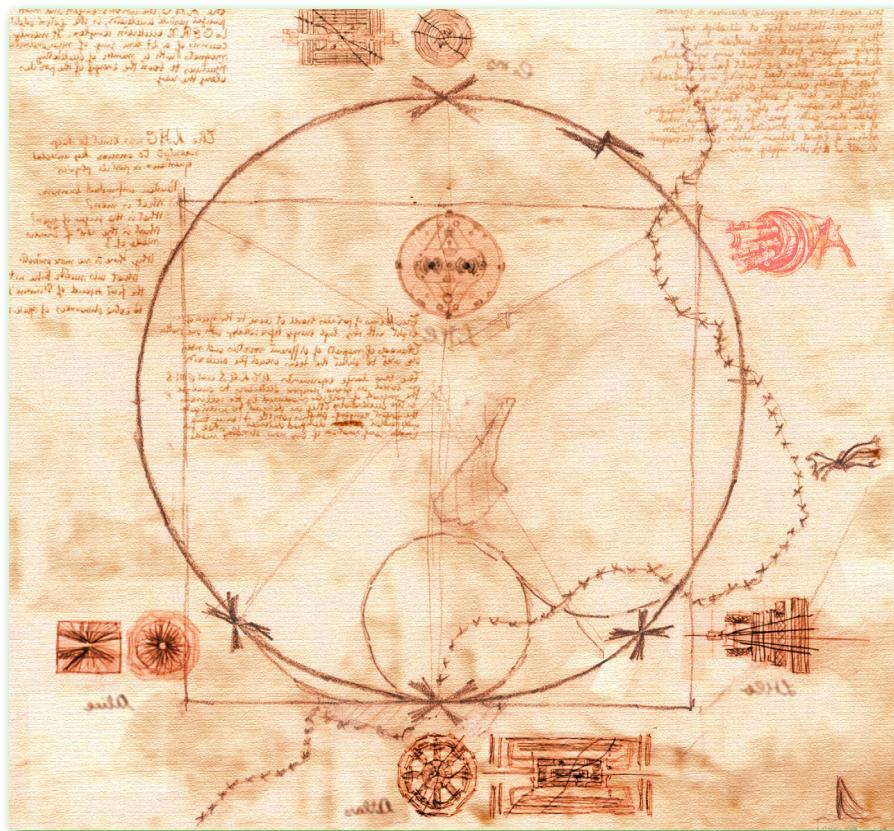




CERN Bulletin

Nos 46 & 47 – 17 & 24 November 2010

A retrospective on the first LHC proton run



The LHC in the style of Leonardo da Vinci (© Sergio Cittolin).

Read on to share in their enthusiasm and discover what achievements their experiments are most proud of, as they discuss the uncharted areas they have already started to explore.

The spokespersons - Fabiola Gianotti from ATLAS, Guido Tonelli from CMS, Jurgen Schukraft from ALICE, Andrei Golutvin from LHCb and Karsten Eggert from TOTEM - dis-

With the LHC already a week into the ion run, the CERN Bulletin takes the opportunity to look at the progress made by the experiments during the LHC's first proton run. In a series of interviews, the spokespersons from the five experiments take stock of the unprecedented success of the proton run.

cuss the new understanding gained of their detectors, the "rediscovery" of the Standard Model, as well as the progress made in the search for supersymmetry and the Higgs boson. The experiments also look ahead to the Christmas technical stop, consider the results from the current ion run, and the possibilities of the 2011 restart.

CERN Bulletin



A word from the DG



A milestone in safety

Over recent days, we've achieved some historic milestones in LHC physics as we've made the transition from proton to ion running. These have been widely reported and I've communicated the news to you by e-mail. Less visible, but nonetheless vital to the functioning of the Lab, is an agreement that we'll be signing

(Continued on page 2)

In this issue

News

- A retrospective on the first LHC proton run 1
- A word from the DG 1
- ATLAS: Exceeding all expectations 2
- CMS: Beyond all possible expectations 3
- ALICE: The best is yet to come 3
- LHCb: Not just a precision experiment but also a detector ready for discoveries 4
- TOTEM: Thousands of interesting events 4
- The Latest from the LHC: Successful switch to ions 5
- Radiation protection and radiation safety: CERN and its Host States sign a Tripartite Agreement 6
- Ombud's Corner 6
- Full power to the first Linac4 module 7
- CERN in detail 8
- A dedicated fund supports technological innovation 9
- E-Infrastructure Concertation Meeting 9
- Is the bell ringing? 10
- Behind the machines 11
- PARTICLE-larly Enriching Night at CERN! 11
- Denis Gudet 1955 - 2010 12
- Frank Blythe (1924-2010) 12

- Official news** 13
- Take note** 13
- External meeting** 16
- Safety Training Course** 16
- Technical training** 17
- Seminars** 18

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(Continued from page 1)

A milestone in safety

with our Host States on 15 November. It will be the second tripartite agreement to be signed in as many months, and it is set to streamline our radiation protection and radiation safety.

The new agreement replaces existing bilateral agreements governing the procedures applying on the French and Swiss parts of the site. From an operational point of view, the new agreement simplifies matters by harmonising administrative processes while guaranteeing best practice in terms of radiation protection and radiation safety at CERN.

The agreement is the result of many months of detailed discussions with the Autorité de Sûreté Nucléaire in France and the Office Fédéral pour la Santé Publique in Switzerland. It aims at optimizing practices and procedures in matters of radiation protection and radiation safety but also at increased transparency of reporting to France and Switzerland in line with CERN's commitment to collaborate with the Host States in this area.

Increased transparency implies substantial effort by CERN to keep its rules, practices and documentation in matters of radiation safety and protection up to date for all our installations, old and new. It is, however, a development that is necessary to guarantee the environmental sustainability of CERN's activities in the long run. I therefore warmly welcome the agreement and offer my sincere thanks to all three parties who worked so constructively to put it in place.

Rolf Heuer

A retrospective on the first LHC proton run

ATLAS: Exceeding all expectations

"One year ago it would have been impossible for us to guess that the machine and the experiments could achieve so much so quickly", says Fabiola Gianotti, ATLAS spokesperson. The whole chain – from collision to data analysis – has worked remarkably well in ATLAS.

The first LHC proton run undoubtedly exceeded expectations for the ATLAS experiment. "ATLAS has worked very well since the beginning. Its overall data-taking efficiency is greater than 90%", says Fabiola Gianotti. "The quality and maturity of the reconstruction and simulation software turned out to be better than we expected for this initial stage of the experiment. The Grid is a great success, and right from the beginning it has allowed members of the collaboration all over the world to participate in the data analysis in an effective and timely manner, and to deliver physics results very quickly".

In just a few months of data taking, ATLAS has observed the known elementary particles, up to the heavy W and Z bosons and the even heavier top quark. The experiment has also established its first limits on new physics, some of which are already beyond those produced so far at Tevatron. "We are producing new results all the time now", says Gianotti. "We plan to release a new wave of results early next year, for the 2011 winter conferences. Given the record luminosity achieved by the machine, by the end of 2011, combining ATLAS and CMS, we can expect to be able to exclude the existence of the Higgs boson over the full allowed mass range, or else to collect evidence for it if its mass is greater than 125 GeV. We could also discover Supersymmetry up to masses of almost 1 TeV and new forces up to masses of the carrier particles of 1.5 - 2 TeV. And who knows, perhaps (hopefully!) Nature has some nice surprises in store for us!"



In parallel to putting a lot of effort into the analysis of the rich harvest of data from the proton-proton collisions, ATLAS has also started to collect information from

the ion-ion run, which started last week. "Heavy-ion physics is an integral part of the ATLAS scientific programme", explains Fabiola Gianotti. "In particular, ATLAS has excellent calorimetry, with almost complete angular coverage, fine granularity and very good resolution. These features are an asset when looking for signatures of quark-gluon plasma formation such as jet quenching".

The first LHC ion run will end a few weeks before Christmas. After such an intense and demanding year, the ATLAS collaboration will have a chance to catch its breath and recharge its batteries in preparation for the new run that will start in 2011. "During the LHC technical stop, we will carry out the yearly maintenance of the infrastructure and replace some failing components such as power supplies, calorimeter optical links, etc. Indeed, this year has been wonderful for our collaboration, but it was also very challenging, and we will take advantage of the Christmas break to have a well-earned rest! After so many years of hard work by the worldwide ATLAS community, we expected things to work well, but not as well as this! The dedication and enthusiasm of everyone, in particular our young colleagues (students and post-docs), have been fundamental to achieving these results. The successes of this year have also been made possible thanks to the outstanding performance of the LHC. We are extremely grateful to the whole machine team", concludes Gianotti.

A retrospective on the first LHC proton run

CMS: Beyond all possible expectations

After having retraced the entire Standard Model up to the Top, the CMS collaboration is ready to go further and continue the success of what Guido Tonelli – its spokesperson – defines as a ‘magic year’. Things evolve fast at CMS, but scientists have taken up the challenge and are ready for the future.

