



Nos 10 & 11 - 7 & 14 March 2012

The winning alliance



An overwhelming number of proposals for improving virtually all aspects of cancer treatment was presented at the ICTR-PHE 2012: from new detectors and read-out solutions for implementation in the next generation of imaging instrumentation to accelerator-based facilities for the production of new isotopes for use both as radio-tracers and as drugs. And this is not all, because the issues that were discussed at the joint conference also included new uses of enhanced PET-CT imaging for cardiovascular disease.

The feeling is that we are at the beginning of a totally new approach to healthcare. The

The ICTR-PHE 2012 conference, which closed its doors today after five busy days, sealed the alliance between the physics and medical communities. We have come a long way since 1977, when physicist David Townsend took the first PET images of a small mouse. Today, physicists are developing new detector techniques that medical doctors can transfer to the clinic in fields that are no longer confined to cancer treatment. Several powerful and innovative solutions for better healthcare are on their way.

instruments currently used in medical imaging (PET, PET-CT, MRI) are powerful tools used by doctors to identify malignant cells. However, as doctors speaking at the conference pointed out, tumours are complex diseases that require ad hoc solutions. The treatment strategy may change depending on the specific metabolism and metastatic status of the patient. The need to evaluate each specific case is taking on primary importance in the medical environment. And technology is following and sometimes anticipating clinical needs. As an example, a

(Continued on page 2)



Opportunity and obligation

As anyone in the press or VIP offices can tell you, CERN is in the spotlight like never before. In the first two months of 2012, we welcomed some 56 VIP visits and 144 media visits on site. Not long ago, those were the kind of numbers we'd have had in six months, and 2012 is not a one-off.

Ever since CERN turned 50 in 2004, our visitor numbers have been growing, and that includes teachers and members of the public as well as VIPs and the media. It's a sign of the explosion of interest around

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A word from the DG

(Continued from page 1)

Opportunity and obligation

the world in our science, and to me it means two things. Firstly, it means that I owe everyone at CERN a vote of thanks, since I know that visits impinge on everyone's time. I can assure you all, however, that it is time well spent. That's because the second thing it tells me is that growing interest in CERN brings opportunity.

Our current visibility gives the particle physics community the opportunity to drive science up the popular and political agendas, and it's our obligation to make sure that happens. As I pointed out to all those VIPs who visited us in January and February, the world's future depends on science, progress depends on science, and the resolution of many of the problems facing society today depends on science. If the scientific community is not doing all it can to engage with the public, to enthuse the young and to ensure that science is at the top of the political agenda, then we are failing in our duty.

The evidence of all the visits we've hosted this year is that nobody visits CERN and leaves uninspired, everyone who comes here becomes an ambassador for CERN, and leaves with an understanding of the vital role that science must play in the world. Through our visit programmes for all sectors of society, CERN is doing its bit in getting that message across.

Rolf Heuer

The winning alliance

(Continued from page 1)

combination of PET and MRI techniques is now able to provide information about the nature of tumours and metastases, and even their metabolism.

In parallel, physicists are experimenting with a wider range of radioisotopes for use as tracers for specific tumours, and as vehicles for bringing radiation directly to targeted malignant cells once injected into the body or shot from an accelerator. They are designing new accelerator facilities or adapting the existing ones for what is emerging as a complementary mission to that of resolving the fundamental mysteries still held by the Universe.

CERN was strongly represented at the ICTR-PHE 2012 conference thanks to its widespread participation in medical physics-related projects funded by the EU and its involvement in a number of projects relating to the development of detectors, read-out techniques and particle acceleration solutions. Virtually all areas of CERN are involved: LEIR, ISOLDE, several groups in the PH Department, the Knowledge Transfer Group in the Finance Department, the radiation experts in HSE and certainly many other members of the CERN Community at large. In the next issue, the Bulletin will give you a more comprehensive account of the pres-

entations and discussions that took place at the conference, together with a video that will highlight some of the many interesting contributions.

The message that physicists need to play an even greater role in the fight for better healthcare came across very strongly at the public talk given by Søren M. Bentzen, professor of human oncology at the University of Wisconsin. He said that a brand-new science is being created by the collaboration between and overlap of physics, biology, chemistry, computer science, etc. He referred to it as "clinical biophysics". This is a field which uses research methods that do not naturally exist in any of the single natural sciences that contribute to it. Physicists, he said, should have a central role.

To find out more, watch a short video interview with Professor Bentzen:

<https://cdsweb.cern.ch/record/1428818>

If you missed the public lecture given by Professor Bentzen on Tuesday 28 February, you might be interested in watching the recording:

<https://cdsweb.cern.ch/record/1428092>

Antonella Del Rosso

LHC Report: Heading towards the 4 TeV

Only a few weeks ago the CCC looked empty and desolate. It is now crowded with people working indefatigably towards the

restart of operation with beam. At the LHC island, people are hard at work to ready the machine for its rendez-vous with the beam now foreseen for 14 March.

After about five weeks of cool-down, all the main magnets are now filled with superfluid helium. Since Thursday 1 March, the cryogenics system has been operating at nominal conditions all over the ring – everything is green on the screens over in the north corner of the control room. Meanwhile, TE-VSC is performing bake-out operations in the vacuum sectors of the injection collimators in order to reestablish the required vacuum conditions following the interventions during the Winter Technical Stop.

The giant is waking from its slumbers. For about a week now, protons have been in the injectors: first passing through the LINAC, Booster and PS; and, since last weekend, passing through the SPS. The beam is now knocking at the doors of the LHC.

The electrical quality assurance has almost been completed on all superconducting circuits and the preparation of all the quench protection systems is well on track. The magnet powering tests (started only three weeks ago) are also progressing well: up to now, more than 90% of the tests with current have been performed successfully. To achieve these results, LHC operators and engineers have been performing tests during evenings and nights to cope with the large amount of interventions that are still keeping a lot of people busy in the tunnel.

Since the announcement at Chamonix, the teams have been preparing the machine for 4 TeV operation. While this implies a minor increase of the current in the main dipoles

and quadrupoles, huge attention must be paid in order to qualify the circuits to this new energy level. So far, all efforts have paid off: presently, six of the eight LHC sectors have been brought to the new current levels, and heat runs, with all the circuits powered at these new current levels, have been performed as well.

During the first week of March all powering tests will be completed and the machine check-out will start. The beam is knocking at the door, and the LHC crew will certainly not make it wait.

