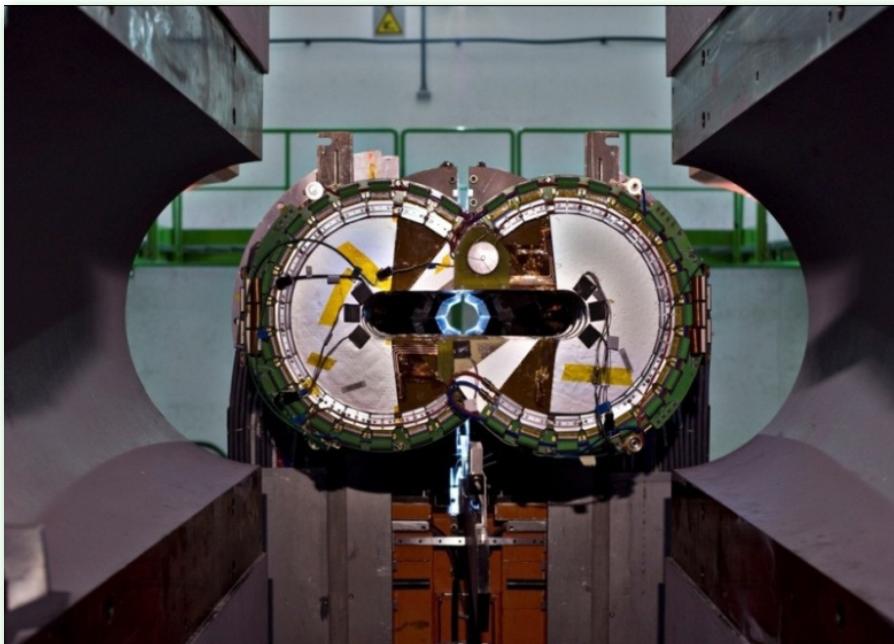


Nos 39 & 40 – 28 September & 5 October 2011

## When the proton becomes larger



One arm of a TOTEM T2 detector during its installation at interaction point 5.

A composite particle like the proton is a complex system that in no way resembles a static Lego construction: sub-components move inside and interactions keep the whole thing together, but in a very dynamic way. This partly explains why even the very common proton can still be hiding secrets about its nature, decades after its discovery.

One way of studying the inner properties of protons is to observe how they interact with each other, which, in technical terms, implies calculating the total cross-section of the proton-proton interactions. Early measurements at the CERN ISR surprisingly

**The TOTEM experiment at the LHC has just confirmed that, at high energy, protons behave as if they were becoming larger. In more technical terms, their total cross-section – a parameter linked to the proton-proton interaction probability – increases with energy. This phenomenon, expected from previous measurements performed at much lower energy, has now been confirmed for the first time at the LHC's unprecedented energy.**

showed that the cross-section increases when the energy increases. This was then confirmed by the CERN SppS Collider and the Tevatron. But this is the first time that the trend has been confirmed at the highest energy, that of the LHC. "TOTEM's result of  $(98 \pm 3) \text{ mbarn}$  for the total cross-section

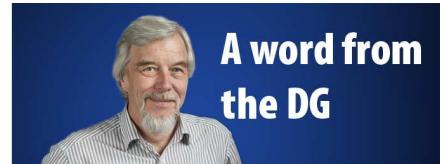
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### Keeping particle physics lively, stimulating, and maybe more...

A recurring theme at last week's Council meetings was the request I received to pass on Council's heartfelt thanks to all the CERN community for the successful period we are currently enjoying, and it is my pleasure to do so. Council's request also serves as a timely reminder that CERN is more than the LHC, and the LHC is more than the machine and its four big experiments.

Earlier this week, one of the smaller LHC experiments, TOTEM, published

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# When the proton becomes larger

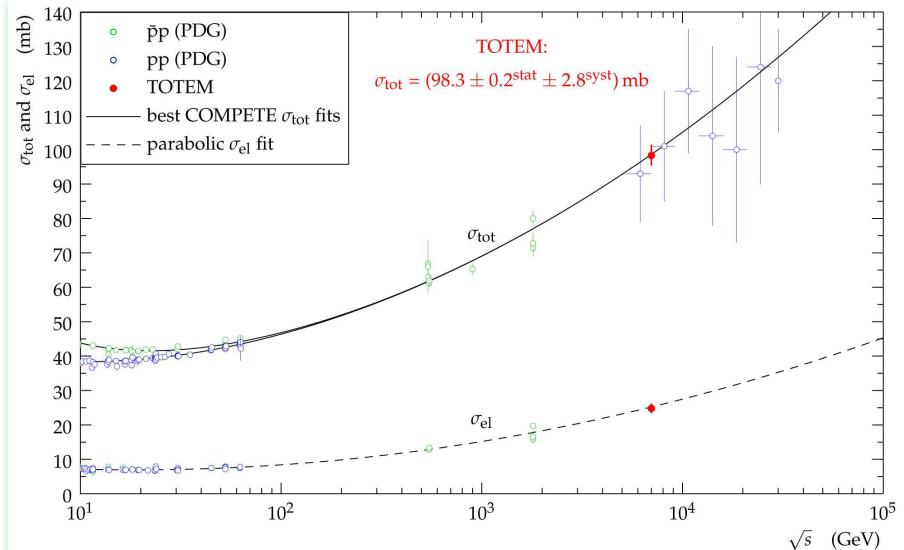
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confirms that, even at the so far unexplored energy of the LHC, the proton behaves as if it were becoming larger," says Karsten Eggert, spokesperson of the TOTEM collaboration.

Measuring the proton-proton total cross-section is not a trivial exercise. "We requested a special run of the LHC," explains Eggert. "The beam divergence in the proximity of the interaction points in the machine had to be much smaller than in standard LHC operation. In only thirty minutes of data taking with this special beam configuration, TOTEM collected sufficient data to measure the elastic proton-proton scattering cross-section, which made it possible to determine the total cross-section using the so-called optical theorem."

The present calculation is based on the luminosity measurement provided by the CMS experiment, but the collaboration's future plans involve using only TOTEM's detectors to measure it in a luminosity-independent way. "Rather soon we will have a longer specialised run and move our detectors closer to the beams," says Eggert.

TOTEM's new result will significantly contribute to a deeper understanding of the nature



*TOTEM measurement of the total cross-section of the proton at the 7 TeV centre-of-mass energy: 98 ± 3 mbarn.*

of the proton. From theory, we know that there is a limit to how large the proton can become if pushed to the highest energies. "For the time being, our results are beautifully in agreement with data coming from cosmic rays and extrapolations made from previous measurements. This result repre-

sents the first experimental confirmation of long-standing guesses that physicists made about the proton's behaviour at high-energy," concludes Eggert.

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(Continued from page 1)

## Keeping particle physics lively, stimulating, and maybe more...

its first results. TOTEM's paper contains measurements that are vital for a full understanding of hadron collider physics, as well as for topics in particle astrophysics. They continue a CERN tradition that goes back to the world's first hadron collider, CERN's Intersecting Storage Rings (ISR).

One of the most significant results from the ISR was the unexpected observation that the cross-section for proton-proton collisions rises with energy. Put another way, it appears that the proton gets larger the more energetic it becomes. The ISR's results have since been confirmed and extended at other colliders, and the TOTEM result now takes that measurement to LHC energies. TOTEM's measurement is in good agreement with the simulation models that the

big LHC experiments use to interpret their results. The importance of the measurement, however, is that the cross-section's dependence on energy cannot yet be calculated from first principles, so no matter how much faith we have in our simulation models, nothing can replace a real measurement. The TOTEM result is not only interesting physics in its own right, it also provides vital experimental underpinning to results yet to come from the LHC's big four.

Another CERN facility making the news this week is the CERN Neutrinos to Gran Sasso project, which supplies beams to the ICARUS and OPERA experiments at Gran Sasso. For the last three years, the OPERA collaboration has been measuring the time it takes neutrinos to cover the 730 km from

CERN to Gran Sasso, and the result has come as something of a surprise. Taken at face value, the neutrinos appear to be travelling faster than the speed of light, Nature's speed limit. If confirmed, this would be a truly remarkable result, but before shredding the textbooks, independent observations and measurements are needed. That's why OPERA is publishing its results today at arxiv.org and through a seminar at CERN: to invite open scrutiny of its measurements. To end where I began, it is my pleasure to convey Council's thanks to the whole CERN community for keeping particle physics stimulating, lively and, who knows, perhaps even revolutionary. Only time will tell.