‘Enthusiasm’ is the word that best describes the feeling one gets when talking to Guido Tonelli. “In just a few months we have rediscovered the Standard Model and have gone even further by producing new results for cross-sections, placing new limits on the creation of heavy masses, making studies on the excited states of quarks, and seeking new resonances. We could not have expected so much in such a short space of time. It’s fantastic”, he says. “We went through the learning phase very smoothly. Our detector was very quickly ready to do real physics and we were able to start to produce results almost immediately. Thanks to the good amount of data provided by the LHC, we have already exceeded the Tevatron’s limits for some of the most massive objects. In the realm of Supersymmetry, we hope soon to be able to say something important in terms of excluding the existence of new particles over a large range of mass or, on the other



hand, discover them”.

The first proton run has just finished and the data analysis is advancing very fast. “With hundreds of tops and many thousands of W and Z bosons having been produced, everything is ready to probe new physics. We have already observed an unexpected correlation between charged particles that come out of the collisions; we very carefully study the signals hinting at the production of new particles every day to see whether there are even very subtle effects due to new processes. The LHC and our detector are working so well that, by next year already, we could really be able to say something new on the Higgs boson”, enthuses Tonelli.

In the meantime, CMS is also running with ions. Technical adjustments will certainly be necessary, particularly to the software that reads out the sub-detectors and, of course, in the data analysis as the ion-ion collisions produce many more particles than

the proton-proton collisions. “Although our detector is optimized to study the results of the collisions between protons, we believe that we will be able to confirm whether or not the quark-gluon plasma will be created and also which are, eventually, its gross properties”, he confirms.

After the Christmas technical stop, CMS is looking forward to starting a new proton run, which promises to be as exceptional as the first one. The centre-of-mass energy has not been decided yet but each additional TeV provided by the LHC will significantly increase the chances of the experiments observing heavy objects and probing extra dimensions. “Until a few months ago I wanted to remain conservative because I could not believe that things could go so well and so fast. However, now there are really no reasons for not being enthusiastic. Of course, this also means a very heavy workload as we can’t exclude any channel from our data analysis. We want to carefully investigate everything we observe, and we must keep pace. In order to do so, we are also restructuring our teams so that we have enough flexibility to be able to adapt to changing needs. The CMS collaboration is still growing and becoming even more global, with Egypt recently joining and Thailand expressing serious interest. The new members are focussing in particular on the development of R&D programmes for the CMS upgrade that will be needed in the near future”, concludes Guido Tonelli.

ALICE: The best is yet to come

The ALICE wonderland is the ion-ion collisions. However, the proton run was intensely used by the collaboration to get to know its detector in detail and to produce its first results in QCD-related matters. This very successful preparatory phase will now allow ALICE to enter the uncharted territory of quark-gluon plasma at the extreme energies provided by the LHC.

The ALICE detector is optimized to study ion-ion collisions in which quark-gluon plasma may be formed. This type of matter, which existed a few moments after the Big Bang and appears when quarks and gluons are deconfined to form a highly dense and hot soup, was studied at CERN’s SPS in the 1990s and later, from 2000 onwards, at much higher energy at RHIC in the US. Now it’s ALICE’s turn. “Quark-gluon plasma is created at very high temperatures but starts to cool down very quickly to become normal matter again. The high energy of the LHC puts us much higher above the threshold of its formation. The plasma will therefore stay around much longer and this will allow us to study its properties in more detail”, explains Jürgen Schukraft, ALICE Spokesperson.

There are a number of very clear predic-



tions about how things should or should not change moving from RHIC to the LHC. “At RHIC, scientists have discovered that the new state of matter behaves like an ideal fluid with no viscosity. That was a big surprise. Now we

have to see whether the new state remains an ideal fluid also at the energies of the LHC. We expect so. If we observe that it behaves very differently than we will have to carefully study its properties”, says Schukraft. If the experimental conditions at the LHC are favourable, the collaboration will be able to observe these basic properties very quickly, hopefully within a few weeks into the ion run which has just started.

The very effective and rapid response of the ALICE detector has also been made possible by all the work that the collaboration carried out during the proton run. “The first LHC run

allowed us to understand our detector in detail and also to test the whole chain right up to the data analysis”, he says. “Indeed, in order to fully understand what happens in heavy ion collisions, we needed to carefully measure the processes that occur in proton collisions. This is what we call ‘comparison data’: it’s the first floor of the building, which is now ready to receive the second floor”.

The data collected during the proton run was also used to tune the Monte Carlo software that is used by physicists to simulate what happens in the physics processes. “We were able to correct discrepancies between the simulation parameters and the information coming from real data. In some cases, variables used in Monte Carlo were wrong by a factor of four with respect to what they should have been”, says Schukraft.

Last but not least, within the first few months of data taking with proton beams, ALICE was able to produce some interesting results on open questions in QCD, such as the fate of the baryonic number and its distribution when two protons collide at very high energy. Having laid a solid foundation, ALICE can certainly be confident that its first steps in the ion wonderland will meet the collaboration’s high expectations.

A retrospective on the first LHC proton run

LHCb: Not just a precision experiment but also a detector ready for discoveries

The first proton run has confirmed that LHCb has powerful capabilities in the field of flavour physics and that many possible signatures of non-Standard Model effects are within the experiment's reach. Furthermore, this run has confirmed that LHCb is able to make important contributions beyond the flavour sector. The collaboration is working on a Letter of Intent for an upgrade, which will take advantage of the open geometry of the experiment, and will aim at improved sensitivity both in the flavour sector and in a wider physics programme.

Unlike ATLAS and CMS, LHCb does not have a cylindrical geometry. Rather, it is laid out horizontally along the beam line. This layout prevented the collaboration from testing the detector with cosmic rays prior to starting to collect data from the LHC collisions. However, despite these more challenging initial conditions, LHCb was soon able to demonstrate excellent performance during the LHC's first proton run. "Just a few years ago, we could not have predicted that our detector would perform so well", says Andrei Golutvin, LHCb spokesperson. "In a very short space of time, we have been able to learn a lot about all our sub-detectors".

In order to maximize the integrated luminosity provided by the LHC during the 2010 run, LHCb had to cope with a much higher



pile-up compared to its nominal conditions. "We managed to work well even in this very difficult environment, where the particle track reconstruction and the data processing weren't what we had planned", says Golutvin.

With the 40 inverse picobarns of integrated luminosity collected by the experiment, the collaboration is already confident of achieving a very high sensitivity in the field of flavour physics, with the possibility of making interesting discoveries. "Our experiment is well equipped to perform high-sensitivity studies within our unique acceptance in the forward direction", explains Golutvin. "We have already performed new measurements of the production cross-section of beauty and charm quarks, which tests QCD at the centre-of-mass energy of 7 TeV,

which nobody had done before. Looking at the good results we are obtaining, we really think that if the new physics has significant effects on some of the decays we consider to be more sensitive, we'll certainly see them in the coming months. LHCb is not just a precision experiment but also an experiment of discovery".

LHCb will not run with ions. The collaboration will concentrate on the analysis of the data collected so far, and during the Christmas technical stop will implement a concentrated programme of minor adjustments needed to get the detector ready for the restart in January. In the medium term, the collaboration also plans to submit a Letter of Intent for the experiment's upgrade. "Thanks to its open geometry, LHCb is much simpler to modify and adapt than other detectors. We are thinking of implementing a fully software-based trigger and are ready to re-optimize the current layout if we see that there are interesting effects in the forward direction. We can react very quickly and we now believe that we have to extend our physics programme beyond the flavour sector to a more complete set of studies in the forward direction", concludes Golutvin.

TOTEM: Thousands of interesting events

TOTEM is the LHC experiment dedicated to the measurement of the proton total cross-section. This first proton run produced a wealth of data that is allowing the collaboration to probe the proton as never before.

The TOTEM science programme concentrates on the fundamental properties of the proton by studying how it interacts with other protons. "We are there to measure the total cross-section of the proton, which describes the likelihood that some kind of interaction will occur between the protons", explains Karsten Eggert, TOTEM spokesperson. "In order to do so, we have to understand all the individual processes and separately measure the different cross-sections".

The interaction between protons can result in a modification of the individual kinetic energy (inelastic scattering) or of just the direction of propagation (elastic scattering).



Besides the elastic scattering, TOTEM also studies more complex interaction processes, such as the so-called double pomeron exchange, in which both scattering protons lose part of their momentum. "During this first run we collected hundreds of thousands of elastic scattering events and were able to confirm that the diffractive pattern observed by previous experiments at much lower energies persists at high energies", says Karsten Eggert.