*Mirko Pojer and Matteo Solfaroli
for the LHC team*

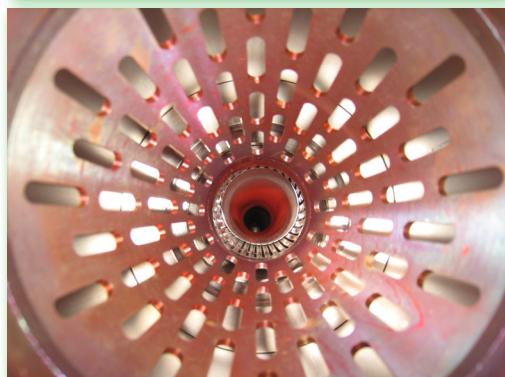
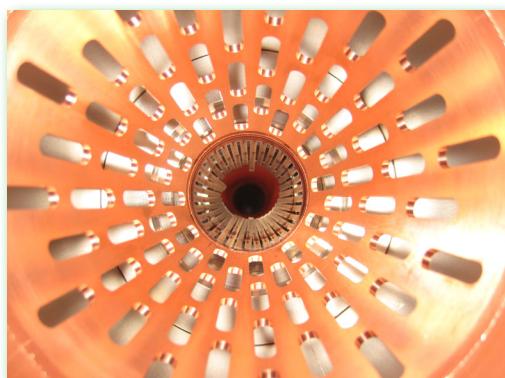
Open heart surgery at the LHC

If the vacuum is insufficient, pressure mounts and the problems start. In the LHC the ideal pressure is around 10^{-10} mbar. Once this threshold is exceeded, the "noise", which means the interference generated by the residual gas present in the machine, compromises physics measurements.

In early summer 2011, a pressure a hundred times in excess of the ideal pressure was observed at the connection between two sections of the vacuum chamber only a few metres from the CMS interaction point.

Outside in

One hypothesis on which attention was particularly concentrated was the possibility of faulty radiofrequency fingers. The fingers are designed to ensure continuous electrical contact between two sections of vacuum chamber while allowing them to slide over each other as the machine contracts and expands with temperature variations. If one of the fingers is distorted and loses contact with the adjacent section of vacuum chamber, perfect electrical contact is broken and this can induce heating. There is then a risk of gas being propagated inside the vacuum chamber, causing pressure peaks, and this is precisely what was observed.



The top photo shows the RF fingers inside the adjacent section of vacuum chamber, while on the lower photograph they are outside of it as they should be.

On 17 January this year there was a race against time in the CMS cavern. In order to replace a faulty LHC component, members of the Vacuums, Surfaces and Coatings (VSC) Group, in collaboration with the CMS experiment team, had to extract and then reinsert a 2-m long section of vacuum chamber. And they had one hour to do it.

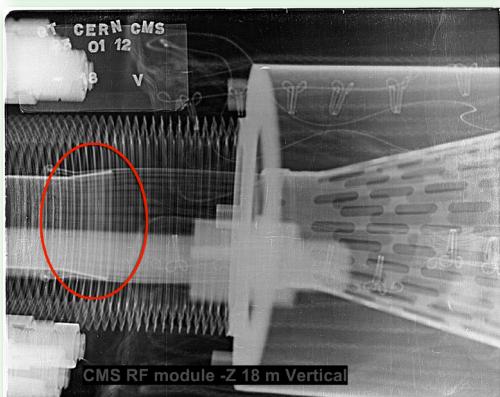
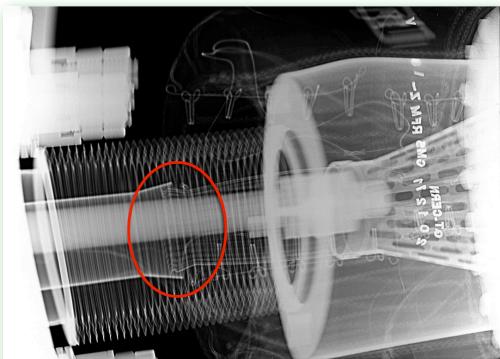
So at the start of the LHC's winter technical stop, this section of the accelerator was X-rayed and the hypothesis was confirmed: the RF fingers, which were supposed to be around the adjacent section of vacuum chamber, had slid inside it (see the photos below).

The checks showed that there was too great a distance between the two sections of vacuum chamber. Initial studies indicate that the equipment has moved a few millimetres since installation of the LHC. It is therefore conceivable that during a movement the two sections of vacuum chamber moved so far apart that contact was virtually lost. That's when things got outside in.

We open up!

Although the cause had been established, the problem remained. After several discussions with the CMS team, the decision was taken to take action, but this entailed removing a 2-metre-long section of vacuum chamber! Naturally without compromising the vacuum quality of the rest of the detector. So, on 17 January, in a strictly time-limited operation in view of the proximity of a relatively radioactive component, and operating on scaffolding 10 m above the floor of the CMS cavern, several sections of the VSC Group and members of the CMS collaboration joined forces to perform the repair work. This was a challenge for the team since for the first time a 2-metre section of vacuum chamber had to be removed from the very heart of a particle physics experiment!

Luckily, there was a tried-and-tested technique to hand to address the vacuum problem as it had already been used in the LHC. During the operation, neon was continuously injected into the untouched adjacent sections of



At the start of the LHC's winter technical stop, an X-ray was done to check the position of the RF fingers at Point 5. The X-ray at the top confirmed that the RF fingers (in the red circle) were not in the correct position, unlike on the lower picture.

vacuum chamber. Pumped into these adjacent vacuum chambers at the opposite ends to the intervention zone, the neon acts as a barrier to the ambient air as it moves out of the vacuum chamber into the cavern, thereby preventing the air from penetrating into the vacuum chamber. Unlike the ambient air, this rare gas doesn't impair the coating inside the vacuum chambers and has no adverse effect on the speed of vacuum pumping.

After only one hour, the patient could be "stitched up" again. The operation went perfectly smoothly, as confirmed by a new X-ray. Vincent Baglin expressed his appreciation to all those involved for their extraordinary commitment and the quality of the work achieved.

Anaïs Schaeffer

CERN building numbers: no rhyme and little reason

There's no denying it: the CERN site cannot be navigated without professional help. You can walk down a single corridor and pass through Buildings 33, 4, 5 and 53... in that order. Surely there must be a method behind this madness? "Well, if there is one, we've yet to find it," says Youri Robert, who is in charge of geographic information and patrimony data in the GS Department's Site Engineering group, which is responsible for the classification of CERN's buildings. "We do have some naming conventions in place, especially for buildings related to the LHC,

Over the years, people at CERN have been trying to develop a single theory to explain CERN's building numbers. Behind these seemingly random numbers there must surely be an ultimate solution: CERN's second Standard Model, if you will. The CERN Bulletin finds out more...

but most of the older buildings seem to have been numbered without a particular system in mind."

While Youri and his team are solely responsible for numbering CERN's newest buildings, they still have firm restrictions on their work. For example, they cannot reuse building numbers, even if the original building has been demolished. "You'd be surprised how

few numbers there are left," says Francois Villagrassa, a technician in charge of patrimony data and plan archiving. "After 50 years, we've only got the occasional number left under 1000. Without going too far into the four-digit range, we try to give new buildings similar numbers to other buildings in their area, while also giving some of the more important buildings "round" numbers (i.e. Buildings 80 and 500), and project leaders sometimes request a particular number to reflect the nature of their work. We also try to keep office buildings numbered between 1 and 400, and service buildings numbered between 500 and 600. But 'try' is the operative word; it's really not that easy."