Rolf Heuer

# LHC Report: freshly-squeezed beams!

The commissioning of the squeeze to a beta\* of 1 m in ATLAS and CMS described in the last Bulletin

took until Wednesday, 7 September to complete. In order to validate the new settings, beam losses were provoked in a controlled way with low intensity beams. These losses were mapped to provide a full understanding of the machine. These loss maps showed that the machine was ready for us to ramp the number of bunches back up and go to physics production.

The ramp-up of the number of bunches went smoothly with fills at 264, 480 and 912 bunches on the way back to the machine's previous record of 1380 bunches (first fill on Friday, 9 September). The 1 m  $\beta^*$  squeeze paid off with the expected 50% increase in luminosity. After gently increasing the bunch intensity, the peak luminosity was up to a truly

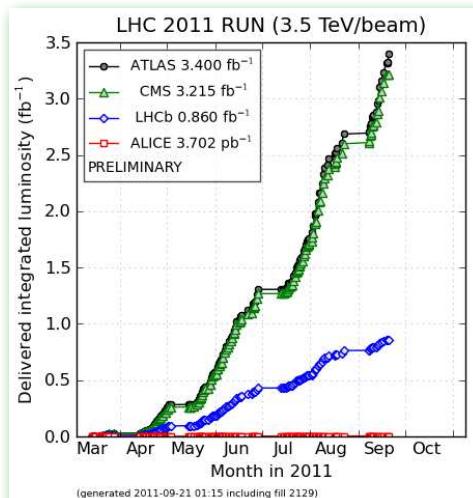
**After carefully mapping beam losses to validate the new machine settings, the LHC was ready for improved operation. New luminosity records have been set, but the operations team continues to wrestle with machine availability issues.**

impressive  $3.3 \times 10^{33} \text{ cm}^{-2} \text{ s}^{-1}$ . This is one third of the design luminosity - delivered at half design energy, with half the design number of bunches, and without the full squeeze (the design  $\beta^*$  at full energy is 0.55 m). This is possible due to the excellent beam quality produced by the injectors, which provide the LHC with bunches with small transverse beam sizes and a higher-than-nominal number of protons per bunch.

Integrated luminosity potential was also demonstrated with one fill delivering 115 inverse picobarns to ATLAS and CMS in around 17 hours. However, the LHC is still a big beast and the operations team continues to wrestle with machine availability issues. The total integrated luminosity for the year is

now around 3.4 inverse femtobarn in ATLAS and CMS and 0.88 inverse femtobarn in LHCb with 5 weeks of proton physics operation left in 2011.

*Mike Lamont for the LHC Team*



## Hadron therapy takes off in Europe

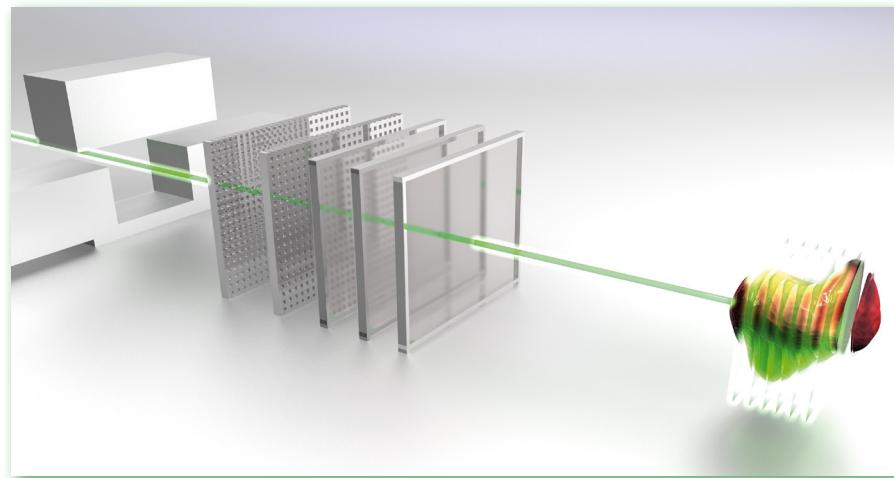
Thanks to a very active multidisciplinary community consisting of physicists, biologists, radiobiologists, engineers, IT specialists and medical doctors, hadron therapy is taking off in Europe. Indeed, after a few decades during which the innovative technique was mainly used experimentally in Japan, the US and a couple of pioneer-

A joint meeting of ULICE, ENLIGHT and PARTNER recently took place in Marburg (Germany). The three initiatives are shaping both the present and the future of hadron therapy in Europe, where new cutting-edge facilities have started to fight cancer with beams of protons and carbon ions.

ing laboratory-based facilities in Europe, today an increasing number of hospitals are being equipped with synchrotrons and dedicated treatment rooms. "Asia and Europe are at the forefront of research and

use of carbon ions in the treatment of some rare and radio-resistant tumours," confirms Marco Durante from the Helmholtzzentrum für Schwerionenforschung (GSI, Germany). "On the other hand, in the US it's becoming almost routine to use protons instead of the conventional radio treatment with photons."

The advantage of using protons and ions instead of photons resides in the fact that, thanks to their fundamental properties, they have proven to be more focused projectiles. Carefully guided by cutting-edge equipment, they can deposit a large amount of energy in a tumour and only a small amount in the surrounding tissues, which thus have a much better chance of remaining healthy. "An increasing number of hospitals in Europe are investing in hadron-therapy facilities, which involve clinicians as well as physicists, biologists and engineers. It is of paramount importance to share data, information and best practices, as well as information on treatment procedures, protocols and strategies. For this reason, back in 2002 the various communities came together to set up ENLIGHT, the European Network for LIGHT ion Hadron Therapy, which was funded by the EC for three years," says Manjit



A pictorial representation of a raster scan on a tumour. (Photo courtesy of HIT/GSI/Siemens.)

(Continued on page 4)

# Hadron therapy takes off in Europe

(Continued from page 3)

Dosanjh, who now coordinates ENLIGHT++, which builds on the ENLIGHT mission and continues without funding. Manjit, who is in charge of life sciences at CERN within the Knowledge Transfer Group, continues: "In Marburg, members of the ENLIGHT community were able to touch base on the progress that has been made and were also able to start planning for the future. The whole community is taking advantage of the exchanges between the institutes and this, of course, translates into better treatment for patients."

"Hadron therapy is proving very effective in fighting certain types of cancer," adds Manjit. "The Heidelberg Ion Therapy Centre (HIT) in Germany is using protons and carbon ions with very encouraging results, and CNAO is in the process of starting the first treatments with protons. The community is currently aiming to treat patients in larger numbers and with increased efficiency. This will very likely open the way towards more cost-effective solutions."

The sharing of clinical experience and the complex technical aspects of hadron-therapy treatment are also an important pillar of the Union of Light Ion Centres in Europe (ULICE) programme, the EU-funded project that responds to the need for greater access to facilities, in particular those using light ions. "One of the aims of ULICE is to provide patients and their referring physicians, as

well as researchers, with access to hadron beams at particle treatment facilities," says Roberto Orecchia, Scientific Director of CNAO, Director of the Radiotherapy Division at the European Institute of Oncology (IEO) and ULICE project co-ordinator. "At the meeting in Marburg, members of the ULICE community were able to touch base on the first results that the transnational access activities are bringing to the project. This is exemplified by a recent project that will bring French patients to HIT. New opportunities will also be offered soon by our institute in Italy."

"The possibility for researchers to see what is being done by other experts is essential for the development of new instruments and protocols," confirms Richard Poetter from the Medical University of Vienna, chairman of the ESTRO Training and Education Programme and co-ordinator of the Joint Research Activities pillar of ULICE. "Under the umbrella of ULICE, scientists from different disciplines and countries are working on new gantry designs, novel adaptive treatment planning and common protocols for patient selection. We also plan to develop a shared database for specific tumours which can best be treated using carbon ions."

The Marburg meeting also dedicated half a day to presentations by the PARTNER researchers, summarising what the young professionals involved have achieved so far.

"Thanks to PARTNER, 25 young biologists, engineers, physicians and physicists are working with leading European institutes to explore new avenues for more effective treatment of cancer with particles," states Manjit Dosanjh, who is also the co-ordinator of the project. During the presentations, the researchers showed the latest results on a variety of different subjects that ranged from the response of the cell cycle to particle beams, their role in combination with chemotherapy, and the possibility of developing image-guided hadron-therapy treatment.

Together with Japan and other countries in Asia and several centres in the US, Europe is leading the efforts to fight cancer with particles. At the time of going to print, CNAO will have just started to treat its first patient with protons. After several years of research and testing, European oncology is reaping the fruit of its investments.