Studying the spectra when the protons drastically change their direction of propagation allows scientists to look inside the proton without breaking it apart. "With this technique we can infer what the distribution

of quarks and gluons might be inside the proton", continues Karsten Eggert. "There are several theoretical models that predict how the proton behaves internally and our spectra will allow us to compare the different models with real data by the end of this year".

So far, the LHC has been running with very focussed beams, which is not ideal for TOTEM. Next year, the machine will do special runs for TOTEM in which the beams will be brought onto more parallel orbits in the vicinities of the IP5 crossing point. Under these conditions, very tiny fractions of the momenta transferred from one proton to another can be observed. "This will allow us to really study all the different processes involved when two protons interact. We will then be able to measure the total cross-section", says Karsten Eggert.

During the Christmas technical stop, the TOTEM collaboration will install new detectors (T1 chambers) inside CMS, on both sides of the interaction point, after which the experiment will be ready to go at full speed in the 2011 run.

The Latest from the LHC: Successful switch to ions

The LHC switched to operation with ions on Thursday, 4 November, with first ion collisions

ensuing about 54 hours later, at 00:30 CET on 7 November. Stable running conditions marking the start of physics with heavy ions were achieved at 11:20 CET on 8 November.

The very smooth and fast transition to operation with ions was made possible by very good beam instrumentation performance with a relatively low number of charges per bunch, and magnetic behav-

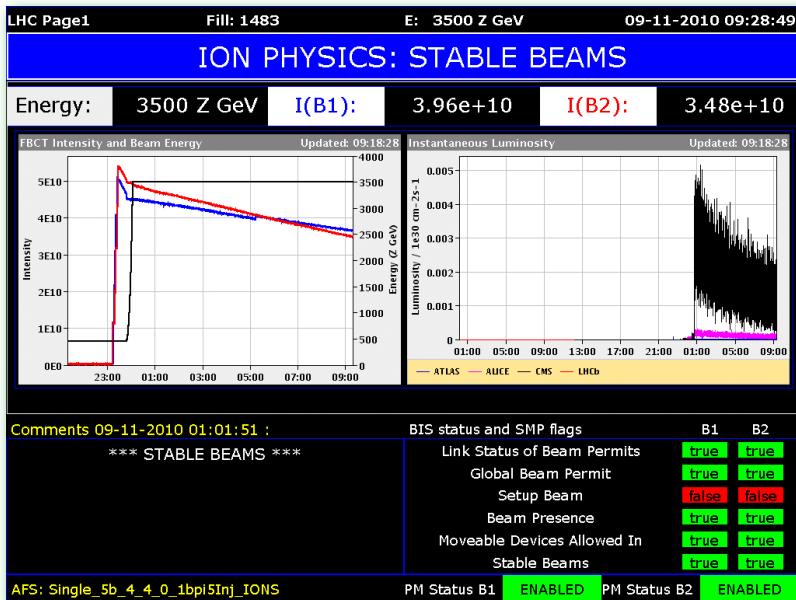
The last 2010 proton beam was extracted from the LHC on Thursday, 4 November. The transition from proton to lead ion operation was accomplished remarkably smoothly. The first ion collisions were recorded just after midnight on 6 November.

iour very similar to operation with protons, as expected. These two factors combined allowed the setting-up operations to be completed very quickly, and stable beam operation, with 2 bunches per beam, was achieved in just a few days. It was then possible, as was the case for proton operation, to steadily increase the number of bunches: 69 bunches per beam had been achieved at the time of going to press, 121 being the target for 2010.

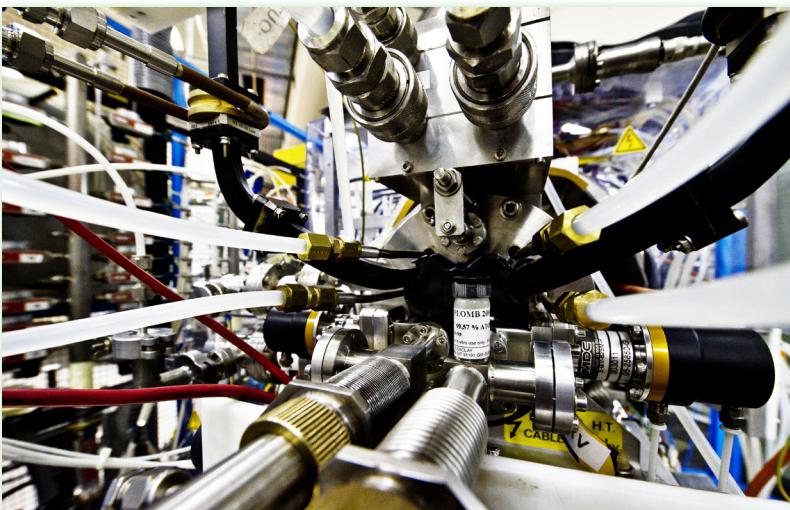
Before switching to ion operation, the machine had delivered 48 inverse picobarns of integrated luminosity to ATLAS and CMS (with a peak luminosity of $2 \times 10^{32} \text{ cm}^{-2} \text{ s}^{-1}$), and ran with 150ns bunch spacing until Friday, 29 October. Then, for about 6 days, the LHC was operated with 50ns bunch spacing in order to explore the scheme planned for 2011. In this configuration, strong beam-induced effects were observed on the vacuum inside the beam pipe. These effects depend on the number of bunches in the train, the spacing between the trains, and the bunch intensity (the observed threshold is around $6-8 \times 10^{10}$ protons per bunch). These early studies are very valuable as they allow us to predict the behaviour of the machine with the beam configuration planned for 2011.

More information about the transition to lead ion operation is available by consulting the recent Press Releases:

[CERN Bulletin](http://press.web.cern.ch/press/PressReleases>List.html</p></div><div data-bbox=)



The LHC1 screen showing the machine running with ions for the first time.



The source of lead ions.



Did you know?

How is a beam of lead ions produced at CERN?

Lead ions are produced when lead atoms are stripped of electrons. A highly purified lead sample is heated to a temperature of about 500 °C. The lead vapour is then ionized by an electron current. Many different charge states are produced, with a maximum around Pb²⁹⁺. These ions are selected and accelerated to 4.2 MeV/u (energy per nucleon) before passing through a carbon foil, which strips most of them to Pb⁵⁴⁺. The Pb⁵⁴⁺ beam is accumulated, then accelerated to 72 MeV/u in the Low Energy Ion Ring (LEIR), which transfers them to the PS. The PS accelerates the beam to 5.9 GeV/u and sends it to the SPS after first passing it through a second foil where it is fully stripped to Pb⁸²⁺. The SPS accelerates it to 177 GeV/u then sends it to the LHC, which accelerates it to 2.76 TeV/u.

Radiation protection and radiation safety: CERN and its Host States sign a tripartite agreement

CERN has always maintained close collaboration with its Host States in matters of safety. "The aim of this collaboration is especially to ensure best practice

in the field of radiation protection and the safe operation of CERN's facilities", explains Ralf Trant, Head of the Occupational Health & Safety and Environmental Protection (HSE) Unit.

Until today, CERN's collaboration with its Host States was carried out under two sets of bilateral agreements: depending on which side of the French-Swiss border they were being carried out on a different framework applied to the same activities.

This approach has become more and more difficult from an operational point of view. "Since, from an operational and technical point of view, CERN is a single entity, CERN saw several years ago the need for a uniform framework to discuss radiation safety

On 15 November CERN and its Host States will sign a tripartite agreement that replaces the existing bilateral agreements in matters of radiation protection and radiation safety at CERN. It will provide, for the first time, a single forum where the three parties will discuss how maximum overall safety can best be achieved in the specific CERN context.

and radiation protection with the two Host States", says Enrico Cennini, Deputy Head of the HSE Unit, who is also responsible for relations with the Host States in matters of safety.

The negotiations with the competent Host State authorities – the French Autorité de Sécurité Nucléaire (ASN) and the Swiss Office Fédéral pour la Santé Publique (OSFP) – started about 18 months ago. The new tripartite agreement, which is the result of these negotiations, will replace the bilateral agreements and create a single forum where the three parties will discuss how their common objective of maximum overall safety can best be achieved in the specific CERN context.

The agreement deals with a wide range of issues, including in general the protection of members of personnel and the public against ionising radiation and in particular the individual monitoring of workers by CERN's Dosimetry Service, the management of sealed and unsealed sources, and the management of activated waste.

"To achieve the agreement's objective of maximum overall safety in the CERN context, CERN will be transparent as to its safety rules and procedures and their implementation" explains Enrico Cennini. "We will provide full documentation on the safety aspects of our installations and the Host State authorities will, as in the past, carry out visits on site. In turn, the Host States will provide their expertise and lessons learnt to ensure use of best practice in our Laboratory. They will collaborate with the Organization to find pragmatic and viable solutions to CERN's specific problems, which are at the same time compatible with their safety requirements."

CERN Bulletin



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.