In an ideal world, the GS Department would just be able to start over, renumbering all of CERN's buildings (and rooms) using a single policy. Unfortunately, real-life logistics prevent such an overhaul, as many of CERN's databases rely on the current building numbers. "However, we were able to adopt naming conventions for the SPS and LHC buildings," says Youri. "As a result, the LHC buildings actually have two names: one (known as a "sigle") is allocated by the convention and explains the function of the building, while the second is given by the Patrimony service and is used for work by the CERN services." For example, the magnet testing facility SM18 is considered to be building number "2173", but its name follows the LHC naming convention: the "S" stands for "Surface Buildings", the "M" for "Magnets and other machine equipment", and the "18" comes from its location at Point 1.8.

So it seems that the solution to the building numbers dilemma is less trivial than expected. Let's all just stick to simpler problems... the Higgs, perhaps?



Still trying to understand CERN's building numbers? Give up...

Katarina Anthony

SESAME: opening doors through science

Sumera Yamin, a physicist, and Khalid Mansoor Hassan, an electrical engineer, both from the National Centre

for Physics in Islamabad, came to CERN under an agreement with Pakistan. "They started contributing right away, helping us design and build new magnets for the ALPHA experiment," says Davide Tommasini, Head of the resistive magnet section. "They fitted right in, just like I had expected. It is amazing to see that all scientists share the same approach." The two scientists will also contribute to some aspects of the magnet design and the technical specifications for

Two Pakistani scientists arrived at CERN on 2 February at the height of the cold snap. They will spend the coming year working in collaboration with CERN's magnet experts, learning the technology and contributing to ongoing projects.

the SESAME project, the Synchrotron-light for Experimental Science and Applications in the Middle East, the first major international research centre for the region.

SESAME was set up according to the CERN model and is being developed under the auspices of UNESCO. Its current members are: Bahrain, Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, the Palestinian Authority and Turkey. CERN is supporting this initiative

by sharing its expertise, in particular for the magnet system. In 2010, CERN and SESAME directors signed a collaboration protocol. CERN's experts will also give training to SESAME personnel on request.

Pakistan is a member of both SESAME and the CMS collaboration. Its goal is to support CERN in its efforts in favour of SESAME, and, by the same token, to build expertise in accelerator science, technology and design for domestic use.

SESAME's main building in Allan, Jordan, was completed in 2008. By 2015, this research centre will start welcoming scientists from all its member states. As a "user facility", scientists will come for short visits, perform a specific experiment and return home for the data analysis. "We are getting a lot of help and attention from the whole group," says Khalid. "Every time we need to discuss something, someone suggests we do it over a coffee!"

But discussing everything and nothing over coffee is not the only new experience they had at CERN. "This is a very different learning experience," adds Sumera. "It's more cooperative, more open." Both Sumera and Khalid are enjoying CERN's multicultural environment and are happily soaking up lots of new knowledge.

Pauline Gagnon



Sumera Yamin (left) and Khalid Mansoor Hassan (right) with quadrupole magnets in the I8 testing facility.

Visit by Prime Minister of Slovak Republic

Upon arrival, Prime Minister Radicova spent about half an hour discussing the Slovak Republic's involvement in CERN with the DG, and was very interested in the physics results that the Organization is currently working on. After signing the official guest book in Building 500, the Prime Minister crossed the border into France to visit the ALICE experiment. Donning a helmet, she descended into the ALICE cavern to take a first-hand look at one of the two CERN experiments to which her country has contributed (ATLAS being the second).

"We also showed her the read-out chambers for the Time Projection Chamber (TPC) and the

The Prime Minister of the Slovak Republic, Iveta Radicova, visited CERN on 28 February, meeting with CERN Director-General Rolf Heuer and going down to the ALICE cavern.



electronics for the pixel detector that are on display in the ALICE exhibition area, as they were produced in the Slovak Republic," says Karel Safarik, the Slovakian ALICE physicist who accompanied the visit.

Prime Minister Radicova ended her visit with a tour of CERN's superconducting magnet test facility SM18, guided by representatives from the TE and BE Departments.

The Slovak Republic has been a Member State of CERN since 1993 - you can read more about the country's contribution to CERN at:

<http://international-relations.web.cern.ch/International-Relations/ms/sk.html>

CERN Bulletin

Local school children curious about CMS

Two classes from the primary school in the village of Cessy, where CMS is located, took part in the visits on 2 and 9 February, and all 36 pupils from CM2 (Year 6) at the

Ecole des Bois in nearby Ornex took part in the visit on 6 February. "They asked so many questions," says Sandrine Saison Marsollier, CERN's educational officer for the local community, who accompanied some of the classes to CMS. "Most of them had practical questions about what they saw, for example how big and how heavy the experiment

Imagine the scene: about 20-30 schoolchildren aged 8-11 and about 1.25 m tall; a couple of adults, let's say on average 1.75 m tall, and then one high-energy physics experiment 15 m tall. This is what you could have seen on 2, 6 and 9 February in the CMS cavern, as two local schools participated in the "Be a scientist!" programme.

is, and which bit goes where. But some seemed to know already about what the experiment does. One boy asked how fast the particles travel in the beam pipe – we were very impressed!"

The children are participating in the "Be a scientist!" programme which aims to teach

primary school children about experimental methods. Organised jointly by CERN, Geneva University's "PhysiScope" group, the education authorities of the Pays de Gex (*Inspection de l'éducation nationale*) and Geneva (*Service de la coordination pédagogique de l'enseignement primaire*) and Geneva University's Faculty of Science and Education, it combines real experimental work in the classroom with visits to either CERN experiments or the Physiscope at the University of Geneva. More than 750 children from the Pays de Gex and Geneva are taking part in what is now the third year of the programme. The children communicate the results of their experiments with each other via a website moderated by physicists, educationalists and teachers, and also get to interview scientists to compare their own experiments and methods with real scientific research.

"I'd like to say a big thank you to all the physicists and engineers who are participating in the programme and taking the children to the experiments," says Sandrine. "They're busy people, but they still take the time to act as guides, and many seem to enjoy it."

One such person is Alexandre Zabi, a physicist with CNRS' Laboratoire Leprince-Ringuet and the ECAL trigger coordinator at CMS, who accompanied two of the recent visits. "I like trying to find ways of explaining something very complicated to small children," he says. "When you can see in their eyes that they've got it, it's really special. It just gives me goose bumps."

Joannah Caborn Wengler

"I think they've got it..."

Perfect symmetry between arts and science

You can see it in their eyes: the sense of amazement as they shake their heads and try to put into words what they have seen and heard today. "All those cables and coils, it's so complicated," says Claron McFadden, the soprano opera singer on the team. "And it was so noisy at LHCb, and even noisier in the computer room," adds Dirk Haubrich, the composer. "It's been an amazing experience, it's opened up a whole new world to me," throws in Lukas Timulak, the dancer and choreographer. They are joined by Tim Georgeson, the photographer, who listens closely, as well as Constant van Panhuys, the producer, and Ruben van Leer, the director and mastermind of the piece.