See the interview at

<http://cdsweb.cern.ch/record/1384397>

CERN Bulletin



A patient undergoing radiotherapy treatment at the Genolier clinic.

## Further reading:

- A collection of articles showing the role of CERN in the development of hadron therapy is available in the CDS database. In particular, you will find information about CNAO and MedAustron – the two facilities whose design is based on PIMMS, the pioneering accelerator study for hadron therapy developed at CERN.
- The first joint ICTR-PHE conference ("Uniting physics, biology and medicine for better health care") in February 2012.

# Breaking the ground for HIE-ISOLDE

**H**IE-ISOLDE is a major upgrade, which will make the 44-year-old ISOLDE an internationally unique facility capable of accelerating heavy radioactive elements like no other. This important feature will allow the large ISOLDE scientific community to set up new experiments and explore the nuclear structure over the entire nuclear chart.

A new superconducting linear accelerator, new beam lines and improved targets will replace the current installations. The cost of the upgrade is estimated at around 36 million Swiss francs. It will be shared equally between CERN, which will build the infrastructure and main services, and the participating external institutes, which will finance the equipment. "ISOLDE will morph into HIE-ISOLDE in several stages,"

**Have you noticed that Building 135 has disappeared from the Meyrin site? The old hangar used by the transport service – now located on the Prévessin site – has been removed to make room for the civil engineering work for the High Intensity and Energy ISOLDE (HIE-ISOLDE) installations. The work began at the end of August and it will not be long before new buildings start to appear in the ISOLDE premises.**

explains Yacine Kadi, HIE-ISOLDE project leader. "We have planned the work in such a way as to minimize the disturbance to the experiments."

The new electrical systems and the cooling and ventilation installations will be housed in new buildings that should be completed by mid-2012. "We will then take advantage of the long shutdown of the machines to install the first modules of the new superconducting accelerator. This configuration should deliver the first beams at 5.5 MeV per nucleon by the autumn of 2014. Higher-energy beams – up to 10 MeV per nucleon

– should be available to users by April 2016," says Erwin Siesling from the BE Department, who is co-ordinating the installation.

Thanks to the very tight and carefully planned schedule, the various experiments currently receiving beams from ISOLDE will not suffer much from the upgrade work as there will be only a very small reduction in their beam time. "We are looking forward to the new facility," confirms Yorick Blumenfeld, spokesperson of the ISOLDE Collaboration. "HIE-ISOLDE will provide users with the world's largest variety of isotopes. The new beam lines will provide beams at higher energy and intensity. This will open up new ways to exploit the facility, which will become an unprecedented tool for nuclear physicists."

The details of the HIE-ISOLDE installation can be viewed on the slide show:

<http://cdsweb.cern.ch/record/1384410>

CERN Bulletin



Beamlines in the ISOLDE Hall.

# From the Tevatron to Project X

The end of September marks the end of an era at Fermilab, with the shutdown of the Tevatron after 28

years of operation at the frontiers of particle physics. The Tevatron's far-reaching legacy spans particle physics, accelerator science and industry. The collider established Fermilab as a world leader in particle physics research, a role that will be strengthened with a new set of facilities, programmes and projects in neutrino and rare-process physics, astroparticle physics, and accelerator and detector technologies.

The Tevatron exceeded every expectation ever set for it. This remarkable machine achieved luminosities with antiprotons once considered impossible, reaching more than  $4 \times 10^{32} \text{ cm}^{-2} \text{ s}^{-1}$  instantaneous luminosity and delivering more than  $11 \text{ fb}^{-1}$  of data to the two collider experiments, CDF and D0. Such luminosity required the development of the world's most intense, consistent source of antiprotons. The complex process of making, capturing, storing, cooling and colliding antiprotons stands as one of the great achievements of Fermilab's accelerator team.

The life of the Tevatron is marked by historic discoveries that established the Standard Model. Tevatron experiments discovered the top quark, five B baryons and the Bc meson, and observed the first  $\tau$  neutrino, direct CP violation in kaon decays, and single top production. The CDF and D0 experiments measured top quark and W boson masses and di-boson production cross-sections. Limits placed by CDF and D0 on many new phenomena and the Higgs boson guide searches elsewhere, and continuing analysis of Tevatron data may yet reveal evidence for processes beyond our current understanding.

As we bid farewell to the Tevatron, what's next for Fermilab? Over the next decades,

In the October issue of the CERN Courier, Fermilab Director Pier Oddone will present the past, present and future of the US laboratory after the Tevatron. The Bulletin presents some early extracts from his article...



Fermilab Director, Pier Oddone.

we will develop into the foremost laboratory for the study of neutrinos and rare processes – leading the world at the intensity frontier of particle physics.

The cornerstone for Fermilab's leadership at the intensity frontier will be a multi-megawatt continuous-beam proton accelerator facility known as Project X. This unique facility is ideal for neutrino studies and rare-process experiments using beams of muons and kaons; it will also produce copious quantities of rare nuclear isotopes for the study of fundamental symmetries. Coupled to the existing Main Injector synchrotron, Project X will deliver megawatt beams to the Long-Baseline Neutrino Experiment.

Project X's rare-process physics programme is complementary to the LHC. If the LHC produces a host of new phenomena, Project X experiments will help elucidate the physics behind them. Different models postulated to explain the new phenomena will have different consequences for very rare processes that will be measured with

high accuracy using Project X. If no new phenomena are discovered at the LHC, the study of rare transitions at Project X may show effects beyond the direct reach of particle colliders. Project X could also serve as a foundation for the world's first neutrino factory, or – even farther in the future – as the front end of a muon collider.

In parallel with the development of its intensity frontier programme, Fermilab will remain a very strong part of the LHC programme as the host US laboratory and a Tier<sup>1</sup> centre for the CMS experiment, and through participation in upgrades of the LHC accelerator and detectors.

As Fermilab's staff and users say goodbye to the Tevatron, we look forward to working with the world community to address the field's most critical and exciting questions at facilities in the US, at CERN and around the world.

*Pier Oddone's complete article will be available in the October issue of the CERN Courier.*

*Pier Oddone, Fermilab Director  
(from CERN Courier)*

## Tevatron's shutdown, Friday 30 September

There will be a live broadcast showing the activities in Fermilab's accelerator, CDF and DZero control rooms. The broadcast will start at 8pm CET and will last for approximately 30 minutes. It will be moderated by Pier Oddone, and will include remarks about the Tevatron's legacy and the future of the laboratory. In addition, the Tevatron webpages (<http://www.fnal.gov/pub/tevatron/milestones/interactive-timeline.html>) include an interactive timeline of milestones from the Tevatron's three-decade history.

# John Ellis considers cosmology, colloquiums and new collaborations

## How did your birthday colloquium come about?

When physicists here at CERN reach a “certain age” – or reach a transition point in their careers – it is traditional to hold some kind of colloquium. I had previously resisted pressure to hold one of these events. But this year, my official duties for the Organization have come to an end. While it is unlikely you will see any difference in my working habits, it was a milestone that proved too important to not give into requests for an event.

Rather than a very long sequence of people talking about what they did with me in the dim and distant past, I asked my friends to organise the colloquium around what is going on now. There were discussions of the future of experimental and theoretical particle physics, as well as significant discussion on cosmology.

## Two areas of physics that you've been instrumental in bringing together. When do you think the two will finally become a single area of study?

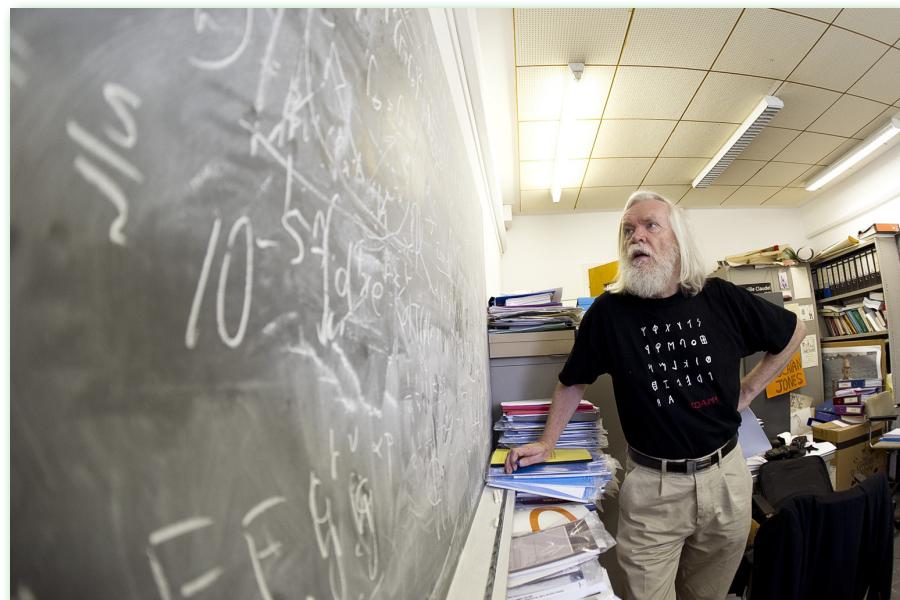
Quite honestly, I regard these fields of particle physics, and high-energy astrophysics or cosmology as already having basically merged. I don't really notice when I am writing a paper, whether I am writing a particle physics paper or a cosmology paper – often it is a combination of the two. There's a

