have been spending weeks together in full-immersion courses and networking events, so it is no wonder that they feel part of a large multicultural, multilingual and multidisciplinary family."

The PARTNER farewell event was followed by another celebration, the 10th anniversary meeting of the European Network for Light Ion Hadron Therapy (ENLIGHT). "At our request, the inaugural meeting of the network was held at CERN in February 2002," recalls Ugo Amaldi, one of the founding fathers of ENLIGHT. "It was supported by Hans Hoffmann, CERN's Director for Technology transfer and scientific computing, and Luciano Maiani, CERN's Director

General." In a few weeks, the ENLIGHT community will come back to CERN for a commemorative symposium open to everyone.

While PARTNER reaches a very successful end-of-project, the other EC-funded projects under the umbrella of ENLIGHT are continuing their activities. The researchers who recently joined the ENTERVISION project were both inspired and motivated by hearing the outcome of PARTNER.

The annual ULICE meeting was also held in Pavia, where a new video was screened that focussed on the beam-time offered at CNAO in Pavia and HIT in Heidelberg under the Transnational Access Pillar. "The access to the facilities' beam-time, made possible by EC funding for the ENLIGHT community, is of key importance for hadrontherapy research," comments Piero Fossati, medical doctor at CNAO.

You can follow the developing activities of the ENLIGHT community by reading the newly released ENLIGHT Highlights publication.

Julio Rosenfeld

# CERN@school: a new app displays natural radiation data

A student from the Simon Langton Grammar School for Boys in Kent (UK) has developed an app that displays data recorded by Medipix chips. Created for Android-based devices, the app is a new way for students to visualize the natural radiation in their local area.



James Hurst shows off the Medipix chips at his school's stand at the UK's Royal Society Summer Science Exhibition.

James Hurst, 17, developed the app in the framework of the CERN@school project that Becky Parker, a former participant in CERN's High School Teachers (HST) programme, set up in 2008. "The app is able to display pre-recorded data in both graphic and numeric formats," explains James. "I am already envisaging further developments, which might include producing the iOS version and eventually a live data-taking system."

CLEAR (Comprehensive Langton Evaluation and Analysis of Radiation), as it is named, will soon be available free from the Android Market together with its source code. All schools participating in CERN@school will be able to download it and use it to visualize their data.

But James has dreams that go even further, as the Medipix-based LUCID detector will be launched into space in a few months and will start to send data back to Earth soon after. CLEAR might then become the best way of visualizing real data coming directly from space on your smartphone.

Further information about CLEAR, please contact Becky Parker, founder of CERN@school, at [becky@beckyparker.co.uk](mailto:becky@beckyparker.co.uk)

Julio Rosenfeld



## Take note

### ACCIDENTS CAN HAPPEN TO ANY OF US, WHETHER WE ARE ON FOOT, CYCLING OR DRIVING

Excessive speeding, STOP signs not respected, a cyclist on the wrong side of the road, a pedestrian not paying attention, someone on a mobile phone while driving - are you familiar with any of these situations? The HSE Unit would like to express its opinion in light of the road accident statistics involving personnel at CERN.

In 2011, the HSE Unit's Accident/Incident Prevention and Follow-up Service recorded 28 motoring accidents involving personnel either on the CERN site or on journeys to and from work - double the 2010 statistics! These include accidents that could have been avoided by reducing speed or not using a mobile phone while driving.

At CERN, the majority of accidents linked to journeys continues to affect cyclists, with the number of cases now close to 30 each year. In order to ensure the safety of personnel, the HSE Unit would like to remind cyclists that wearing a protective helmet is highly recommended and that it is essential to ensure that you can be seen (bicycle lights and a retro-reflective vest).

Any person involved in or witnessing an accident or a near miss must complete an internal accident report form. These reports form the basis for analysing problems and for taking measures to enhance safety. By reporting a near miss you are helping to prevent any recurrence of a similar incident and therefore to reduce the accident toll.

In line with the Staff Rules and Regulations, disciplinary measures may be taken in the event of instances of road rage on the CERN site. To avoid such instances occurring, please comply with the traffic regulations. And there's nothing like a bit of common sense and common courtesy to improve driving conditions at CERN or anywhere else, whether at the border crossings, at a log-jammed roundabout or in slow-moving traffic!

On and off the CERN sites there is one way of protecting yourself and others, even on short journeys: namely, comply with the traffic regulations and remain alert!

More information can be found in Operational Circular No. 4 and Safety Codes A7 and A2.