Between colleagues

Following a reorganization in their Department, Don* and Sam* found themselves working in the same unit. Given their complementary competencies, they were asked to collaborate on the same project. At the beginning, they both appreciated being able to exchange ideas and progress as they learned to get to grips with their new challenge.

After a few months, Don forgot to forward some urgent information to Sam, who was annoyed as it placed him in an awkward situation. Being unaware of the information caused Sam to make a wrong decision, for which he was criticized by

his Management. Not wanting to point the finger at his colleague, he took the blame himself. Nevertheless, unconsciously retaliating, he started to work on his own more and more, sharing less and less information with Don. When Don became aware of the situation, he started to avoid Sam and the gap between them widened to the point where the project ended up in trouble and behind schedule.

At this point, Management called them both in and told them that they must resolve their problems, either by themselves or with the Ombuds. If they failed to do so, the project would be given to another team.

Conclusion

If one of them had come to the Ombuds at an earlier stage, it would have been possible to resolve this unfortunate misunderstanding very easily. After weeks of bad feelings, strong words from the Management and the prospect of being removed from the project, it will be difficult to re-establish a good working relationship between them.

Contact the Ombuds early!

<http://cern.ch/ombuds>

Vincent Vuillemin

* Names and story are purely fictitious.

Full power to the first Linac4 module

The new Linac4 has 4 different types of accelerating structures. The PI-Mode Structures (PIMS) are the last stage and are designed to accelerate protons up to 160 MeV. "PIMS have never before been used to accelerate protons", explains Frank Gerigk, the project engineer responsible for the Linac4 accelerating structures. "In LEP, they were used to accelerate electrons, and now we have modified them and improved several design features to make them suitable for protons."

The first prototype was entirely manufactured in the CERN workshop. Due to the size of the pieces it was difficult to achieve and preserve the required tolerances during the high-precision turning and milling operations. The final assembly of the pieces was done on the electron-beam

Since last week the first of a total of 23 accelerating structures for Linac4 has been undergoing high-power tests. Although still a prototype, this structure is destined to be the first of the 12 PIMS cavities to be installed in the Linac4 tunnel and it has been completely designed, developed and constructed at CERN.

welding machine and a long series of tests was needed to develop a suitable welding procedure. "At present a lot of the workshop capacity is being used for Linac4", says Gilles Favre, who coordinates the workshop production. "We are not only working on the PIMS but are also constructing the RFQ, and we are developing prototypes for the other structures and a lot of ancillary equipment used for the cavities".

Last week, the high-power conditioning of the first PIMS module allowed its behaviour to start to be measured under nominal Linac4 operating conditions, that is, 1 MW peak power, pulsed at a repetition frequency of 2 Hz. "So far, the cavity is behav-

ing as expected, which is a big success for the numerous groups at CERN that were involved in the design and construction", says Frank Gerigk. The tests are the final verification of the design concept before the construction of the other 12 modules, which will start at the beginning of next year and will be carried out in the framework of a collaboration with the Soltan Institute of Nuclear Physics in Swierk (Poland) and the Forschungszentrum Jülich in Germany.

The PIMS module is more than just a prototype, as it will indeed be installed in the Linac4 tunnel. The other modules will be delivered to CERN within the coming two years. Before being installed in their final position, they will undergo high-power tests in the SM18 building, where a dedicated test area is currently under preparation.

Francesco Poppi



The PIMS prototype.

CERN in detail

Over the past few days, you might have noticed the new interface called MAPSearch that pops up when you make a building search using the Building and Roads field on the CERN homepage. This is a simplified version of the new GIS web Portal, a project on which the GS Department's Design Office and Patrimony Service has been working since January 2010. "In today's informatics age, we need to respond ever more quickly to increasing numbers of specific user requests," explains Project Leader Youri Robert.

This is more than just a new release of an old tool, it's a completely new-generation data management system. Previously, geographical data were stored on a system called STAR. This was not widely used as it was unreliable, slow and could not be accessed from Macintosh computers. "The new system is more powerful and user-friendly and has an array of attractive new features. The system was rolled out to the GS Department a few weeks ago and the feedback has been very positive," Youri explains. "The many users of our service will now be able to obtain paper copies of maps

Before, you had to go on the TPG website to find a tram-route, use Google Maps to see an aerial photo of CERN, and look for CERN buildings on map.web.cern.ch. Now, that's ancient history, with a new Geographical Information System (GIS) Portal set up by the Design Office and Patrimony Service (GS/SEM/DOP). It's a one-stop-shop for all this information and much more.

and drawings without having to come all the way to our offices. They will be able to download the information straight to their desktop." Another objective of the GIS portal is to bring as much information as possible into one repository in order to create a dynamic, attractive and user-friendly database, where people are happy to share data. With this system, maps and drawings can be updated in real time.

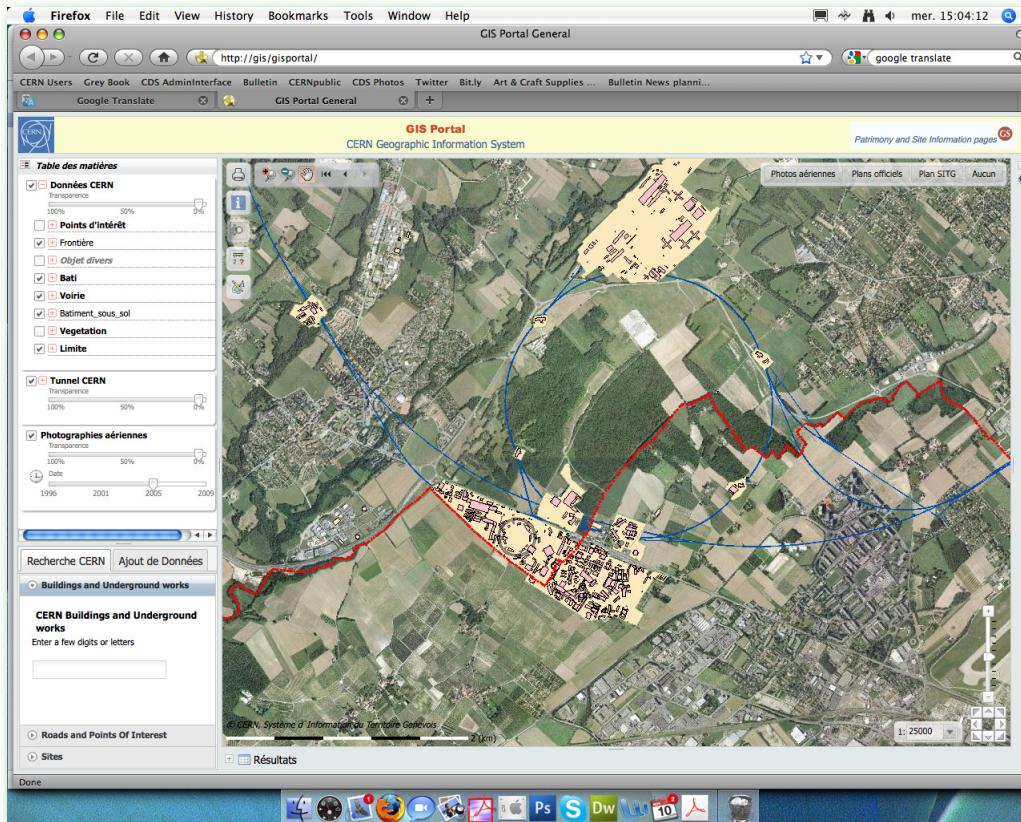
When you open the new tool, the aerial view of the site is displayed by default, but users can alter the settings to display CERN's official map, including road-names. And the map isn't just limited to the CERN site but also gives the entire Canton of Geneva, thanks to a hook-up with Geneva's own geographical database (Système d'information Géographique du Territoire de Genève). More specific information, like the location of tunnels or electrical networks and topographical data, can be accessed from inside

the CERN site via the GIS Portal. The Portal offers a variety of useful features, ranging from simple building searches to the measurement of distances and the direct input of users' own data. It's also possible to consult the specific characteristics of all buildings and objects on the site. There are features to suit everyone's needs and interests.

CERN is a vast organisation with 15,000 rooms in 600 buildings with 1,500 separate floors. For some weeks now, Youri Robert has been working on a new tool based on the same technology, where drawings of all CERN rooms, by floor, will be available online. The tool will give information on each individual unit (occupant, surface area, responsible Department, etc.). "Every floor will be represented on a separate drawing showing each individual room. Having this information available in the form of a drawing online will be of great benefit to many users, especially space managers who are constantly having to update their drawings as soon as a partition goes up or comes down or someone changes office," Youri concludes.

Try out these new tools today. The video demo will guide you through the various basic features:

<http://etat.geneve.ch/geoportail/tutorial/monsity/>



A screenshot of the GIS Portal.

A dedicated fund supports technological innovation

Scientific inquiry can lead to unexpected developments for society when researchers apply their expertise for public use. CERN actively encourages this transfer of knowledge and technology and, for the first time, has created a dedicated fund to provide financial support to projects aiming at disseminating their technologies to external audiences.