On 13 September, physicists from around the world joined John Ellis in a colloquium to celebrate his 65th birthday. In our last issue, we talked to John about the Higgs, the lack of the Higgs, and extra dimensions. In this second part of the interview, John speaks about the colloquium and the wide range of topics it covered, all inspired by his career.

symbiotic relationship between the two fields – astrophysics and cosmology feed into particle physics, and vice versa. I am currently writing a paper about the theoretical implications of the non-discovery of supersymmetry so far at the LHC. The key elements of our analysis take what would you expect if supersymmetry were responsible for dark matter in order to explore what would you expect from astrophysical searches and cosmology experiments – all the while taking into account that supersymmetry has not yet been seen in the LHC.

## The colloquium also addressed expanding CERN's scientific collaborations outside Europe. What do you think the future will look like for CERN's non-European collaborators?

I acted as non-member state representative for 13 years, and now I really like to think of the E in CERN as meaning “Everywhere”, as opposed to “European”. More and more non-European states are taking steps to formalise their relationship with the Organization. The first non-European nation, Israel, signed on September 16th to become an Associate Member State of the Organisation, on the way to becoming a full Member State.



John Ellis in his office (July 2011).

Other non-European countries – like Brazil and India – are actively considering at least becoming Associate Members.

In some sense, these new collaborations are merely formalising existing relationships. Many of these countries have had physicists working at CERN for a long time; they've been part of the CERN community for decades.

I think this global quality is intrinsic to particle physics, as it deals with subjects that are of interest to everybody. Whether you live in Africa, Latin America, Australia – anywhere – you are interested in the fundamental questions explored at CERN. What is dark matter? How did the universe evolve? What is matter made of? These are universal questions undefined by geography, and it is only natural that people from across the globe are interested in working on them.

On the other side of the coin, it has become clear that this type of research requires massive resources. We are at a stage where, as a scientific community, there are very few centres in the world where this research is done at the cutting edge. We're evolving toward a situation where we will have a limited number of laboratories around the world, and each will be the “world centre” for a particular type of fundamental physics. While CERN might be the world centre for doing collider physics at high energies, another laboratory may be the world centre for precision physics at lower energies, another for neutrino physics, and so on.

When we are planning our future projects we need to think of them as global projects, with stakeholders around the world. Some of them may already be members of the Organisation, while others may be outside the Organisation but could join on an ad-hoc basis for that particular project. This might be the case for the LHC upgrade, CLIC or the ILC. The world is becoming a ‘subnuclear family’.

Katarina Anthony

# The wish of a lifetime

To describe English teenager Marcus as a passionate aspiring physicist would be putting it mildly:

"My trip to CERN was like bringing a goblin to a gold mine," says Marcus. "CERN hosts the biggest physics experiment around and getting to visit it was supermassive to me." After receiving his diagnosis last year, Marcus threw himself into his studies – particularly his physics classes. Despite 6 weeks of radiotherapy and months of home tutoring, his work paid off: he received an A\*

**When 16-year-old Marcus was diagnosed with a brain tumour in September 2010, he asked the Make a Wish Foundation for one rather unusual thing: to see the LHC. On 23 August, CERN got together with the Foundation to make that wish come true.**

in his Physics GCSE, earning an outstanding 100% score. Thanks to the Make a Wish Foundation, Marcus found himself celebrating his results at CERN.

For over 31 years, the Make a Wish Foundation has been granting wishes to thousands of children and teenagers with life-threatening illnesses. In order to grant

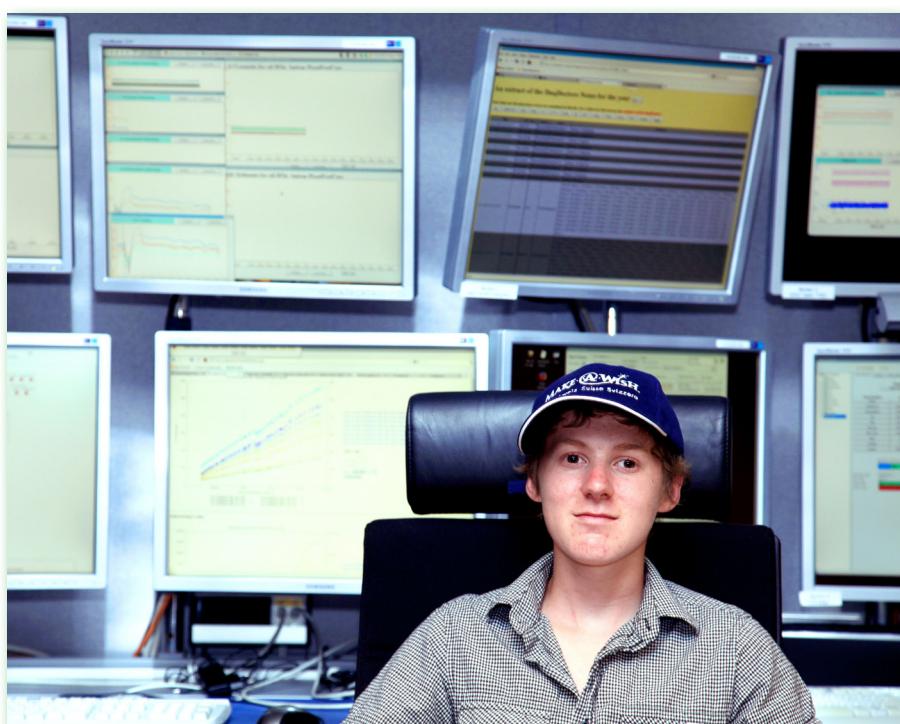
Marcus' wish, the Foundation teamed up with CERN to organise an unforgettable day. To make the day extra special, they enlisted the help of Wolfgang von Rüden, the recently retired Head of CERN openlab and former Head of the IT Department.

On the big day, Wolfgang picked Marcus and his family up from their hotel in Geneva. From there, it was off to the Universe of Particles exhibition and then the CERN Control Centre for a guided tour with Django Manglunki. After lunch, Marcus and his family were taken to Point 5 to meet Dave Barney and Micheal Hoch, who took them to visit the CMS Underground Service Cavern and the CMS control centre. "The physicists at CERN were really interesting and inspiring people, and it was an amazing opportunity to meet them," recounts Marcus.

But the day wasn't over yet, and Marcus still had one more physicist to meet: John Ellis. "A very 'out of this world' moment was talking to John Ellis, who was great to have debates with about the outer workings of the Universe," says Marcus. "We may have gone a bit beyond the limits of human knowledge, but that is what science is all about." For the last stop on his trip, Wolfgang took Marcus to the CERN Computing Centre.

Marcus is planning to study physics at university, and hopes some day to return to CERN as a physicist. "I want to thank everyone at CERN for taking the time to do this for me, it meant a lot," he concludes.

Katarina Anthony



*Marcus in the CMS Control Centre.*



*Marcus with theorist John Ellis. (Photo by Claudia Marcelloni)*

# Kofi Annan visits CERN

Arriving in the early afternoon, Kofi Annan and his family were greeted by Director-General Rolf Heuer on the steps of Building 500. After a quick introduction to the Laboratory, they were whisked off to SM18 for a tour of the LHC's superconducting magnet test hall, guided by Technology Department Head Frédéric Bordry.

After a light lunch in Restaurant 2, Kofi Annan added his signature to CERN's Guest Book. He is the second UN Secretary-General to add their name to CERN's roster; his successor Ban Ki-Moon's visited CERN in 2008. Kofi Annan was then guided by spokesperson Fabiola Gianotti on a tour of ATLAS's Visitor Centre. This was an opportunity for some of the younger members of the ATLAS collaboration to meet the former Secretary-General and to answer his questions about the experiment. Kofi Annan and his family ended their visit at the Universe of Particles exhibition in the Globe.