Together these six artists make up the team that will be producing the 20-minute film, which at first glance seems to be a dance

"Symmetry," a film about science, truth and identity, is the first arts project to receive the endorsement of the CERN Cultural Advisory Board, following a rigorous peer review process. It unites six artists from different artistic and cultural backgrounds - between their nationalities and current places of residence they cover six countries and three continents. The team visited CERN recently to get an impression of the Organization and to prepare for filming during the shutdown in 2013.

opera. However, it goes much further than that. It will also incorporate visuals generated by CMS data and data taken from motion capture – the technology used in films to get life-like animation of human movements. Creative programmers will then use that data to produce attractive images which will be projected at key points during the film. The team also intends to include microscopic filming of body fluids inside the body of Lukas, the dancer. "This way the images will have a continuity with the dance in the film, in an absolutely abstract way but with a very real reference," explains Ruben.

The plot

"In an attempt to escape himself, Lucas abandons a starting career at CERN to end on a vast frozen lake. Performing a ritual dance during an encounter with a female shaman he learns that the greatness of life is hidden in the smallest parts of the human body. Dance, an aria, data-visualizations and water crystals represent Lucas's existential search for his identity and the connection with the natural world."

Taken from www.symmetrymovie.com/symmetry_filmplan.pdf



Lukas Timulak dancing the part of the CERN researcher. (Copyright Tim Georgeson, 2012).

During the team's two-day visit to CERN in mid-February they worked hard recording Claron singing and other sounds at various places at CERN to use in the music for the film. They also filmed a few dance scenes to put into a teaser trailer to drum up funding to complete the whole project. "It's quite an unusual film to fund and broadcast," says Constant van Panhuys, "so we're approaching a number of European broadcasters with the trailer to get them interested." Once the film has been completed, the team hopes to expand the project to include other media including a video installation, a book and maybe a stage opera. "People at CERN have been really open to what we are doing. They were following us as we were filming, which was very inspiring and rewarding," says Ruben. "We are learning so much from CERN, so I hope that with our project we can give something to the people at CERN in return."

You can follow the Symmetry team's creative process on their blog at:

<http://blog.symmetrymovie.com/>

This is an Arts@CERN initiative. For more information, see the website at:

<http://arts.web.cern.ch/>

Joannah Caborn Wengler

Bike 2 Work

Yngve Inntjore Levinsen works at CERN, in the BE Department, and is one of the many people who travel to work by bike. Convinced by the benefits and the well-being that this mode of transport brings, he decided to promote it by running a competition. "Everyone working at CERN can participate," says Yngve. "They just need to sign up on the competition website, or via their Facebook login. Then, participants simply have to report regularly the number of kilometres they cover by bike, travelling between home and work, or during the day between different points at CERN."

The competition began on 1 March and will last all year long. The 2012 results will be announced at the end of the year. Of course, the winner will be the cyclist who has travelled the most kilometres during the 10-month challenge.

Are you a CERN cyclist? If so, join the Bike 2 Work competition that has just started! The more kilometres you travel by bike, the closer you'll get to winning...

"To measure the number of kilometres travelled, the participants can use their smartphone, for example," explains Yngve. "But I think the majority of people already know the distance between their house and CERN. In my case, I live 3 km away from CERN... so, my chances of winning aren't very good! By the way, I think it goes without saying that we count on the cyclists' honesty when reporting the distances they have travelled..."

Open exclusively to CERN people, the competition can be joined at any time during the year. If you join later in the year, simply report the estimated distance you've travelled since 1 March. "It's a very good initiative," says Henrik Nissen enthusiastically, who is President of CERN's Bike Club. "Maybe

it will get more people on their bikes, and it could help solve some traffic and parking problems."

"The event is officially unofficial," emphasizes Yngve. "But I hope it will motivate the decision-makers to make cyclists' travel safer."

And what will the winner receive? "Well, I'm still looking for sponsorship," answers Yngve. "So, the only prize I can promise for the moment is honour!"

To register, go to

<http://cern.ch/Bike2Work>

Anaïs Schaeffer



Computer Security
Sécurité informatique

How to get rid really of confidential data?

In fact, properly cleaning a hard disk is difficult! Deleting local files or formatting the hard disk usually just purges the files from being listed in the folder, but the actual data remains intact on the hard disk. Freely available tools can easily reconstruct those files and, thus, expose it. It is better practice to get rid of your files by running tools like "shred" on the Linux platform (try "shred -fvzn1 [FILENAME]" or check "man shred" for details), or "File Shredder" from CNET for the Windows operating system. Both tools overwrite files with random bytes such that it is close to impossible to reconstruct the data afterwards. However, if you cannot run those tools (for example, because the

Have you ever bought a used laptop on ebay? Try it and you might not only get (hopefully) functional hardware, but also a bunch of personal files, intriguing photos, sensitive documents, etc. Not everybody worries enough to clean the local hard disks properly before selling their equipment or giving it away. So the next owner of the hard disk can comfortably crawl through the remaining data, and use it at his or her convenience...

disk is broken), it is best to destroy the hard disk. At CERN, this is the recommended procedure for (broken) disks containing confidential or sensitive data (see the CERN Data Destruction Policy at <https://security.web.cern.ch/security/rules/fr/ddp.shtml>).

So don't be negligent if you run a service at CERN that stores confidential data such as financial, medical or personal information. Never allow such hard disks to leave the Organization, e.g. for maintenance reasons.

Furthermore, ensure that your hard disks are properly destroyed once you phase out the corresponding PC hardware. The Computer Security Team, in collaboration with the IT Computer Centre Operation Team and the GS Logistics Service, can collect your hard disks and magnet tapes which hold confidential data. These are then stored in a sealed container situated in the Computer Centre (Building 513) and regularly emptied by a company specializing in the safe destruction of hard disks. Take advantage of this service for the sake of confidentiality – and at zero cost!

For further information, please check our web site (<https://security.web.cern.ch/security/home/en/index.shtml>) or contact us at Computer.Security@cern.ch.

Computer Security Team

Prevention is better than cure, a winning combination

Here are some of the most flagrant security infringements that can be identified in the photo:

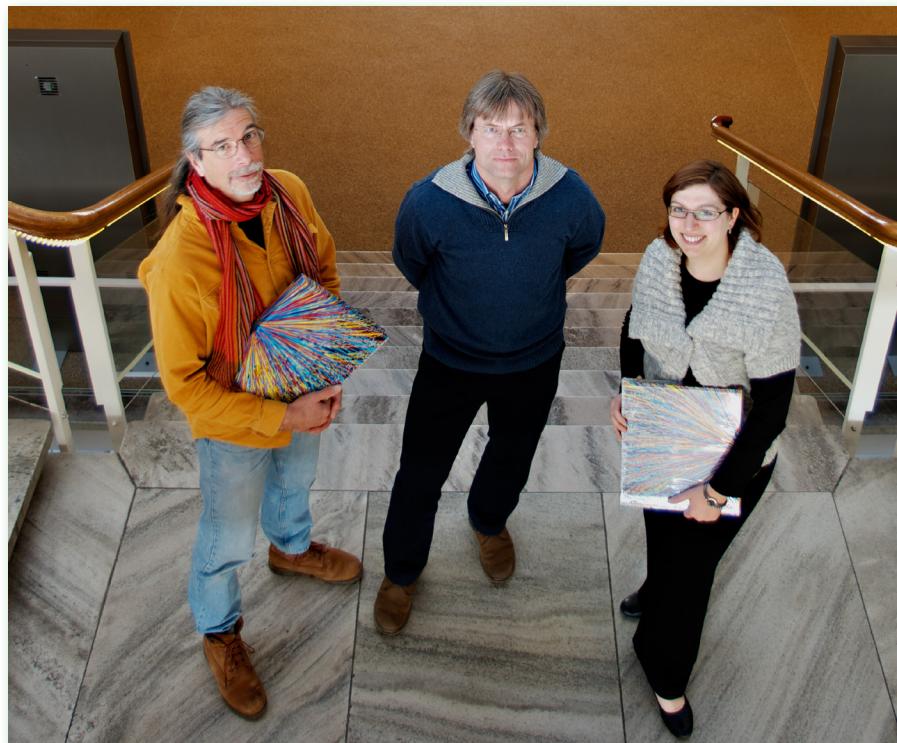
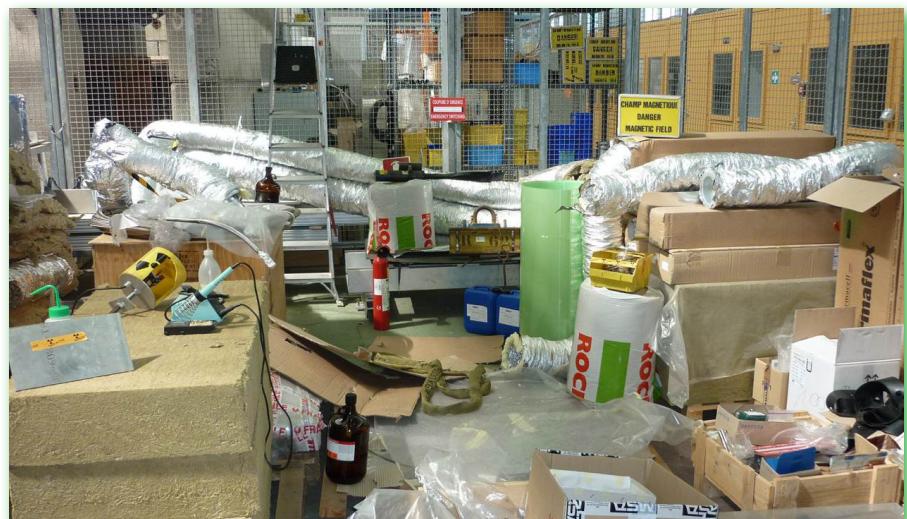
- This jumbled mass of heterogeneous objects and equipment impedes movement and evacuation and of course there is a potential hazard of falling objects;
- Chemical products should not be stored on the ground. In addition, they should be labelled and if inflammable should be locked away in a clearly marked metal cupboard;
- Stored inflammable material represents a fire hazard;
- The fire extinguisher in the middle of the photograph is not secured to its support and bears no identification marks. Checks should be carried out to make sure that it is suitable for the hazards concerned and that its periodic inspections are up-to-date;
- There is a soldering iron in premises clearly not designed for soldering operations: there is no workstation, little ventilation and above all there is a substantial quantity of inflammable material close to the soldering equipment;

In the 04/05 edition of the Bulletin, we teamed up with the HSE Unit's Safety Inspection Service to launch a "Spot the Mistakes" competition based on 7 mistakes. You had to identify 7 major safety problems in the photo below.

- Access to the emergency stop button is impeded;
- The sling should not be stored on the floor to prevent it from being damaged. It should also be verified that its condition has been properly checked;
- The step-ladder should be checked to ensure that it has non-slip treads;

- And of course if this area is really used for storing radioactive equipment, as the photo appears to suggest, it must be kept under surveillance by the Radiation Protection Group.

Anais Schaeffer



Head of HSE Unit Ralf Trant (in the middle) rewards the joint winners of the "Spot the Mistakes" competition Emeline Weymaere (DG-RPC) (on the right) and Marc Tavlet (BE-ASR) (on the left) with places at the Lift12 conference and copies of the book LHC: the Large Hadron Collider.

Interview with Murray Gell-Mann, 1969 Nobel prize in physics

Nobel laureate Murray Gell-Mann paid a visit to CERN in January. In this video, he shares his views with Paola Catapano, member of CERN Communication Group:

<https://cdsweb.cern.ch/record/1421671>



Ombuds' Corner Le coin de l'Ombuds

In this series, the Bulletin aims to explain the role of the Ombuds at CERN by presenting practical examples of misunderstandings that could have been resolved by the Ombuds if he had been contacted earlier. Please note that, in all the situations we present, the names are fictitious and used only to improve clarity.

Workplace incivility

In 2011, the Canadian HR Reporter published several articles by Sharone Bar-David on workplace incivility (I would encourage you to read them here). These articles can shed some light on an internal issue here at CERN: what happens when there are violations of the Code of Conduct that we may face every day? Such incivilities can fly under the organizational radar and are not up to the level of any administrative or disciplinary action foreseen in the CERN Staff Rules and Regulations. However, if such breaches in respectful behaviour are tolerated continuously and nothing is done about them, they can create a toxic work climate. Furthermore, such a distortion of human relations can become, over time, embedded within our culture. People will simply believe that such behaviour is allowed and "normal". Such incivilities are simply the visible tip of the iceberg, and can conceal bullying or abuse of authority. They can foster a climate in the workplace that favours the development of more severe violations.

What are these incivilities? Let me offer you some non-exhaustive examples:

- Every morning when he comes to the office, Paul* goes around his group – smiling, saying hello, shaking hands with some people, and enquiring if any particular issue has arisen from the day before. One day, for some unknown reason, Paul excludes two of his collaborators from his daily visit. He does not say hello and does

not enter their offices, he acts as if they were not there at all, totally ignoring them. Moreover, once a week the entire group would typically go for a coffee – an event that Paul no longer invites them to. Instead, he merely says, in the corridor, that if they want to come, they know where it is. These two collaborators face social exclusion.

- Jeff* is used to making jokes – nothing entirely offensive – about his collaborators. However his jokes are ambiguous and it is impossible to say if they are just jokes or if Jeff actually means them. His collaborators start feeling quite a bit of unease because of the jokes and become suspicious of his motives.
- Don* spends quite some time in the corridors, as he believes that this is a good way of having informal chats with his collaborators. During these chats, Don also spreads rumors about people – nothing really insulting, but disclosing stories and sharing gossip, not caring about confidentiality. The trouble is also that anyone in the corridor can also hear what he says. For example, while talking about a recent hiring board, Don exclaimed: "Oh! I know who will get the job." You can imagine the consequences of this statement on the group.
- Others bad habits can be: plagiarising work from someone else without referencing them or taking funny attitudes in a meeting when someone else talks, such as shrugging your shoulders, looking in an evident and noticeable way to the ceiling, rolling your eyes (which is an unfortunately widespread practice), or yawning loudly.

CERN does not have any administrative policy against all these incivilities. They are impossible to prevent. The best solution is that we have to be careful not to propagate such violations of the code promoting a respectful workplace environment.