CERN's technology transfer schemes were formalised in the recent Policy on the Management of Intellectual Property in Technology Transfer, approved in March. Revenues generated by commercial exploitation will be distributed between the members of the team that developed the technology, their Department, and the KTT Fund for reinvestment in further KTT projects.

"The recent implementation of financial incentives demonstrates CERN's increased commitment in the field of knowledge and technology transfer," says Thierry Lagrange, acting KTT Group Leader and Head of the Finance and Procurement Department.

The Knowledge and Technology Transfer (KTT) Group is calling on CERN Departments to take their technology out of the confines of the laboratory and make it ready for dissemination. For the first time, projects can apply for financial support from the newly established KTT Fund.

"The possibility of generating additional income for the Departments and Groups, along with the personal fulfillment that comes from making a positive impact on society, can be an incentive for CERN staff to get involved in the technology transfer process," explains Lagrange.

In addition to supporting Departments through the patenting and IP issues involved in developing technology, the KTT Group now provides financial support for technology transfer projects. Projects that apply to the KTT Fund can also benefit from an expert market analysis by the KTT Group of the dissemination potential of their technology.

The first deadline for proposal applications is 31 January 2011; don't hesitate to contact the KTT Group for support in submitting a proposal.

Katarina Anthony



Did you know?

Submitting a proposal to the KTT Fund

In order for a project proposal to receive financial support from the KTT Fund, it must meet the following conditions: the proposal must be approved by the Department head, the staff costs must be covered by the Department, the project must be based on CERN technology, and the IP required to develop the project must be owned by CERN. A 5-member Fund Committee then considers each proposal, assessing it according to its possible social impact, the probability of dissemination and the quality of the project's management.

The first deadline for submitting project proposals to the KTT Fund is 31 January 2011. However, requests for market analysis by KTT experts must be made one month before this deadline. For further information, contact KTT via e-mail: KTTFund@cern.ch.

e-Infrastructure Concertation Meeting

E-Infrastructures have become an indispensable tool for scientific research, linking researchers to virtually unlimited e-resources like the grid. The recent e-Infrastructure Concertation Meeting brought together e-Science project leaders to discuss the development of this tool in the European context. The meeting was part of an ongoing initiative to develop a world-class e-infrastructure resource that would establish European leadership in e-Science.

The 8th e-Infrastructure Concertation Meeting was held in the Globe from 4 to 5 November to discuss the development of Europe's distributed computing and storage resources.

The e-Infrastructure Concertation Meeting was organised by the Commission Services (EC) with the support of e-ScienceTalk. "The Concertation meeting at CERN has been a great opportunity for e-ScienceTalk to meet many of the 38 new projects funded in the last call, and we look forward to working with them through the GridBriefings, GridCafe, GridCast, GridGuide and iSGTW,"



Project leaders attend the E-Concertation Meeting at the Globe, on 5 November 2010 (© Corentin Chevalier).

says Catherine Gater, e-ScienceTalk Project Coordinator. "The e-Infrastructure family of projects is growing rapidly and we are very pleased to be part of it."

The event was an excellent opportunity for project coordinators to develop new ideas, discuss the impact of their projects and explore future collaboration. It also gave them a chance to talk to the people funding their work. Representatives from the EC Framework programmes that fund many of the e-Infrastructure projects also attended the meeting. While project leaders are in constant contact with the EC through evaluations and reviews, this was an opportunity for the two groups to meet more informally.

CERN continues to be at the centre of the development of e-infrastructures as they make their way into the non-scientific realm. "CERN has been an excellent host and has provided a stunning venue in the Globe - we're looking forward to the next e-Infrastructure family reunion," says Gater.

Katarina Anthony

Is the bell ringing?

Take just a very small fraction of the available data (max 5%); define the events that you want to keep and set the parameters accordingly; run the Exotica routine and only look at the very few images that the system has selected for you. This is the recipe that a small team of CMS researchers has developed to identify the signals coming from possible new physics processes. "This approach does not replace the accurate data analysis of the whole set of data. However, it is a very fast and effective way to focus on just a few events that are potentially very interesting", explains Maurizio Pierini, who developed the Exotica hotline routine together with Tulika Bose, Massimiliano Chiorboli, Leonardo Benucci, Elizabeth Twedt and Alexander Ferapontov.

The amount of data collected every day by the LHC experiments is huge. Despite the very large computing power made available by the Grid, a rough analysis of the whole sample of data produced every day at CMS would take at least a couple of days. "Exotica runs on the so-called 'express

stream': the small set of data that is used by researchers to control the overall functioning of the detector, that is, about 5% of the total", says Pierini.

stream': the small set of data that is used by researchers to control the overall functioning of the detector, that is, about 5% of the total", says Pierini.

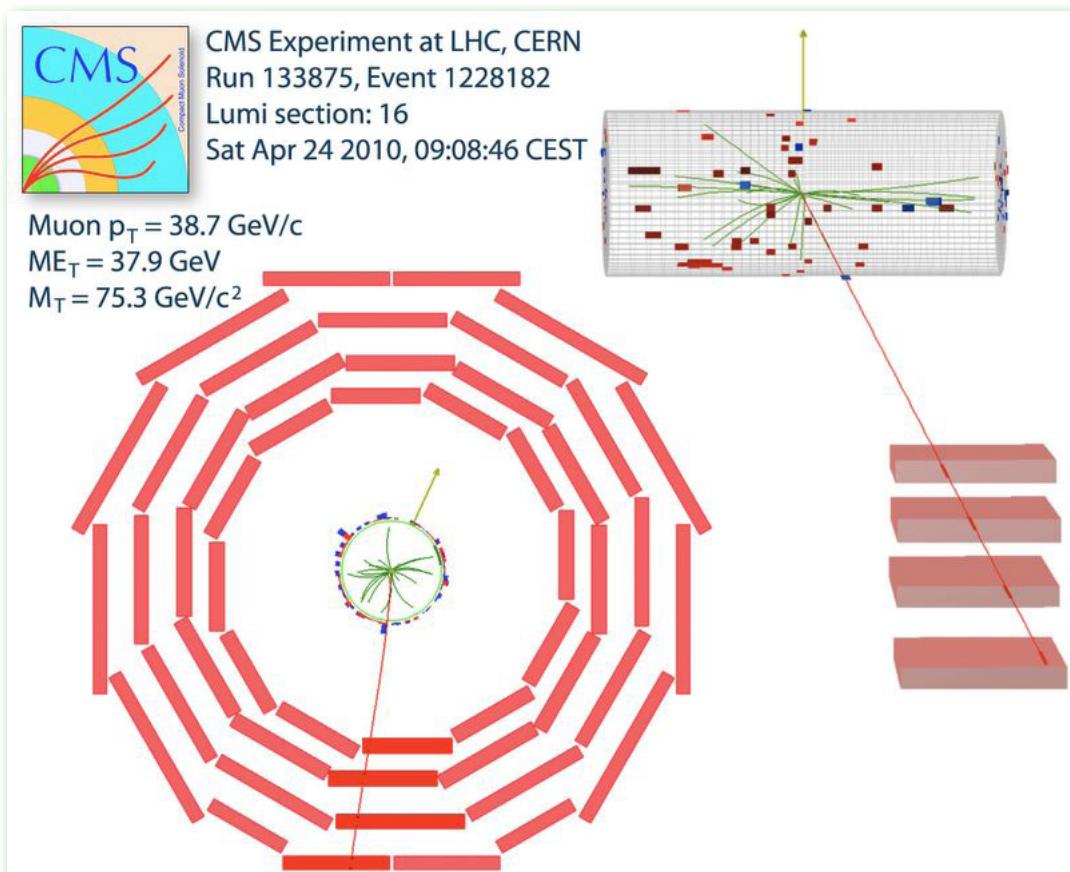
The program sequence starts every day at midnight. The morning after, researchers receive a report listing just the exotic, unusual events. The ten people participating in the project look at the report, which usually contains about 100 events. The data is then read using the CMS Event display that produces a picture to be examined.

But what is the definition of 'exotic, unusual' events? "The filter is applied to the energy (high momentum) and the number (high multiplicity) of the particles involved in the events. High-energy phenomena are expected to show new physics. At the beginning, due to the quick increase in luminosity of the LHC, the Exotica routine required fine tuning in order to avoid too large sample of events," explains Pierini.

"Until a few months ago, we were looking for typical Standard Model events like Z and W boson decays. Now those events have become quite usual and Exotica is fixed to hunt out completely new phenomena. For example, during the first phase the report gave warning of events with 2 muons and energy over 15 GeV. Now the lower limit is set at 50 GeV". At this level, we should see the Higgs boson!