*Katarina Anthony*

On Tuesday 13 September, former Secretary-General of the United Nations and Nobel Peace Laureate Kofi Annan paid a visit to CERN.



# 2011 World Engineer's Convention: Engineers Power the World

From 4 – 9 September 2011, more than 2000 engineers and researchers, as well as politicians and business representatives from about 100 countries gathered at the 2011 World Engineer's Convention (WEC). Held in Geneva, they met to discuss solutions for a sustainable energy future.

Discussions looked at the development of engineering solutions through a variety of approaches, with CERN demonstrating how basic research can act as a catalyst for new technologies.

"There is a symbiotic relationship between the fundamental and applied sciences," explains CERN's Director-General, Rolf Heuer. In his keynote speech entitled 'Engaging with Science in a Science-based age – Innovation, large-scale science projects and their impact on society', Heuer described how CERN's research has acted as a driving force for various technological innovations, such as the development of PET-scan technology. "Fundamental research is innovation, needs innovation and drives innovation," says Rolf Heuer. "Forefront science needs and drives forefront technologies and engineering."

Can the increasing global energy consumption be met without intensifying global warming? Do the necessary technical solutions exist, and is the switch to a low-carbon energy supply feasible and financially viable? These crucial questions and many others were dealt with at the 2011 World Engineer's Convention (WEC). CERN was invited to participate in the event, highlighting its significant contribution to global engineering with an exhibition space devoted to the LHC on the convention floor and a keynote speech delivered by CERN's Director-General.



CERN was also present in the exhibition section to highlight the Laboratory's excellence in engineering and illustrate the many technological spinoffs stimulated in diverse areas by development of the Large Hadron Collider. "WEC was an opportunity for us to showcase the extraordinary engineering feats that have been achieved at CERN," says Ray Lewis, who managed the logistics of CERN's WEC exhibition on behalf of the Education Group. "Over 60 engineers and technicians from across the Organization helped us create the content for the exhibition and many of them acted as CERN's representatives on the convention floor."

Imitating the LHC ring, the exhibition took the form of a semi-circular display design with a graphic representation of the LHC running across all panels. Various materials were used to showcase CERN's diverse and

complex engineering, covering the areas of detector technology (the four large experiments), accelerating techniques, cryogenics, vacuum technology, timing precision and beam control, civil engineering, computing, and data storage. The impact of CERN's research on society was also part of the exhibition space, featuring some examples of CERN's fundamental research finding applications in fields other than high energy physics.

The goal of the convention was to identify future-proof energy solutions through an open exchange of ideas and information. But while technical discussions on urban development, energy conversion and renewable energy are essential, applying new ideas will not be an easy task. "Engineers alone cannot change the world," said Ruedi Noser, president of WEC

2011, during the opening ceremony. "It is necessary for engineers to step out of their laboratories, talk to people and look for solutions."

WEC was jointly organized by Swiss Engineering, the Swiss Society of Engineers and Architects (SIA), Electrosuisse, FTAL (Symposium for Engineering, Architecture and Life Sciences), and the Swiss Academy of Engineering Sciences (SATW). The patrons of the convention were UNESCO, WFEO and the Swiss Confederation.

*Yi Ling Hwang  
and Katarina Anthony*



The CERN exhibition at the 2011 World Engineer's Convention.

# CERNois wins prestigious accelerator award

The Frank Sacherer Prize is awarded to physicists who have made a "significant, original contribution to the accelerator field" early on in their career. This year the prize was given to Rogelio Tomás García who, at only 35 years of age, has made important contributions to the optics design, optics measurement and correction techniques applied at both the LHC and Brookhaven's RHIC. "Tomás has had a vital impact on CERN's beam optics studies and has made very impressive achievements in the field of beam optics," says Oliver Brüning, Head of the Accelerators and Beam Physics group of the BE Department. The EPS board also gave particular praise to Tomás' use of theoretical knowledge to create highly practical solutions for accelerators.

After earning an undergraduate degree at the University of Valencia, Tomás came to CERN to work on his PhD. His research focused on finding ways to measure the non-linear beam dynamics of the SPS. Upon publication, the technique described in his thesis was used by a number of accelerators – including DIAMOND in the UK – to correct deviations in particle trajectories and to improve on the lifetimes of particle beams.

Tomás subsequently worked at Brookhaven's RHIC and the ALBA synchrotron in Barcelona, before returning to CERN

During the 2nd International Particle Accelerator Conference, CERN's Rogelio Tomás García became the first Spaniard to receive the Frank Sacherer Prize for his work in particle beam optics.



Rogelio Tomás García at the 2nd International Particle Accelerator Conference.

in 2005. Applying all his skills in beam technology to the LHC, Tomás' work to improve beam optics at interaction points resulted in a reduction of the percentage error of beam sizes from 20% to 10%. He has also worked on the CLIC beam delivery system, making improvements that resulted in a predicted 70% increase in beam luminosity.

We wish him every success in his promising career.

Katarina Anthony

## Interview with Brazilian astrophysicist Luciana da Cunha Ferreira

In September 2011, CERN hosted Brazilian astrophysicist, Luciana da Cunha Ferreira, in a weeklong teacher-training programme. Luciana was the first indigenous person from the Amazon region to visit CERN, and plans to share her new-found knowledge of the LHC with other indigenous people on her return to Brazil.

See the interview at

<http://cdsweb.cern.ch/record/1384412>

CERN Bulletin

## Storks deliver new physics?

On Thursday 15 September, a dozen storks spent the night on the roof of CERN's Building 60...

See the video at

<http://cdsweb.cern.ch/record/1384411>

CERN Bulletin

# CAS Accelerator Physics (High-Power Hadron Machines) in Spain

After recapitulation lectures on the essentials of accelerator physics and review lectures on the different types of accelerators, the programme focussed on the challenges of designing and operating high-power facilities. The particular problems for RF systems, beam instrumentation, vacuum, cryogenics, collimators and beam dumps were examined. Activation of equipment, radioprotection and remote handling issues were also addressed.

The school was very successful, with 69 participants of 22 nationalities. Feedback from the participants was extremely positive, praising the expertise and enthusiasm

**The CERN Accelerator School (CAS) and ESS-Bilbao jointly organised a specialised course on High-Power Hadron Machines, held at the Hotel Barceló Nervión in Bilbao, Spain, from 24 May to 2 June, 2011.**

of the lecturers, as well as the high standard and excellent quality of their lectures.

In addition to the academic programme, the participants were able to take part in a one-day excursion consisting of a boat trip and visit to the Bizkaia Hold Bridge, with time to visit the famous Guggenheim Museum in the afternoon. A welcome drink, held at the new Parainfo building in Bilbao, was attended by the Basque Minister of Education, Isabel Celáa. A special dinner was attended by Dr Steve Myers, CERN's Director

for Accelerators and Technology, and Pedro Luis Arias, the Basque Vice Minister of Education.

The next specialised CAS course will be on "Ion Sources" and will take place in Senec, Slovakia, from 29 May to 8 June, 2012. Information will shortly be available on the CAS website., at:

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

CAS



CERN Accelerator School students.

# e-EPS News: Highlights from the European Physical Society

## Conseil de Physique Solvay centenary

**e-EPS News is a monthly addition to the CERN Bulletin line-up, showcasing articles by the e-EPS – the European Physical Society newsletter – as part of a collaboration between the two publications.**

One hundred years ago the celebrated first *Conseil de Physique Solvay* took place in Brussels, with the participation of the leading physicists of the time. It marked a profound rupture between the old classical physics and the new quantum physics that described the strange behaviour of nature at the microscopic level. The conference was one of the most important events in the advent of the quantum revolution; no such physics conference since has acquired the same legendary status.

To celebrate the centenary of this unique conference, the International Solvay Institutes are organizing a series of exceptional events that will make Brussels the world capital of physics for ten days in October.

For more information, please visit the Solvay Institutes website at:

<http://www.solvayinstitutes.be/index.php?pageid=4>

## EPL publishes its first paper from the LHC

EPL has published its first article from the Large Hadron Collider, in the August issue this year. The paper, submitted by the TOTEM experiment, was entitled: 'Proton-proton elastic scattering at the LHC energy of  $\sqrt{s} = 7\text{TeV}$ '. EPL looks forward to publishing other such results from the experiments at CERN in the future.

## FP7 publishes monitoring report for 2007-2010

The European Commission has published the fourth FP7 Monitoring Report,

which covers the implementation of the Framework Programme during 2007-2010. It provides, among other items, a detailed analysis of participation patterns; implementation management and quality issues; and the current situation with regard to the simplification process.