## Seminars

### MONDAY 1 OCTOBER

#### INDUCTION SESSIONS

Globe 1st Floor

**08:30 Welcome & breakfast 30'**

**09:00 General welcome 5'**

**09:05 Human Resources Head of Department's welcome 10'**

JEAN-MARC SAINT-VITEUX (CERN)

**09:15 Presentation of HR, GS, PF Services 30'**

NATHALIE DUMEAUX (CERN), KERSTIN FUHRMEISTER (CERN)

**09:45 Entrance formalities & Workshops 1h30'**

**11:15 CERN Legal framework presentation 15'**

CHARLOTTE MARIA VIALA (CERN)

**11:30 IT Services presentation 15'**

ARASH KHODABANDEH (CERN)

**11:45 Safety at CERN presentation 15'**

VANESSA BANDIER (CERN)

**12:00 - 12:15 Presentation on the induction interview and the probation period 15'**

MICHAEL DORN (CERN)

**12:15 Reminder & Conclusion 15'**

NATHALIE DUMEAUX (CERN), KERSTIN FUHRMEISTER (CERN)

#### TH JOURNAL CLUB ON STRING THEORY

4-2-011 - TH common room

**14:00 TBA**

JEAN-FRANCOIS FORTIN (CERN)

### TUESDAY 2 OCTOBER

#### LHC SEMINAR

**11:00 Evidence of CP violation in  $B \rightarrow hhh$  charmless decays**

ALVARO GOMES DOS SANTOS NETO (UNIV. FEDERAL DO RIO DE JANEIRO (BR))

#### TH STRING THEORY SEMINAR

**14:00 T-duality for Massive States in String Theory**

JNAN MAHARANA (BHUBANESHWAR)

### WEDNESDAY 3 OCTOBER

TH THEORETICAL SEMINAR

**14:00 reserved for TH Institute**

VERDE, LICIA / ICREA AND ISC, UNIVERSITY OF BARCELONA

### THURSDAY 4 OCTOBER

#### COLLIDER CROSS TALK

4-2-011 - TH common room

**11:00 TBA**

KEITH MURRAY HAMILTON (UNIVERSITY OF OXFORD)

### MONDAY 8 OCTOBER

#### EP SEMINAR

Main Auditorium, Bldg. 500

**11:00 Highlights from the Quark Matter 2012 conference: a theorist's perspective**

URS WIEDEMANN (CERN)

### WEDNESDAY 10 OCTOBER

#### TH THEORETICAL SEMINAR

**14:00 reserved for TH institute**  
(CERN)

#### ISOLDE SEMINAR

**14:30 Recent Developments from the Target Group**

(CERN)



## Official news

### FORTHCOMING INDEFINITE CONTRACT REVIEW PROCEDURE

Please be informed that an additional post for the award of an indefinite contract has been opened. For more information please consult: Careers at CERN.



## TECHNICAL TRAINING

If you would like more information on a course, or for any other inquiry/suggestions, please contact Technical.Training@cern.ch  
Valeria Perez Reale, Learning Specialist, Technical Programme Coordinator (Tel.: 62424) Eva Stern and Elise Romero, Technical Training Administration (Tel.: 74924)

### Electronic Design

- Comprehensive VHDL for FPGA Design
- Electrostatique / Protection ESD
- Impacts de la suppression du plomb (RoHS) en électronique
- Introduction to VHDL
- LabVIEW Real Time and FPGA
- LabVIEW for Experts
- LabVIEW for beginners

	<b>Next Session</b>	<b>Duration</b>	<b>Language</b>	<b>Availability</b>
	08-Oct-12 to 12-Oct-12	5 days	English	4 places
	28-Sep-12 to 28-Sep-12	3 hours	French	25 places
	26-Oct-12 to 26-Oct-12	8 hours	French	14 places
	10-Oct-12 to 11-Oct-12	2 days	English	9 places
	13-Nov-12 to 16-Nov-12	5 days	French	5 places
	24-Sep-12 to 28-Sep-12	5 days	English	6 places
	15-Oct-12 to 17-Oct-12	3 days	English	2 places

### Mechanical design

- ANSYS - Introduction à ANSYS Mechanical APDL
- ANSYS CFX.
- ANSYS: Introduction à ANSYS Workbench Mechanical
- AutoCAD Mechanical 2012
- Cours avancé ANSYS Workbench
- SmarTeam - CATIA data manager at CERN
- Travailler en salle propre