The Exotica procedure reverses the traditional method where the final images are produced after an in-depth analysis has been carried out on the whole set of data. In this approach, statistics define the 'interest' of a particular event. "Exotica – on the other hand – does not produce statistics, it is just a numerical filter that spots exceptional events, and it is an early warning device for any complex and rare effects or detector malfunctioning. It has already been used to fix several subtle problems in the event reconstruction. Exotica cannot substitute analysis but it is a useful tool that allows us to come across unexpected events. In such cases, an in-depth analysis will have to be carried out to fully understand the process", concludes Maurizio Pierini.

Francesco Poppi



Display of an event selected by the Exotica routine.

Behind the machines

Tall began two years ago with the publication of "Exploring the Mystery of Matter", a book about ATLAS. A Norwegian physicist friend, Heidi Sandaker, saw my photographs and suggested that I display them in a museum. I thought this was an interesting idea, except that the photos consisted entirely of depictions of machinery, with human beings completely absent. For me, showing the people who are behind the machines and the fascination that they

One of the first things we think about when someone mentions physics is the machines. But behind the machines, there are the men and women who design, build and operate them. In an exhibition at the Thinktank planetarium's art gallery in Birmingham (UK), Claudia Marcelloni and her husband Neal Hartman—she is a photographer and Outreach Officer for ATLAS, while he is an engineer working on the ATLAS pixel detector—explore the human side of scientists.

experience in their work in a scientific environment is absolutely crucial," says Claudia. "So my husband and I thought about the best way to do this, and about how to link the science to the art, using a montage of photography and film."



The exhibition at the Thinktank Planetarium art gallery, Birmingham (UK).

The installation at Birmingham's science museum Thinktank consists of four giant screens set up side by side (see photo). Each screen is used to project a different video. The first shows portraits of ATLAS: physicists explaining what working on the collaboration means to them. The next is a close-up of a particular physicist who remains immobile for a few minutes, seemingly observing the visitors, before unexpectedly launching into some everyday activity that he or she finds particularly rewarding: dancing, cooking a meal, or playing a musical instrument. Photographs of CERN detectors make up the third video, the soundtrack to which is a cavernous rumbling. On the last video, the painter who did the ATLAS mural, Joseph Kristofoletti, explains how to paint a physics event.

In its first week, the exhibition had close to 7 000 visitors. It will remain in the museum until January 2011. More information on the museum and the exhibition can be found at:

<http://www.thinktank.ac/page.asp?section=798§ionTitle=Sciart%3A+The+Art+of+ATLAS>

and

<http://www.atlas.ch/multimedia-installation.html>

Laëtitia Pedroso

PARTICLE-larly Enriching Night at CERN!

The visit began for me around 20.30, as we all joined our respective groups to board a CERN shuttle to our final destination, which was LHCb in my case. I was heading into the unknown!

On leaving, I knew nothing about this place, and the discovery made it all the more interesting. Upon arriving, a woman explained that their research looked at antimatter, or rather, the reason why it disappeared from our Universe – she then accompanied us inside. Amazingly, I found the place to be both friendly and serious. One physicist spoke passionately about the purpose of LHCb, in short: colliding particles in order to understand the Big Bang, the origin of the Universe. The numerous computers in the control room allowed them to monitor

After the 2010 Night of European Researchers, a contest was organised for its participants, asking them to write about their experience. We are now pleased to announce the winner: Yves-Marie Ducimetière, a 14-year-old student at the Lycée International de Ferney-Voltaire.

the beams of particles, as though we were in another dimension – in short, the researchers are passionate about their work and for an hour and a half (how time flies) I am just as enthusiastic. But time soon ran out and we had to leave, I was sad to leave this place that was no longer unknown to me!

The activities of CERN really interest me, and I when learned about the Researchers Night I was eager to sign up, and was far from disappointed! I really loved learning about the work done by the physicists and I shared their passion and curiosity during my visit and was interested until the very end! I discovered, with great pleasure, the moti-

vation of the scientists at CERN. After that night, the research at CERN became – in my eyes – captivating, and it is now the source of many of my motivations (most notably my future choices). The night was an unforgettable experience with only one regret: 1h 30 is a very short time, 4 or 5 hours would have been better, but nevertheless, thank you for an unforgettable night and see you soon..... I hope!

**Text written by:
Yves-Marie
Ducimetière
– Age 14 –
Lycée
International
de Ferney-
Voltaire.**



Frank Blythe (1924-2010)

Frank Blythe, one of the very first engineers engaged in the CERN adventure, passed away on October 22. Born and educated in Salford (England), after a time spent at Metropolitan-Vickers in Manchester, in January 1954 he joined the group at the Nuclear Physics Research Laboratory in Liverpool that was working on the first CERN accelerator, the Synchrocyclotron (SC). At that time CERN had not yet been officially constituted, yet had a well defined work programme, the design and construction work being carried out in various European laboratories. In Liverpool the work included the SC vacuum and cooling system, radiation shielding, experimental areas and beams.



By the end of 1954, Frank reached the CERN premises in Geneva, and contributed significantly to the successful construction work of the Synchrocyclotron. He later became responsible for the drawing office and the mechanical workshop (Engineering Group) attached to the MSC Division, and also serving the NP/EP Division. He kept this position until his retirement for serious health problems in 1980.

For more than twenty years Frank and his team were thus involved in the design and construction of a large part of the equipment needed for research. The technical standard was always high, and went together with a mark of simplicity and without undue bureaucracy.

Frank was highly appreciated for his competence, common sense and helpfulness, but also for his generosity and humour and for the climate of friendship he created among his collaborators and the many users of the service.

We express our deep feelings of sadness to his wife Patricia and his daughters Susan and Katherine.

His friends

Denis Gudet 1955 - 2010



We deeply regret to announce the death of Mr Denis GUDET on 04.11.2010. Mr Denis GUDET, born on 14.03.1955, worked in the EN Department and had been employed at CERN since 01.05.1981.

The Director-General has sent his family a message of condolence on behalf of the CERN staff.

*Social Affairs
Human Resources Department*



Official news

PROCEDURE FOR OBTAINING VISAS FOR SWITZERLAND AND FRANCE - SIGNATURE RIGHTS

In accordance with the Status Agreements with CERN, Switzerland and France facilitate the entry of members of the Organization's personnel onto their territories. Where relevant, detailed procedures for obtaining visas apply.

Within the framework of those procedures, only the following individuals are authorised to initiate the *Note verbale* procedure as well as to sign the Official Invitation Letters and the *Protocoles d'accueil*.

1. Kirsti ASPOLA (PH – CMO)
2. Oliver BRÜNING (BE – ABP)
3. Michelle CONNOR (PH – AGS)
4. Sylvie DETHURENS FAVEZ (HR – SPS)
5. David FOSTER (IT – DI)
6. Nathalie GRUB (PH – AGS)
7. Tadeusz KURTYKA (DG – PRJ)
8. Jean-Pol MATHEYS (BE – ASR)
9. Cécile NOELS (DG – PRJ)
10. Connie POTTER (PH – AGS)
11. Maria QUINTAS (HR – SPS)
12. Jeanne ROSTANT (PH – AGS)
13. José SALICIO-DIEZ (PH – AGS)
14. Ulla TIHINEN (PH – AGS)
15. Emmanuel TSESMELIS (DG)
16. Rüdiger VOSS (PH – ADE)

The French and Swiss Authorities will reject any request signed by a person who is not on this list.

We would like to remind you that in accordance with the memorandum of 7 December 2000 issued by the Director of Administration, (ref. DG/DA/00-119), "the Organization shall not request any legitimisation document (or residence permit) or visa from the Host States for persons registered as EXTERNAL" (people who do not hold a contract of employment, association or apprenticeship with CERN).

We would also like to remind you that those coming to CERN should find out in good time about the conditions of entry to Switzerland and France applying to them and ensure that they obtain the requisite visas, where applicable, in the country in which they are habitually resident.

Useful information can be obtained from the Swiss and French diplomatic representations abroad, as well as from the

following Web pages:

- http://www.bfm.admin.ch/content/dam/data/migration/rechtsgrundlagen/weisungen_und_kreisschreiben/weisungen_visa/anh1-liste1_vorschriften-nach-staat-f.pdf (Swiss Federal Office for Immigration, Integration and Emigration);
- http://www.diplomatie.gouv.fr/fr/france_829/venir-france_4062/entrer-france_4063/index.html (French Ministry of Foreign and European Affairs).

The Authorities of the Host States have informed the Organization on a number of occasions that they insist upon scrupulous compliance with visa legislation.

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

Take note

NEWS FROM THE CERN PRINTSHOP

Please note there are a limited number of the 2011 CERN wall calendars now available from the Printshop, located in Building 510-R-007. These have been printed on card in A3 and A4.

If you need more than a few copies, there are two solutions:

- * download the file and print your own on paper;
- * send us an e-mail to place an order.

Please visit the new Printshop website for more information:

<http://cern.ch/printshop>

Printshop reception opening hours:
 10h00-12h00 and 13h00-15h00.