The report has a number of features of interest to EPS members, including lists of top university participants and research organisations. The report calls attention to the magnitude of the FP7, with 245 calls, more than 77,000 proposals and more than 312,000 applicant organisations and individuals.

The full report is available on the European Commission's website.

*e-EPS*



## Send your data into the cloud and make it... vaporize

**B**asically, it means storing data somewhere on

the Internet. This certainly has advantages, since this data will be available anytime from anywhere. For example, the Google mailbox is available from everywhere; "Dropbox" provides a central storage for any type of files; "ZAPR" and "TeamViewer", once installed, allow you to share your local files by just sending around links, or give third parties full remote access to your PC, respectively. In addition, there is a growing number of cloud synchronisation services (e.g. "iCloud"/"MobileMe", "Firefox Sync", "Dropbox") which provide (semi-)automatic back-ups of all local files of a laptop, PC or mobile phone.

But hold on. What actually is transferred into the cloud? Personal files like bank statements? Passwords, especially CERN passwords, too? "Back up" usually encom-

**"Cloud computing" --- the term is as nebulous as real clouds.**

passes everything, including those passwords and bank statements. Furthermore, is this data properly protected? The actual degree of security provided by a cloud services is often extremely difficult for random users to find. Just recently, "Dropbox" confirmed that "a programmer's error caused a temporary security breach that allowed any password to be used to access any user account" and, thus, any user's data. There the passwords and the bank statements vaporize...

Thus, be careful when using cloud services. Make sure that you do not leak sensitive or personal files to those services. In particular, avoid installing programs on your PC which synchronize with cloud storages (like the "Dropbox" plugin), or, worse, open up your computer for remote access from

anywhere (like "TeamViewer"). Do not use peer-to-peer applications that export the contents of certain local folders onto the Internet. Finally, do not register your CERN account and password with external cloud services (e.g. Google mail). You have committed to protect your CERN password against disclosure...

Also recall that CERN is a cloud service provider, too. Your CERN mailbox is available, too, from the Internet as well as your files stored on DFS or on AFS. Remote log-in is possible through the LXPLUS cluster or the CERN Windows terminal service. So why not use a service which you can trust? Check the different means to connect to CERN from the Internet here.

If you have questions, suggestions or comments, please contact Computer. Security@cern.ch or visit us at <http://cern.ch/security>.

Computer Security Team



### News from the Library

**T**he highlight of this series of scientific journals is the complete collection of the well-known Philosophical Magazine, published from 1798. This journal includes papers from many illustrious scientists such as Faraday, Joule, Rutherford, Bohr and de Broglie. In 1897, Philosophical Magazine series 5 published famous J.J. Thomson's article 'Cathode Rays', where he gives an account of the discovery of particles he called "corpuscles", later named "electrons". A few years later, in 1919, the magazine featured the paper by Rutherford describing the first artificial transmutation of an element:

**The CERN Library has just acquired the online archives of the Physics journals published by Taylor & Francis.**

'Collision of a Particles with Light Atoms. IV. An Anomalous Effect in Nitrogen.' Many other important journal titles are included in the archives, such as Contemporary Physics and Advances in Physics.

As usual, all these journals are accessible from any computer on the CERN site, but also from outside CERN, thanks to the Library proxy service at:

[https://library.web.cern.ch/library/  
Library/remote.html](https://library.web.cern.ch/library/Library/remote.html)

The full list of journals is available at:

<http://www.tandf.co.uk>

Full information will be added to the CERN Document Server in the coming days.

Please send any question or comment at [library.desk@cern.ch](mailto:library.desk@cern.ch)

CERN Library



# 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.

## FORTHCOMING INDEFINITE CONTRACT REVIEW PROCEDURE

The vacancy notices for posts opened with a view to the award of an indefinite contract will be published as from the last week of September. In the meantime, the list of posts to be opened is available at the following address:

[https://hr-recruit.web.cern.ch/hr-recruit/staff/Autumn\\_2011\\_listofslots.pdf](https://hr-recruit.web.cern.ch/hr-recruit/staff/Autumn_2011_listofslots.pdf)

Information sessions for candidates are being organised for 26 and 27 September 2011.

For more information please consult:

<https://hr-recruit.web.cern.ch/hr-recruit/staff/IndefiniteContracts.asp>

*HR Department*

## END-OF-YEAR CLOSURE 2011/2012

(Application of Articles RII 4.38 and RII 4.39 of the Staff Regulations)

Annual closure of the site of the Organization during the Christmas holidays and days of special leave granted by the Director-General:

The Laboratory will be closed from Thursday 22 December 2011 to Wednesday 4 January 2012 inclusive (without deduction of annual leave). The first working day in the New Year will be Thursday 5 January 2012.

Tel. 73903  
Human Resources Department



## ASSIGNMENT OF PERSONNEL TO WORK IN SWITZERLAND BY COMPANIES FROM THE EUROPEAN UNION / EFTA<sup>(1)</sup>

Before performing any services at CERN, companies not established in Switzerland are required under the Swiss legislation in force to make a declaration to the Swiss Federal Office for Migration or to obtain work permits from the Geneva authorities for the employees they intend to assign to work on the Swiss part of the CERN Site.

At the request of the Swiss authorities, CERN cannot register employees to whom this legislation applies except in the following circumstances:

**Case No. 1: Work lasting less than 90 days in the case of companies from the EU-25/EFTA;**

**Case No. 2: Work lasting less than 90 days in the case of EU-2 countries (Bulgaria and Romania);**

**Case No. 3: Work lasting more than 90 days in the case of companies from the EU-27/EFTA.**

In case No. 1, an *attestation d'annonce* (declaration certificate) must be obtained. The declaration must be made via the Internet, using the official declaration form, at least 8 days before the start of the services. It is required only if the company performs more than eight days of work within a calendar year. See [http://www.bfm.admin.ch/content/bfm/fr/home/themen/fza\\_schweiz-eu-efta/meldeverfahren.html](http://www.bfm.admin.ch/content/bfm/fr/home/themen/fza_schweiz-eu-efta/meldeverfahren.html)

N.B. A declaration must be made even for a single day of work in the case of services relating to construction, cleaning, catering and security.

In case No. 2, a work permit must be obtained from the Geneva *Office Cantonal de la Population* (OCP).

In case No. 3, a work permit must be obtained from the Geneva OCP.

All the different procedures can be consulted on the Republic and Canton of Geneva's website concerning the employment of foreign nationals:

<http://www.ge.ch/moe/fr/procedures.asp>

You may also consult: [www.detachement.ch](http://www.detachement.ch)  
CERN's Registration Service cannot issue access cards to the employees concerned unless the necessary declaration certificates or work permits are presented.

We should like to take the opportunity to remind you of the following:

- As a general rule, when a company that is not established in Switzerland provides services in that country, the employees it temporarily assigns to perform them are subject to public order provisions as well as to the provisions of collective agreements applicable to employees of companies in the same sector established in Geneva, notably in respect of health and safety, minimum remuneration, working hours, the duration of rest periods and leave, and working conditions. This implies, for instance, that the wage must be at least equivalent to the minimum wage laid down by collective agreement for the job concerned for each hour actually worked;
- Night work (i.e. between the hours of 11.00 p.m. and 6.00 a.m.) and work on Sundays and official holidays is authorised only for urgent assignments duly established as such and requires a permit to be obtained (<http://www.geneve.ch/sante-travail/derogation.asp?inc=1>);
- Nationals of a non EU-25/EFTA country may be assigned to work in Switzerland if they have held a residence permit in an EU-25/EFTA country for at least 12 months;
- The information provided at bidders conferences organised by CERN represents only the general guidelines and does not absolve firms of their obligation to obtain the necessary information independently (e.g. from legal advisers, financial bodies or the competent authorities).

*Relations with the Host States Service*  
[www.cern.ch/relations](http://www.cern.ch/relations)  
[relations.secretariat@cern.ch](mailto:relations.secretariat@cern.ch)  
Tel. 72848

<sup>(1)</sup>EU-25: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.

EU-27: EU-25 + Bulgaria and Romania.

EFTA – European Free Trade Association:  
Iceland, Liechtenstein, Norway.



## Take note

### PREPARATION FOR RETIREMENT SEMINAR

The Human Resources Department is organizing a **Preparation for Retirement Seminar**, which will take place **on the afternoon of 18 and 21 October 2011 in the Main Auditorium and on 19 October and 15 and 16 November 2011 in the afternoon in the Council Chamber**. Similar seminars in the past have always proved highly successful.

Retirement marks the end of a person's working life and the start of a new chapter. This period of transition is experienced differently from one individual to another. In all cases, being well-informed and prepared greatly facilitates the change in lifestyle.