Conclusion

The CERN Code of Conduct is an incentive for us to act in a respectful way. Many day-to-day "violations", even if they do not appear malicious, are extremely dangerous to our workplace welfare as they increase the perception that such behaviour is allowed when it is not. This disrespectful behaviour will increase the possibilities of abuse and harassment, and will foster a bad working climate – all these things which are unacceptable and harmful to the Organization's personnel, effectiveness and image. So, are also the "milder" violations of our Code of Conduct.

Remember that the Ombuds, according to his mandate, is here to give advice on the Code of Conduct.

Contact the Ombuds early!

<http://cern.ch/ombuds>

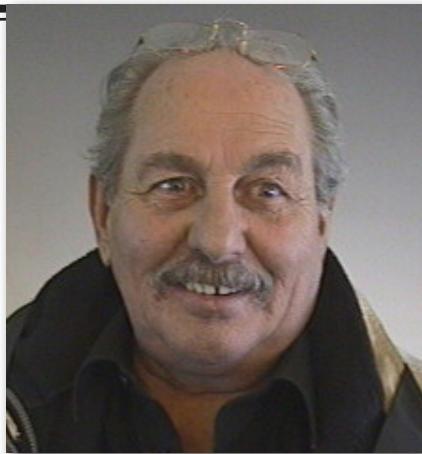
Vincent Vuillemin

* Names and story are purely fictitious.

Paul Bouchardy (1937 – 2012)

It is with great sorrow that we announce the sudden passing of our former colleague and friend, Paul Bouchardy, on Friday 17 February.

An outstanding travel agent, well-respected and active within his profession (he was in charge of apprenticeships for the Association of Geneva Travel Agencies - AGAV), Paul was director of the Carlson Wagonlit agency at CERN for many years. He knew the world like the back of his hand, and many people have benefited



from his vast knowledge and expert tourist advice. Key figure in the Laboratory since the 1970's, he retired in 2002 after 38 years with Carlson Wagonlit, including more than 30 years of on-site service to the CERN community.

In these difficult days, our thoughts are with his wife and children and grandchildren, the family he cherished above all else and who accompanied him until embarking on his final journey.

His friends and former colleagues at CERN



Library
Bibliothèque

News from the Library

The good news is that this resource is freely available here, the homepage of a suite of resources for nuclear science: a mass activity calculator, a decay engine, dosimetry and shielding calculations, range and stopping power calculations, gamma spectrum generator and analyzer, a virtual cloud chamber and a packaging calculator to name a few. All these programmes have been tested and approved by leading world experts.

Most of us are familiar with the Karlsruhe Nuclide Chart. It spreads from wall to wall and tells you all about decay chains of all known nuclides and isotopes.

You can register to access these programmes at:

<http://nucleonica.com/register.aspx>

A basic license is free, so anybody who is serious about Nuclear Science should register as soon as possible!

A Premium account gives even more options in the calculations and utilities (http://www.nucleonica.net/wiki/index.php?title=List_of_Features). If you think a premium account to Nucleonica would be useful for your work and for CERN in general, please contact CERN Library (library-serials@cern.ch).

Access the resource at:
<http://www.nucleonica.com/>

CERN Library

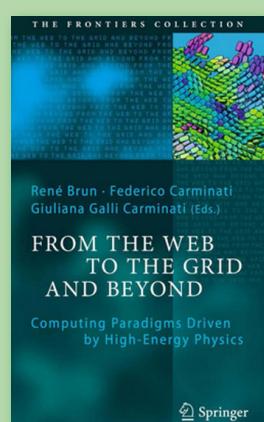
Literature in Focus:

"From the Web to the Grid and Beyond: Computing Paradigms Driven by High-Energy Physics", ed. by René Brun, Federico Carminati, Giuliana Galli Carminati Springer, 2012.

Born after World War II, large-scale experimental high-energy physics has found itself limited ever since by available accelerator, detector and computing technologies. Accordingly, HEP has made significant contributions to the development of these fields, more often than not driving their innovations. The invention of the World Wide Web at CERN is merely the best-known example out of many. This book is the first comprehensive account to trace the history of this pioneering spirit in the field of computing technologies.

It covers everything up to and including the present-day handling of the huge demands imposed upon grid and distributed computing by full-scale LHC operations - operations which have for years involved many thousands of collaborating members worldwide and accordingly provide the original and natural testbed for grid computing concepts. This book takes the reader on a guided tour encompassing all relevant topics, including programming languages, software engineering, large databases, the Web, and grid and cloud computing. The important issue of intellectual property regulations for distributed software engineering and computing is also addressed. Aptly, the book closes with a visionary chapter of what may lie ahead.

"From the Web to the Grid and Beyond"
Wednesday 7 March, 14:30 in the
Library, bldg. 52 1-052
Tee and coffee will be served at 14:15





Official news

Members of the personnel shall be deemed to have taken note of the news under this heading. Reproduction of all or part of this information by persons or institutions external to the Organization requires the prior approval of the CERN Management.

TAXATION IN SWITZERLAND

Memorandum concerning the 2011 internal taxation certificate and the 2011 income tax declaration forms issued by the Swiss cantonal tax administrations.

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 federal, cantonal and communal taxation on salaries and emoluments paid by CERN.

I - Annual internal taxation certificate for 2011

The annual certificate of internal taxation for 2011, issued by the Finance, Procurement and Knowledge Transfer Department, is available as of 1 March 2012. It is intended exclusively **for the tax authorities**.

1. If you are currently a member of the CERN personnel you will receive 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 under the following link: https://cern.ch/admin-eguide/Impots/proc_impot_attestation_interne.asp.

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

II - 2011 income tax declaration forms issued by the Swiss cantonal tax administrations

The 2011 income tax declaration form must be completed in accordance with the instructions available at the following address:

https://cern.ch/admin-eguide/Impots/proc_impot_decl-ch.asp

If you have any specific questions, please contact your 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.

HR Department
Contact: 73903



DIVERSITY IN ACTION: INTERACTIVE WORKSHOP

Come and take part in an interactive workshop organised by the CERN Diversity Office to allow you to discuss and share your experience of diversity at CERN.

What does diversity mean to you? How important is it for you at work?

David Weaver, an experienced external specialist on diversity issues, will facilitate a lively exchange of views on the benefits and challenges of working with colleagues of different nationalities, genders, ages and professions.

This session will be run in English; small group discussions may be held in both official languages.

Everyone working on the CERN site is welcome!

There are a limited number of places available so please sign up here as soon as possible at:

<https://espace.cern.ch/event-Diversity/default.aspx>

The event will take place on **Thursday 8 March** from 2.30 p.m. to 4.30 p.m. in the Pump Room, Building 216-R-401.

CERN Diversity Office

CHANGES IN THE CERN FIREWALL OPENINGS

As agreed between departments and LHC experiments on the last ITS/RC meeting, the default configuration of CERN's outer perimeter firewall will be changed such that outgoing traffic from source ports 1-1023/tcp and 1-1023/udp will be blocked by default. Exceptions for NTP might be kept. These measures will be applied from Tuesday 13 March. Existing firewall openings for incoming traffic will not be affected.