Many thanks,

CERN Printshop - Tel: 72426
 E-mail: Printshop@cern.ch

IT Department

USERS' OFFICE - REMOVAL

As of 8 December 2010 and until the end of February 2011,

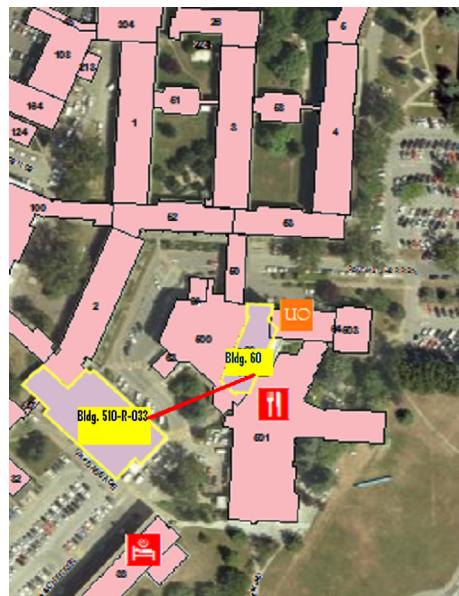
the Users' Office will move from Bldg. 60 to a new location : Bldg. 510-R-033.

Opening Hours:

Monday, Tuesday, Thursday, Friday : 08.30 – 12.30

Monday to Friday: 14.00 – 16.00

Closed Wednesday mornings.



DOSIMETRY SERVICE REMOVAL

Dear personal dosimeter user,

Please note that the Dosimetry Service has moved in Building 55, the Service is now located in the main floor: 55-R-004.

Main floor instead of second floor. On your right hand when accessing in the building.

Thank you.

Dosimetry Service



The turn of the XXth century witnessed a revolution in physics comparable to Isaac Newton's discovery of the universal laws of mechanics and of gravitation three centuries earlier. The world required to be described in novel terms, as the immutable, deterministic view of our familiar universe had given way to a new world picture, one which featured chance, flux, and an incessant upsurge of waves of matter. Such a worldview was so radically new and counterintuitive that it gave rise to strong debates, to the effect that Albert Einstein himself tried to oppose it on the grounds that "God does not play dice".

In spite of the intense debates that accompanied its emergence, quantum mechanics quickly proved an incredibly efficacious new tool to understand and to predict a wide array of new phenomena. It was so successful that in no time it broke free from the environment of research labs to become part of daily life, making it possible, for example, to understand why some materials were conductors, while others were insulators. Along with it, came, too, the discovery of transistors, on which much of modern electronics rests. It also led to understand how novel materials known as superconductors allow the transport of electricity with no loss, thus paving the way for new developments in the fields of medical imagery or energy distribution. Other aspects of the quantum theory led to the development of atomic clocks of astounding accuracy, which would be wrong by no more than fifteen seconds, had they been set at the beginning of the universe.

A hundred years later, at the turn of the XXIst century, Quantum mechanics has lost none of its astounding power. Contemporary research has undertaken the task of exploring its less immediately perceptible aspects. Groundbreaking developments have ensued, such as the teleportation of grains of light or the possibility, once predicted by the great physicist Richard Feynman, to build, one day, novel computers which, unlike the ones we are familiar with today, will be able to process innumerable numbers of operations in parallel.

The Wright Colloquium will be for us the occasion to explore, in the company of five internationally known specialists in the field, some of the fascinating aspects of quantum mechanics.

We will appraise how efficiently quantum physics can describe our world, and confront its limitation when it is faced with the infinitely small (in relation to recent experiments carried out at the CERN) as with the incommensurably large scale of sidereal spaces.

We will appreciate the extent to which quantum physics already has impacted our everyday lives, and evoke the way in which novel fields such as quantum computers and quantum information will entail profound changes in the future.

The quantum adventure has only just begun!

Monday, november 15th 2010 - 18h30



Jochen Mannhart

Center for Electronic Correlations and Magnetism,
University of Augsburg, Germany

QUANTUM PHYSICS ON THE SCALE OF DAILY LIFE

Tuesday, november 16th 2010 - 18h30



Wolfgang Ketterle

Nobel Laureate 2001 (Physics), Department of Physics,
Massachusetts Institute of Technology, Cambridge, U.S.A.

**WHEN FREEZING COLD IS NOT COLD ENOUGH
NEW FORMS OF MATTER CLOSE TO ABSOLUTE ZERO TEMPERATURE**

Wednesday, november 17th 2010 - 18h30



David Gross

Nobel Laureate 2004 (Physics), Kavli Institute for Theoretical Physics, University of California, Santa-Barbara, U.S.A.

**QUANTUM MECHANICS OF THE VERY, VERY SMALL
AND THE VERY, VERY LARGE**

Thursday, november 18th 2010 - 18h30



Alain Aspect

CNRS senior scientist and Professor Institut d'Optique
and Ecole Polytechnique Palaiseau, France.

**FROM EINSTEIN'S INTUITION TO QUANTUM BITS:
A NEW QUANTUM AGE?**

Friday, november 19th 2010 - 18h30



Rainer Blatt

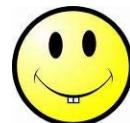
Institute of Quantum Optics and Quantum Information,
Austrian Academy of Sciences and University of Innsbruck, Austria

THE QUANTUM WAY OF DOING COMPUTATIONS

Info express • octobre 2010



Aux habitants de la commune de Meyrin et des environs
Visite de la tranchée couverte de Meyrin-village



Nous avons le plaisir de vous informer que vous aurez la possibilité de visiter l'intérieur du tunnel, avant sa mise en service.

Cette visite aura lieu le samedi 20 novembre 2010 de 14h à 17h, horaire durant lequel les différentes entités chargées du projet et de la construction de cet ouvrage répondront à vos questions.

R. Rusconi - A. Frei, délégués des maîtres d'ouvrage

Genève, octobre 2010

www.way-tram.ch

Direction générale du chantier et pavillon d'information:
Meyrin-village: (place du village) ouvert les mercredis de 14h30 à 17h30
Tél. 022 321 17 17 (répondeur hors permanence) Fax 022 321 12 18



POST TENEBRAS LUX

REPUBLIQUE
ET CANTON
DE GENEVE





Take note

JOHN ADAMS LECTURE

13 December 2010

14:30 - Council Chamber, Bldg.503-1-001

Accelerator Breakthroughs, Achievements and Lessons from the Tevatron Collider

V. Shiltsev / Fermilab's Accelerator Physics Centre

This year we celebrate the 25th anniversary of the first proton-antiproton collisions in the Tevatron. For two and a half decades the Tevatron at Fermilab (Batavia, IL, USA) was a centerpiece of the US and world's High Energy Physics as the world's highest energy particle collider at 1.8 TeV center of mass energy. While funding agencies

are deciding on a 3-year extension of the Collider Run II operation through 2014, we – in this 2010 John Adams Lecture – will take a look in exciting story of the Tevatron: the story of long preparations, great expectations, numerous difficulties, years of “blood and sweat”, continuous upgrades, exceeding original goals (by a factor of 400) and high

emotions. An accelerator scientist prospective will be given on a wide spectrum of topics: from “plumbing” issues to breakthroughs in beam physics, from luminosity achievements to social dynamics in scientific organizations and lessons for the LHC.



External meeting

GENEVA UNIVERSITY

École de physique - Département de physique nucléaire et corpusculaire

24, quai Ernest-Ansermet - 1211 GENÈVE 4
Tél: (022) 379 62 73 - Fax: (022) 379 69 92

Wednesday 17 November 2010

PARTICLE PHYSICS SEMINAR

àt 17:00 – Auditoire Stückelberg

Results on CP-Violation in The B_s and B_d systems at the Tevatron

Dr. Iain Bertram, Lancaster

Results will be presented from the investigation of CP-violation in B mesons at the Tevatron. The evidence for an anomalous like-sign dimuon charge asymmetry will be presented, along with the latest results on CP violation in the Bs → J/Psi Phi system. The implications of these results and the possibility of confirming them in the future will also be discussed.

Wednesday 1st December 2010

PARTICLE PHYSICS SEMINAR

àt 17:00 – Auditoire Stückelberg

PAMELA - A cosmic ray observatory in space

Dr. Emiliano Mocchiutti, INFN, Trieste

On the 15th of June 2006, the PAMELA satellite-borne experiment was launched from the Baikonur cosmodrome and it has

been collecting data since July 2006. The apparatus comprises a time-of-flight system, a silicon-microstrip magnetic spectrometer, a silicon-tungsten electromagnetic calorimeter, an anticoincidence system, a shower tail counter scintillator and a neutron detector. The combination of these devices allows precision studies of the charged cosmic radiation to be conducted over a wide energy range (100 MeV - 100's GeV) with high statistics. The primary scientific goal is the measurement of the antiproton and positron energy spectrum in order to search for exotic sources, such as dark matter particle annihilations. PAMELA is also testing cosmic-ray propagation models through precise measurements of the antiparticle energy spectrum and precision studies of light nuclei and their isotopes. Moreover, PAMELA is investigating phenomena connected with solar and earth physics. Latest results after four years of data-taking will be presented.