#### We would like to draw your attention to the following information:

**Staff concerned:** All staff members aged 58 and above have been sent a personal invitation to attend. Spouses are welcome.

Staff members under the age of 58 who are interested in attending the seminar may also apply. Their applications will be accepted subject to availability of places.

**Registration:** In view of the number of people concerned, you are requested to register in advance via Indico at the following address:

<https://indico.cern.ch/conferenceDisplay.py?confId=141029>

You may register for all the sessions or only for the subjects of interest to you.

One afternoon will be devoted to retirement in each the two Host States, Switzerland and France respectively. These two sessions are particularly designed for those:

- \* who intend to take up residence in one of these countries on retirement,
- \* who have worked and acquired pension rights in one of these countries.

**Presentations:** The speakers will be experts either within or outside the Organization. Each speaker will make a presentation, underlining the key points for prospective pensioners to note and/or take into account. They will then take questions. Most of the presentations will be given in French. However, you are welcome to put your questions in English. Members of the CERN-ESO Pensioners' Association (GACEPA) will attend each session and may possibly supplement presentations with comments based on their own experience. The details of the (provisional) programme can be found at:

<https://indico.cern.ch/conferenceDisplay.py?confId=141029>

**Questions:** You may submit your questions in advance when you register via Indico. They will be transmitted to the speaker concerned to allow him to reply. Naturally, it will not be possible to discuss details of individual cases, for which the various internal and external services are available to you.

**Documentation:** The overhead presentations, the complete video recording and a summary of the question-and-answer sessions will be available on Indico on the same site as the programme.

Please also note that the brochure "When you leave CERN" is available on the Human Resources Department website at the following address:

[cern.ch/hr-services/Int/WYLC/default.asp](http://cern.ch/hr-services/Int/WYLC/default.asp)

If you envisage retiring in the coming two or three years, I strongly encourage you to register for this seminar.

Best regards,

Anne-Sylvie Catherin  
Head of Human Resources Department

### THE TELECOM LAB IS MOVING TO BUILDING 2, IN FRONT OF THE MAIN BUILDING



As of 28 September 2011, the Telecom Lab will move to Building 2/1-046.

Please note that the Telecom Lab desk will be closed on 28 September due to the move. For all urgent matters, please contact the Telecom Lab by mail or by phone.

The Telecom Lab is the central point for all support questions regarding CERN mobile phone services (provision of SIM cards, requests for modifications of subscriptions, diagnostics for mobile phone problems, etc.). The opening hours as well as the contact details for the Telecom Lab remain unchanged.

New location: Building 2/1-046

Opening hours: Monday to Friday, from 8 a.m. to 6 p.m.

Phone number: 72480

E-mail address: labo.telecom@cern.ch

Web page: [www.cern.ch/gsm](http://www.cern.ch/gsm)

This change has no impact on support requests for mobile services. Users can still submit their requests concerning mobile phone subscriptions using the usual EDH form (<https://edh.cern.ch/Document/GSM>).

IT/CS Group

### INFORMATION FROM THE RADIOACTIVE WASTE SECTION

The Radioactive Waste Section (DGS/RP/RW) will be unable to accept any radioactive waste on 29 September 2011.

Please take this into account when organising your transport arrangements.

### A NEW VIDEO PROGRAMME

"What's new @ CERN?", a new monthly video programme, will be broadcast on the first Monday of every month on [webcast.cern.ch](http://webcast.cern.ch). Aimed at the general public, the programme will cover the latest CERN news, with guests and explanatory features. Tune in on Monday 3 October at 4 pm (CET) to see the programme in English, and then at 4:20 pm (CET) for the French version.



**Take note**

**CCIS**  
CAMERA  
DI COMMERCIO  
ITALIANA  
PER LA SVIZZERA  
Fondata nel 1909

# Italy at CERN

10 – 13 ottobre 2011



From 10 to 13 October 2011

Industrial Exhibition

Bldg 500 & 61

## ITALY AT CERN – INDUSTRIAL EXIBITION

Nineteen companies will present their latest technology at the industrial exhibition "Italy at CERN". Italian industry will exhibit products and technologies which are related to the field of particle physics.

Individual interviews will take place at either the companies' exhibition stands or in the Main Building's conference rooms. The firms will contact relevant users/technicians but any user wishing to make contact with a particular firm is welcome to use the contact details which are available from each secretariat of department or to get in touch with Karine ROBERT.

You will find below the list of exhibitors.

### List of Exhibitors :

**Agilent Technologies** - via Varian 54 - 10040 Leini (TO)

<http://www.agilent.com/chem/vacuum>

Pioneer in vacuum technology since the 50's.

**CAEN S.p.A.** - via Vetraia, 11 – 55049 Viareggio (LU)

<http://www.caen.it/>

Data-Acquisition Electronics (standard VME, NIM, CAMAC solutions) and powered Crates.

**CECOM S.r.l.** - via Tiburtina Km 18,700 – 00012 Guidonia Montecelio (RM)

<http://www.cecomweb.com/>

Specialized in high precision machining and design.

**Iniziative Industriali S.r.l.** - COSMI Group - via Teodorico, 5 - 48122 Ravenna

<http://www.gruppocosmi.com/>

Design, supply and installation of plants in the energy sector and chemistry.

**C.S.C. S.p.A.** - via Lago Maggiore 7 - 36015 Schio (VI)

<http://www.csc-schio.com>

Special welding, design and manufacturing of components for energy, aerospace industry and scientific research.

**Dimensione S.p.A.** - via VIII Marzo n° 8 - 10095 Grugliasco (TO)

<http://www.gruppodimensione.com/>

General contractor specialized in civil works and in high tech electrical and HVAC installations.

Information: K. Robert / GS-SEM-LS / 74407  
GS Department

**Fantini Sud S.p.A.** - Strada P.le Casilina per Sgurgola n° 52 - 03012 Anagni (FR)

<http://www.fantinispa.it/>

Production of plants and equipments in all the phases of the project.

**RICA - Divisione IRCA S.p.A.** - via Podgora 26 - 31029 Vittorio Veneto (TV)

[www.zoppas.com](http://www.zoppas.com)

Heating elements and systems, with thermal control for domestic and industrial applications

**Lungari Giuseppe S.r.l.** - via Repubblica di S.Marino 44 – 41122 Modena

<http://www.lungarigiuseppe.it/>

Milling and grinding works on large size tooling machine.

**MAPRad S.r.l.** - via C. Colombo 19/i - 06127 Perugia

<http://www.maprad.com/>

Radiation Hardness Studies and Qualification for electronics.

**REVEN.GE S.r.l.** - via Sansovino, 217 - 10151 Torino

<http://www.revenge.it/>

Project and development of high tech solutions for IT projects..

**RIAL VACUUM S.r.l.** - via Tito ed Ettore Manzini, 7/a - 43126 Parma

<http://www.rialvacuum.com/>

Ultra-high vacuum and cryogenic sector applications.

**SAES Getters S.p.A.** - viale Italia, 77 - 20020 Lainate (MI)

<http://www.saesgetters.com/>

Development and production of getters for a variety of scientific and industrial applications.

**Sarvadon S.r.l.** - via Circonvallazione, 3 - 11024 Châtillon (AO)

<http://www.sarvadon.org/>

Manufacturing of steel, stainless steel, and aluminum.

**SEA ALP Engineering Consortium At Criotec Impianti S.r.l.** - via F. Parigi, 32 10034 Chivasso (TO)

<http://www.criotec.com/>

Joint venture of 7 partners for projects of plants and machinery for high energy research.

**STRUMENTI SCIENTIFICI CINEL S.r.l.** - via dell'Artigianato 14 – 35010 Vigonza (PD)

<http://www.cinel.com/>

Production and turnkey solutions for synchrotron light and particle accelerator research equipments.

**ECOR RESEARCH** - via Friuli, 11 Z.I. - 36015 Schio (VI) -

<http://www.ecor-research.com/>

Designs, manufactures, assembles and manufactures stainless steel and special alloys for the Food Industry, Pharmaceutical, Aerospace and Scientific Research.

**VAQTEC S.r.l.** - c.so Grosseto 437 – 10151 Torino

[www.vaqtec.com](http://www.vaqtec.com)

Manufacturer and distributor of competitively priced quality products for use in high and ultra high vacuum environments.

**V.C.S S.r.l.** - via Moneta 2/a Quartiere SPIP – 43100 Parma

<http://www.vcs-pr.it/>

A machine tool production company specialised in the VACUUM – HIGH VACUUM and UHV sectors.