Currently, correct usage of the TCP and UDP protocol prevents the use of these lower ports when establishing a client connection and, indeed, the current outgoing traffic on these ports is remarkably low. Only misconfigured or "malicious" devices were observed using these ports. With this closure, such traffic will be blocked within CERN and without polluting the Internet.

For comments and further information, please contact us at Computer.Security@cern.ch.

Computer Security Team



CERN PHONEBOOK EVOLUTION

Consolidating phonebooks at CERN

We have had many phonebooks in the past, Xwho (now decommissioned), the NICE phonebook on Windows PCs, and more recently the web site people.cern.ch. However, diversity doesn't always equate to improved efficiency or quality. So in order to reduce the maintenance effort and to improve the user experience, we have consolidated these various phonebooks into a single web application: phonebook.cern.ch

Motivations for change

The NICE Phonebook was introduced in the year 2000 when Windows 95 was the major desktop platform. Since then, a lot has changed not only in technology and the desktop landscape but also in the variety of devices used to access the data (notably smartphones and tablets). Updating the NICE phonebook is slow. Once the master database is modified it can take up to two days for the data to propagate to the application. Thus, we are now planning the retirement of the NICE phonebook application.

The new Phonebook.cern.ch

The new phonebook.cern.ch has been developed by GS/AIS and has been made available for users at: <https://phonebook.cern.ch>. It provides access to contact information of people and services at CERN along with a user-friendly interface that allows searching by criteria, such as first or last name, organizational unit and phone number.

CERN Phonebook

service desk

Pressing the + button will display the advanced interface (shown below) where you can enter specific search criteria.

CERN Phonebook

Advanced Search	
Name:	<input type="text"/>
Organic Unit:	<input type="text"/>
Phone Number:	<input type="text"/>
Office:	<input type="text"/>
Person ID:	<input type="text"/>
	<input type="button" value="Search"/>
	<input type="button" value="Close"/>

Addressing the gap

As the new CERN Phonebook is web based, some functions are not available directly in the application. The following lists some of the ways that these functions can be performed when the NICE phonebook is retired.

Offline Address book

- For Windows or Mac Users, Outlook provides an offline address book directly in the application.
- For Smartphone users (iOS, Android, Symbian), you can synchronize your device with Outlook or the LDAP address book.
- Finally, a PDF copy of the phonebook is available for download from the CERN Phonebook page for authenticated users.

Browse/map a home directory from a Windows pc

- Authenticated users can access public home directory files through the account portal from any client via the web browser (From the web phonebook->Accounts->DFS).

Plan

The new phonebook has been available since May 2011 at: <https://phonebook.cern.ch>. The migration from the NICE phonebook is intended to be completed by the end of May 2012, at which point it will be removed from all PCs. As many people have the habit of selecting the phonebook icon on the Windows desktop, this icon will remain but will start up the web browser directly at the phonebook application.

For any questions and feedback, please send a mail to nicephonebook-feedback@cern.ch.

Sébastien Dellabella
IT/OIS

SUMMER WORK FOR CHILDREN OF MEMBERS OF THE PERSONNEL

During the period from 18 June to 14 September 2012 inclusive, there will be a limited number of jobs for summer work at CERN (normally unskilled work of a routine nature), which will be made available to children of members of the personnel i.e. anyone holding an employment or association contract with the Organization.

Candidates must be aged between 18 and 24 inclusive on the first day of the contract, and must have insurance cover for both illness and accident. The duration of all contracts will be 4 weeks and the allowance will be CHF 1717.- for this period. Candidates should apply via the HR Department's electronic recruitment system (e-RT) at:

https://ert.cern.ch/browse_www/wd_portal.show_job?p_web_site_id=1&p_web_page_id=10220

Completed application forms must be returned **by 10 April 2012 at the latest**. The results of the selection will be available by the end of May 2012.

For further information, please contact: Virginie.Galvin@cern.ch

HR Department
Tel. 72855



Take note



Save lives
Give your blood

**On Thursday 15 March 2012
From 9.00 to 17.00**

BLOOD DONATION

Organized by the Cantonal Hospital of Geneva

**CERN - Main building
1st floor – Room : Pas Perdus**

Give 30 minutes of your time to save lives...

<http://dondusang.hug-ge.ch/>





Take note

Industrial Exhibition
Administration Building
Bldg 61 – 1st Floor

Tuesday 27 March: 9 a.m. – 5h30 p.m.
Wednesday 28 March: 9 a.m. – 2 p.m.

LIST OF PARTICIPATING COMPANIES:

1. ALSYOM – GROUPE ALCEN
2. ARC INFORMATIQUE – PC VUE SOLUTIONS
3. BODYCOTE
4. CANBERRA FRANCE
5. CHAUVIN-ARNOUX
6. ELDIM
7. ELETTA FRANCE
8. EURIDIS (GROUP EFINOR)
9. FARNELL FRANCE
10. FLEXIBLE SOLUTIONS GROUP FRANCE
11. GERAC
12. GLENAIR FRANCE
13. INITIAL
14. JST TRANSFORMATEURS
15. MATRA ELECTRONIQUE
16. NUCLEOPOLIS
17. OREKA GROUP
18. PHOTONIS
19. PREMIUM ANALYSES
20. RS COMPONENTS
21. SEMA INDUSTRIES – GROUP EFINOR
22. SOMINEX
23. SYMETRIE
24. TECHNETICS GROUP FRANCE
25. THALES ELECTRON DEVICES
26. ULTRAFLUX
27. L'UNION DES FORGERONS
28. VELAN

FRANCE AT CERN – INDUSTRIAL EXHIBITION

About thirty French companies are presenting their latest technological advances during the industrial exhibition "France at CERN", featuring products and technologies specifically related to CERN activities.

Individual B2B meetings can be organized with the sales and technical representatives of participating firms and will take place at either the companies' exhibition stands or in conference rooms in the Main Building. Individuals wishing to make contact with one or more companies must use the contact details available from each secretariat of department or by using the following link:

http://gs-dep.web.cern.ch/gs-dep/groups/sem/ls/Industrial_Exhibitions.htm.

B2B meetings will be coordinated by UBIFRANCE.

You will also find the list of exhibiting and participating companies online at:
www.la-france-au-cern.com/cms/fr/liste-des-exposants

This event is sponsored by the French subsidiary of RS Components, the most important distributor of electronic, electro-mechanical and industrial components, delivering to 1.5 million customers worldwide. Established in 27 countries and with 17 warehouses, RS Components distributes 500 000 products, from semiconductor to optoelectronic, through electric tools, personal protective equipment or safety and hygiene products. RS Components' portfolio of products and services covers your product's entire life cycle, from R&D and pre-manufacturing to maintenance and repair.

The exhibition "*La France au CERN*" (France at CERN) is organised by UBIFRANCE, the French Agency for International Business Development, responsible for promoting French technologies and know-how abroad.