	<b>Next Session</b>	<b>Duration</b>	<b>Language</b>	<b>Availability</b>
	04-Feb-13 to 07-Feb-13	4 days	English	6 places
	10-Dec-12 to 13-Dec-12	32 hours	English	6 places
	08-Oct-12 to 11-Oct-12	4 days	French	3 places
	18-Oct-12 to 19-Oct-12	2 days	French	7 places
	05-Nov-12 to 08-Nov-12	4 days	English	2 places
	12-Nov-12 to 14-Nov-12	3 days	French	4 places
	15-Nov-12 to 15-Nov-12	8 hours	French	21 places

### Office software

- ACCESS 2007 - niveau 2 : ECDL
- CERN Document Server (CDS), Inspire and Library Services
- CERN EDMS - Introduction
- CERN EDMS for Local Administrators
- EXCEL 2007 - Niveau 2: ECDL
- EXCEL 2007 - niveau 1 : ECDL
- MS Project - niveau 1
- MS Project - niveau 2
- PowerPoint 2010 - Niveau 2
- Sharepoint Collaboration Workspace - niveau 1
- Sharepoint Collaboration Workspace - niveau 2
- Tirer avantage d'Office 2010, Expression Web et Lync
- Travailler avec Windows 7 au CERN
- WORD 2010 - niveau 1 : ECDL
- WORD 2010 - niveau 2: ECDL

	<b>Next Session</b>	<b>Duration</b>	<b>Language</b>	<b>Availability</b>
	08-Nov-12 to 09-Nov-12	2 days	French	9 places
	23-Nov-12 to 23-Nov-12	4 hours	French	9 places
	19-Oct-12 to 19-Oct-12	8 hours	French	7 places
	17-Sep-12 to 18-Sep-12	2 days	English	7 places
	01-Oct-12 to 02-Oct-12	2 days	French	2 places
	20-Sep-12 to 21-Sep-12	2 days	French	1 places
	16-Nov-12 to 23-Nov-12	12 hours	English	6 places
	30-Nov-12 to 30-Nov-12	8 hours	English	10 places
	15-Nov-12 to 15-Nov-12	1 day	French	5 places
	04-Oct-12 to 05-Oct-12	2 days	French	2 places
	08-Oct-12 to 09-Oct-12	2 days	French	5 places
	17-Sep-12 to 17-Sep-12	1 hour	English	30 places
	17-Sep-12 to 17-Sep-12	1 hour	English	28 places
	12-Nov-12 to 13-Nov-12	2 days	French	6 places
	22-Oct-12 to 23-Oct-12	2 days	French	7 places

### Software and system technologies

- Agile Project Management with Scrum
- Business Objects Basic
- C++ Part 1 - Hands-On Introduction
- Création de sites avec Drupal
- Developing secure software
- Drupal in a Day
- ITIL Foundations (version 3)
- ITIL Foundations (version 3) EXAMEN
- Intermediate Linux System Administration
- Introduction to Databases and Database Design
- Introduction to Linux System Administration
- Oracle - Programming with PL/SQL
- Oracle - SQL
- Oracle Database SQL Tuning
- Python - Hands-on Introduction
- Python: Advanced Hands-On
- Secure coding for Perl
- Secure coding in C/C++

	<b>Next Session</b>	<b>Duration</b>	<b>Language</b>	<b>Availability</b>
	20-Sep-12 to 21-Sep-12	2 days	English	2 places
	15-Oct-12 to 16-Oct-12	2 days	French	5 places
	05-Nov-12 to 08-Nov-12	4 days	English	5 places
	23-Oct-12 to 24-Oct-12	16 hours	English	2 places
	02-Oct-12 to 02-Oct-12	3.5 hours	English	12 places
	01-Oct-12 to 01-Oct-12	8 hours	English	One more place
	05-Nov-12 to 07-Nov-12	3 days	English	7 places
	28-Sep-12 to 28-Sep-12	1 hour	English	3 places
	15-Nov-12 to 21-Nov-12	5 days	English	One more place
	25-Sep-12 to 26-Sep-12	2 days	English	6 places
	15-Oct-12 to 18-Oct-12	4 days	English	3 places
	01-Oct-12 to 03-Oct-12	3 days	English	7 places
	21-Nov-12 to 23-Nov-12	3 days	English	7 places
	19-Sep-12 to 21-Sep-12	3 days	English	2 places
	19-Nov-12 to 22-Nov-12	4 days	English	9 places
	24-Sep-12 to 27-Sep-12	4 days	English	3 places
	22-Oct-12 to 22-Oct-12	8 hours	English	8 places
	28-Sep-12 to 28-Sep-12	1 day	English	5 places

### Special

- Designing effective websites

	<b>Next Session</b>	<b>Duration</b>	<b>Language</b>	<b>Availability</b>
	01-Oct-12 to 02-Oct-12	2 days	English	3 places