## Take note

### SELF-SERVICE PASSWORD RESET

Forgotten your password? Throughout the year, one of the most common requests to the Service Desk concerns password resets. This is especially the case now that we are at the end of the holiday season and many of us return after a long break. Currently, the only way to have your password reset is to call the Service Desk during the week and within the service hours (07:30 to 18:30). Not anymore!

The IT department is putting up a new service that will allow you to reset the password of your primary CERN account by yourself. Note, that you will still be able to request a password reset by calling the Service Desk as usual and that you will still have to do this if your account has been blocked for any reason. However, the new service provides you with more flexibility and convenience when your memory has failed you.

In order to take advantage of this new service, you must:

- Have a valid, active account
- Register in advance an external email address, so that an activation link can be sent to you.

An external email address can be any address from a service provider (e.g. gmail, hotmail, etc) or one provided by your institute. If you do not have yet such an external address registered, we strongly

recommend you to do it as soon as possible by going to the account portal: <http://cern.ch/account> -> 'Manage my accounts' and follow the link on the right 'Provide or update an external email address'.

Once your external address is defined, resetting your password yourself is easy. All you have to do is to follow the link <http://cern.ch/passwordreset> and you will be guided through the process. You will have to provide your account login name, date of birth and enter a verification code. Subsequently, an activation link will be sent to your external email address. The sender will always be: 'CERN Account Website' and the subject of the message 'Reset your CERN Account password'.

The activation link will only be valid for ten minutes. During that time you should follow the link and complete the process by defining a new password. Please consider the recommendations (<http://security.web.cern.ch> -> 'Passwords & toothbrushes') by Computer Security when choosing a new password.

Note that this service will be available as of the 26th of September and that about 35% of active users can already take advantage of it since they have registered an external email address. So why wait?

*IT Department*



## External meeting

Geneva University

Physics Department

24, quai Ernest-Ansermet

CH-1211 Geneva 4

Lundi 3 octobre 2011

17h00 - École de Physique, Auditorium  
Stückelberg

Experiments in Physics : Hands-on  
Creative Processes

Prof. Manfred Euler

Leibniz-Institute for Mathematics and  
Science Education (IPN)

University of Kiel, Deutschland

Experiments play a variety of different roles in knowledge generation. The lecture will focus on the function of experiments as engines of intuition that foster insights into complex processes. The experimental presentations consider self-organization phenomena in various domains that range from the nanomechanics of biomolecules to perception and cognition. The inherent universality contributes to elucidating the enigmatic phenomenon of creativity.

*Une verrée en compagnie du conférencier sera offerte après le colloque.*

Prof. Markus Büttiker



# Safety Training Course

## SAFETY TRAINING: SCHEDULED SESSIONS IN SEPTEMBER AND OCTOBER 2011

The following training courses are scheduled in September – October. You can find the full Safety Training programme on the Safety Training online catalogue.

If you are interested in attending any of the below courses, please talk to your supervisor, then apply electronically via EDH from the course description pages, by clicking on SIGN-UP.

Registration for all courses is always open – sessions for the less-requested courses are organized on a demand-basis only. Depending on the demand, a session will be organised later in the year.

*Alphabetical order (original course titles are maintained)*

### Conduite de chariots élévateurs

17-OCT-11 au 18-OCT-11, 8h00 – 17h30, en français\*

### Laser Users

28-OCT-11, 9h00 – 12h30, en anglais

### Radiological Protection

07-OCT-11, 8h30 – 12h30, en anglais  
07-OCT-11, 13h30 – 17h30, en français  
11-OCT-11, 13h30 – 17h30, en anglais  
18-OCT-11, 8h30 – 12h30, en anglais  
18-OCT-11, 13h30 – 17h30, en français  
28-OCT-11, 13h30 – 17h30, en anglais

### Recyclage Habilitation - Personnel électrique effectuant des opérations du domaine de tension BTA

14-OCT-11, 9h00 – 17h30, en français

### Sensibilisation aux gestes et postures de travail

30-SEP-11, 9h00 – 17h30, en français

(\*) Session in French with possibility to have the documentation in English.

*Isabelle Cusato (HSE Unit)*



# Language training

## GENERAL AND PROFESSIONAL FRENCH COURSES

The next session will take place from 10th of October to 16th of December 2011.

These courses are open to all persons working on the CERN site, and to their spouses.

For registration and further information on the courses, please consult our Web pages:

<http://hr-training.web.cern.ch/hr-training/> or contact Kerstin Fuhrmeister (kerstin.fuhrmeister@cern.ch)

## ORAL EXPRESSION

This course is aimed for students with a good knowledge of French who want to enhance their speaking skills.

Speaking activities will include discussions, meeting simulations, role-plays etc.

Suitable candidates should contact Kerstin Fuhrmeister (70896) or Martine Zuffi (73483) in order to arrange an appointment for a test.

The next session will take place from 10th of October to 16th of December 2011.

## WRITING PROFESSIONAL DOCUMENTS IN FRENCH

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

Suitable candidates should contact Kerstin Fuhrmeister (70896) or Martine Zuffi (73483) in order to arrange an appointment for a test.

The next session will take place from 10th of October to 16th of December 2011.



# Seminars

## TUESDAY 27 SEPTEMBER

### EP SEMINAR

11:00 - Main Auditorium, Bldg. 500

### A Discussion of CDF's Recent $B_s \rightarrow \mu^+\mu^-$ Result

D. GLENZINSKI / FERMILAB

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

### Quivers and the mass spectrum of $N=2$ theories

S. CECOTTI / SISSA

## WEDNESDAY 28 SEPTEMBER

### TH COSMO COFFEE

11:00 - TH Auditorium, Bldg. 4

### Local and non-local features in the primordial power spectrum and associated non-Gaussianities

DHIRAJ KUMAR HAZRA / HRI

### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

### Supersymmetric Recipes (1/3)

B. ALLANECH / UNIVERSITY OF CAMBRIDGE, UK

### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

### TBA

G. PEREZ / CERN

## THURSDAY 29 SEPTEMBER

### TECHNICAL SEMINAR

9:00 - Kjell Johnsen Auditorium, Bldg. 30

### 8<sup>e</sup> Forum Utilisateurs CATIA au CERN

J.-P. CORSO / CERN-EN-MEF-INT

### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

### Supersymmetric Recipes (2/3)

B. ALLANECH / UNIVERSITY OF CAMBRIDGE, UK

### COLLIDER CROSS TALK

11:00 - TH Auditorium, Bldg. 4

### Hadron production ratios in pp collisions at LHCb

F. DETTORI / UNIVERSITA E INFN (IT)

### CERN COLLOQUIUM

16:30 - Council Chamber, Bldg. 503

### Quantum Man: Richard Feynman's Life in Science

L. M. KRAUSS / DIRECTOR, THE ASU ORIGINS PROJECT

## FRIDAY 30 SEPTEMBER

### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

### Supersymmetric Recipes (3/3)

B. ALLANECH / UNIVERSITY OF CAMBRIDGE, UK

### PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

### TBA

J. ROJO / CERN

## MONDAY 19 SEPTEMBER

### ISOLDE SEMINAR

14:00 - Bldg. 26-1-022

### Shape coexistence in the lead region investigated using a multitude of experimental probes (1/3)

P. VAN DUPPEN / INST. VOOR KERN- EN STRALINGS-FYSICA-KATHOLIEKE UNIVERSITEIT LEUVEN

## TUESDAY 4 OCTOBER

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

### TBA

L. MASON / OXFORD

### OTHER CERN EVENT

20:30 - Globe, 1st floor

### De découverte en découverte et de fil en aiguille : 100 ans d'étude du noyau atomique

A. A. LOPEZ-MARTENS / CENTRE DE SPECTROMÉTRIE NUCLÉAIRE ET DE SPECTROMÉTRIE DE MASSE DE L'UNIVERSITÉ PARIS SUD À ORSAY

## WEDNESDAY 5 OCTOBER

### ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

### TBA

E. RAPISarda / INSTITUUT VOOR KERN- EN STRALINGS-FYSICA, KATHOLIEKE UNIVERSITEIT LEUVEN

## FRIDAY 7 OCTOBER

### TRAINING AND DEVELOPMENT

09:00 - Bldg. 593

### Post Induction day training on popular IT and GS services

### DETECTOR SEMINAR

11:00 - 40-S2-B01 - SALLE BOHR

### The RICH detectors of the LHCb experiment

A. PAPANESTIS / RUTHERFORD APPLETON LABORATORY-STFC - SCIENCE & TECHNOLOGY FACI

### PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

### TBA

M. DELLA MORTE / MAINZ