EXHIBITION ORGANISER :

Mission économique - UBIFRANCE en Suisse

Pfingstweidstrasse 60, CH-8005 ZURICH

Contact : François Bouillon et Brice Robin

Tel. : +41(0)44 279 15 55/56

Email : francois.bouillon@ubifrance.fr / brice.robin@ubifrance.fr

Information:

Claudia Bruggmann Furlan

CERN GS-IS-LS General Services Dept

claudia.bruggmann.furlan@cern.ch

Phone : +41 22 767 3312



CERN SCHOOL OF COMPUTING 2012 - REGISTRATION IS OPEN!

The registration to the CERN School of Computing is now open.

CSC2012 will take place in Uppsala from the 13th to the 24th of August.

The programme is comprised of three main themes: Data Technologies, Base Technologies and Physics Computing and will address a number of timely questions including:

- Do you know how to bridge Grids and Clouds using virtualization technology?
- Is it possible to simplify LHC physics analysis using virtual machine?
- How can reliable storage services be built from unreliable hardware?
- Why are tapes still used in high energy physics data storage?
- How can I write code for tomorrow's hardware, today?
- Do you want to see your software with attacker's eyes?
- Can you hack your own code?
- Do you know what do 'code injection' and 'integer overflow' have in common?
- What's so special about High Energy Physics data format?
- What are the key statistical methods used in physics data analysis?

The CSC is a true Summer University. The focus is on delivering knowledge rather than know-how, which can better be provided in the form of training at home institutes.

A final examination is proposed to students. Successful participants will receive the highly recognized CSC Diploma as well as formal Certificate of Credits awarded by Uppsala University.

Networking and socialization is the other goal of CSCs. One vehicle for social networking is the CSC Sport Programme which proposes two to three hours of sport every afternoon to those who are interested.

François Fluckiger, CSC Director



Geneva university Département de physique

**24, quai Ernest-Ansermet
CH-1211 Genève 4**

Tél: (022) 379 62 73
Fax: (022) 379 69 92

Wednesday 7 March 2012

SEMINAIRE DE PHYSIQUE CORPUSCULAIRE

11-15 a.m. - Science II, 1S081 Auditorium,
30, quai Ernest-Ansermet, 1211 Geneva 4

Silicon photomultiplier : features and applications

Dr Giulio SARACINO

University of Naples, Federico II

Silicon photomultipliers have been developed about ten years ago and their use, alternative to traditional photomultiplier tubes, is increasing more and more. They are an evolution of the avalanche photodiode working in Geiger mode regime. Hundreds of such diodes are connected in parallel, allowing single photon response, high detection efficiency, high gain at low bias voltage and very good timing performance. In spite of their Geiger regime, they can be considered linear devices, until the number of photons impinging is smaller than the number of cells. Main drawbacks are high dark rate and temperature dependence of some parameters.

The large success they are finding is confirmed by the multiplication of firms that are now producing such devices and the many typology of SiPM available.

In this talk I will discuss the main properties of silicon photomultiplier. A short description of the devices available on the market and to front-end electronics will be given too. A selected number of applications, in the particle physics context and not only, will be shown.

Information: <http://dpnc.unige.ch/seminaire/annonce.html>

Organiser: Mrs Gabriella Pasztor

Wednesday 14 March 2012

SEMINAIRE DE PHYSIQUE CORPUSCULAIRE

11-15 a.m. - Science II, 1S081 Auditorium,
30, quai Ernest-Ansermet, 1211 Geneva 4

The AX-PET experiment : A demonstrator for an axial Positron Emission Tomography

Dr Chiara CASELLA

ETH Zurich

PET (Positron Emission Tomography) is a tool for in-vivo functional imaging, successfully used since the earliest days of nuclear medicine. It is based on the detection of the two coincident 511 keV photons from the annihilation of a positron, emitted from a radiotracer injected into the body. Tomographic analysis of the coincidence data allows for a 3D reconstructed image of the source distribution.

The AX-PET experiment proposes a novel geometrical approach for a PET scanner, in which long scintillator crystals (LYSO) are placed axially in the tomograph, and are individually readout by G-APD's, Geiger-mode Avalanche Photo Diodes, also known as Silicon Photomultipliers. Arrays of WLS strips, also individually readout by G-APD's, are placed behind each layer of crystals, to measure the axial coordinate of the photon interaction point.

Two AX-PET modules have been built at CERN, and fully characterized with point-like Na-22 sources, demonstrating competitive performance in term of spatial and energy resolutions (respectively: $R_{FWHM} \sim 1.35$ mm in the axial direction; $(\Delta E/E)_{FWHM} \sim 12\%$ at 511 keV). Used in coincidence, the two modules represent the demonstrator for a PET prototype. The demonstrator has been used for the reconstruction of images of several phantoms filled with F-18 based radiotracers. The AX-PET detector, its performance and the reconstructed images of different phantoms will be shown.

Since recently, digital Silicon Photomultipliers (dSiPM) from Philips are being investigated as alternative photo-detectors for the AX-PET. With their highly integrated readout electronics and excellent intrinsic time resolution, dSiPM's may allow for compact detector modules with Time of Flight capability (TOF-PET). Results about the first tests with dSiPM will also be reported.



Seminars

TUESDAY 6 MARCH

LHC SEMINAR

11:00 - MAin Auditorium, Bldg. 500

Recent heavy flavour results from ATLAS

A. CERRI / CERN

TH STRING THEORY SEMINAR

14:00 -TH Auditorium, Bldg. 4

TBA

S. HELLERMAN / IPMU

WEDNESDAY 7 MARCH

TH COSMO COFFEE

11:00 - TH Auditorium, Bldg. 4

TBA

S. NURMI

ISOLDE SEMINAR LASER

14:30 -TH Auditorium, Bldg. 26 - 1-022

Spectroscopy at Isac: Recent Successes and Future Plans

A. VOSS / UNIVERSITY OF MANCHESTER)

THURSDAY 8 MARCH

COLLIDER CROSS TALK

11:00 -TH Auditorium, Bldg. 4

Higgs Search in H -> ZZ -> 4l

C. BOTTA / UNIVERSITA E INFN (IT), C. ANASTOPOULOS / CERN

A&T SEMINAR

14:15 - BE Auditorium Meyrin, Bldg. 6-2-024

Status of UA9, the crystal collimation experiment at CERN

W. SCANDALE / UNIVERSITE DE PARIS-SUD 11 (FR),
G. CAVOTO / UNIVERSITA E INFN, ROMA I (IT)

FRIDAY 9 MARCH

SPECIAL EVENT

10:45 - Bldg. 510-R-036 - Audiovisual Studio

Launch ATV3 tribute Eduardo Amaldi

PARTICLE AND ASTRO-PARTICLE PHYSICS

SEMINARS

14:00 -TH Auditorium, Bldg. 4

TBA

M. Trott / CERN-TH

TUESDAY 13 MARCH

TH STRING THEORY SEMINAR

14:00 -TH Auditorium, Bldg. 4

TBA

I. BENA / IPHT, SACLAY

WEDNESDAY 14 MARCH

TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

Searches for SUSY and the number of SUSYs

V. SANZ / YORK UNIVERSITY