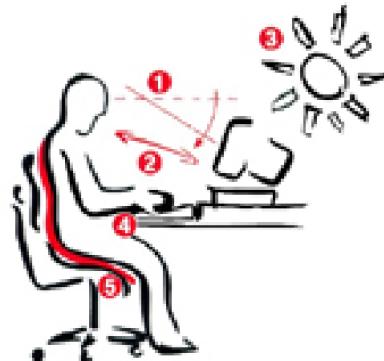
Information :

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

Organizer : G. Pasztor



Safety Training Course



SAFETY TRAINING: ERGONOMICS - APPLYING ERGONOMIC PRINCIPLES IN THE WORKPLACE

We propose a half day awareness session on the hazards posed by a poor posture while working on a screen (back pain, eye-strain, sore wrists...) and best practices to address them.

The next sessions will be held on **18 November 2010** (morning session in French and afternoon session in English).

The registration via the Safety Training catalogue is mandatory.

Places will be allocated in order of receipt.

For any further information, please contact Isabelle Cusato (Isabelle.Cusato@cern.ch), tel. 73811.



CERN TECHNICAL TRAINING: AVAILABLE PLACES IN FORTHCOMING COURSES

The following course sessions are scheduled in the framework of the 2010 CERN Technical Training Programme and places are still available. You can find the full updated Technical Training course programme in our web catalogue (<http://cta.cern.ch/cta2/f?p=110:9>).

Software and system technologies

C++ Part 2: Object-Oriented and Generic Programming	22-Nov-10	25-Nov-10	English	4 days
Emacs - way beyond Text Editing	09-DEC-10	09-DEC-10	English	3 days
ITIL Foundations (version 3)	22-Nov-10	24-Nov-10	English	1 day
ITIL Foundations (version 3) EXAMINATION	13-DEC-10	13-DEC-10	English	1 hour
JAVA - Level 1	25-Nov-10	29-Nov-10	English	3 days
JAVA 2 Enterprise Edition - Part 2: Enterprise JavaBeans	13-DEC-10	15-DEC-10	English	3 days
JCOP - Finite State Machines in the JCOP Framework	17-Nov-10	19-Nov-10	English	3 days
JCOP - Joint PVSS-JCOP Framework	29-Nov-10	03-DEC-10	English	4.5 days
Object-oriented Design Patterns	06-DEC-10	08-DEC-10	English	3 days
Optimising Oracle - Foundations	25-Nov-10	26-Nov-10	English	2 days
Oracle - Programming with PL/SQL	06-DEC-10	08-DEC-10	English	3 days
Oracle - SQL	01-DEC-10	03-DEC-10	English	3 days
PERL 5 - Advanced Aspects	30-Nov-10	30-Nov-10	English	1 day
Python: Advanced Hands-On	16-Nov-10	19-Nov-10	English	4 days
XML - Introduction	01-DEC-10	02-DEC-10	English	2 days

Electronic design

Certified LabVIEW Associate Developer (CLAD)	26-Nov-10	26-Nov-10	English	1 hour
Certified LabVIEW Developper(CLD)	26-Nov-10	26-Nov-10	English	0.5 days
Cours de base Automation du bâtiment	15-DEC-10	17-DEC-10	French	3 jours
LabVIEW Core I with RADE introduction	29-Nov-10	01-DEC-10	Bilingual	3 days
LabVIEW Core II	02-DEC-10	03-DEC-10	Bilingual	2 days
Signal Integrity: Advanced High-Speed Design and Characterization	22-Nov-10	26-Nov-10	English	5 days

Mechanical design

ANSYS Workbench	15-Nov-10	18-Nov-10	English	4 days
CATIA-Smartteam Base 2	26-Nov-10	14-DEC-10	French	7 jours
SmarTeam - CATIA data manager at CERN	30-Nov-10	03-DEC-10	French	3 jours

Office software

A hands-on overview of EVO	26-Nov-10	26-Nov-10	English	0.1 day
EXCEL 2007 - level 1 : ECDL	29-Nov-10	30-Nov-10	English	2 days
EXCEL 2007 (Short Course I) - HowTo... Work with formulae, Link cells, worksheets and workbooks				15-Nov-10 15-Nov-10
Bilingual		0.5 day		
EXCEL 2007 (Short Course III) - HowTo... Pivot tables	16-Nov-10	16-Nov-10	Bilingual	0.5 day
Individual Coaching	02-DEC-10	02-DEC-10	Bilingual	1 hour
Project Planning with MS-Project	15-Nov-10	19-Nov-10	French	2 days
Sharepoint Collaboration Workspace	13-DEC-10	14-DEC-10	English	2 days
WORD 2007 - level 2 : ECDL	18-Nov-10	19-Nov-10	French	2 hours

If you are interested in attending any of the above course sessions, please talk to your supervisor and/or your DTO, and apply electronically via EDH from the course description pages that can be found at: <http://cta.cern.ch/cta2/f?p=110:9> under 'Technical Training' with the detailed course program. Registration for all courses is always open – sessions for the less-requested courses are organized on a demand-basis only. CERN Technical Training courses are open only to members of the CERN personnel (staff members and fellows, associates, students, users, project associates, apprentices and employees of CERN contractors, with some restrictions). In particular, quoted prices and programmes refer specifically to the CERN community.



Seminars

MONDAY 15 NOVEMBER

TH JOURNAL CLUB ON STRING THEORY

14:00 - TH Auditorium, Bldg. 4

Higher-Spin Theories: from free fields to interactions (Part II)

M. VASILIEV / LEBEDEV INST.

TUESDAY 16 NOVEMBER

SPSC MEETING

9:00 - Council Chamber, Bldg. 503

99th Meeting of the SPSC

C. VALLEE / CPPM-MARSEILLE

TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

Conformal Toda theory with a boundary

S. RIBAULT / LPTA, MONTPELLIER

WEDNESDAY 17 NOVEMBER

LHCCMEETING

9:00 - Main Auditorium, Bldg. 500

104th LHCC Meeting AGENDA OPEN Session

T. WYATT / UNIVERSITY OF MANCHESTER

TH COSMO COFFEE

11:00 - TH Auditorium, Bldg. 4

Galileons and Kinetic Gravity Braiding

A. VIKMAN / CERN

TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

The Color Glass Condensate and the Glasma

L. MCLERRAN / BROOKHAVEN NATIONAL LABORATORY (BNL)

ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

Onsets of nuclear deformation from measurements with the Isoltrap mass spectrometer

S. NAIMI / CEN. DE SPECT. NUCL. & SPECT. MASSE (CSNSM)

THURSDAY 18 NOVEMBER

TH BSM FORUM

14:00 - TH Auditorium, Bldg. 4

TBA

F. SANNINO / CP3-ORIGINS, ODENSE

FRIDAY 19 NOVEMBER

COMPUTING SEMINAR

09:30 - IT Auditorium, Bldg. 31-3-004

Report on the Taipei CHEP 2010 Conference

A. SILVERMAN / CERN

MONDAY 22 NOVEMBER

TH JOURNAL CLUB ON STRING THEORY

14:00 - TH Auditorium, Bldg. 4

TBA

I. PAPADIMITRIOU / CERN

TUESDAY 23 NOVEMBER

TECHNICAL PRESENTATION

9:00 - Room C, Bldg. 503 1st Floor

MagCam NV

TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

The sparticle spectrum in minimal gaugino-gauge mediation

R. AUZZI / HEBREW UNIVERSITY

WEDNESDAY 24 NOVEMBER

TH COSMO COFFEE

11:00 - TH Auditorium, Bldg. 4

TBA

T. CLIFTON / CERN

TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

Lessons from black holes about quantum gravity

R. BRUSTein / CERN

ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

Relativistic Description of the Ground State of Atomic Nuclei Including Deformation and Pairing

J. P. EBRAN

THURSDAY 25 NOVEMBER

TH BSM FORUM

14:00 - TH Auditorium, Bldg. 4

TBA

A. FALKOWSKI

ACCELERATOR AND TECHNICAL SECTOR SEMINAR

14:15 - Bldg. 222-R-001 Filtration Plant (Meyrin)

Standard and experimental approach for advanced controls in cryogenics

M. PEZZETTI / CERN

CERN COLLOQUIUM

16:30 - Main Auditorium, Bldg. 500

Neutrinos from Hell: the Dawn of Neutrino Geophysics

G. GRATTA / PHYSICS DEPT, STANFORD UNIVERSITY

FRIDAY 26 NOVEMBER

PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

TBA

R. BRITTO / CEA SACLAY