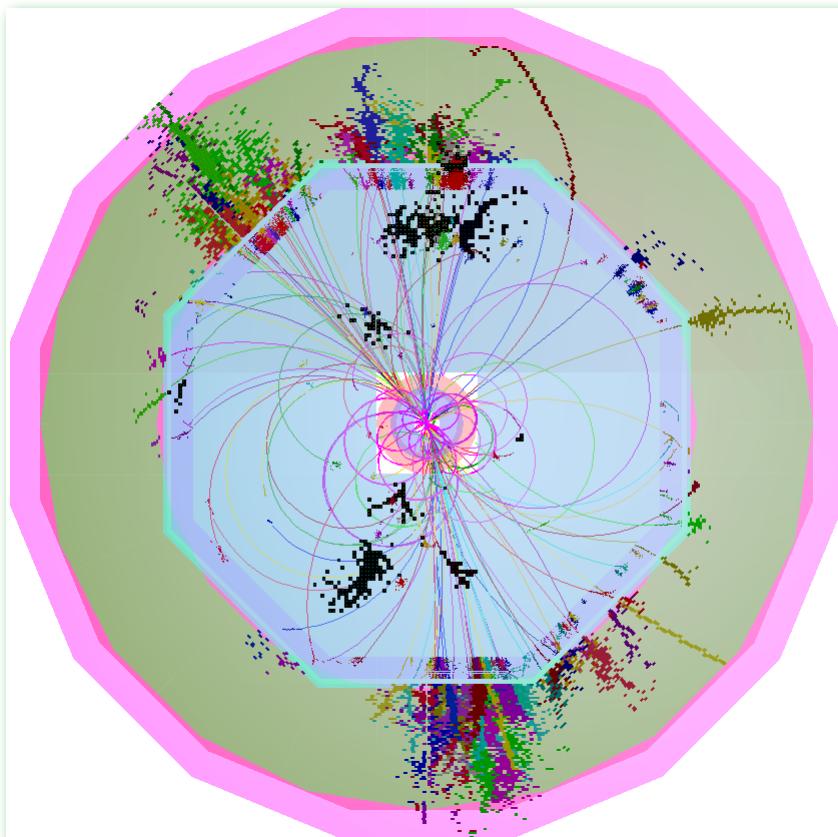




Nos 43 & 44 – 26 October & 2 November 2011

## Detectors on the drawing board



A simulated event display in one of the new generation detectors.

"While the LHC experiments remain the pinnacle of detector technology, you may be surprised to realise that the design and expertise behind them is well over 10 years old," says Lucie Linssen, CERN's Linear Collider Detector (LCD) project manager whose group is pushing the envelope of detector design. "The next generation of detectors will have to surpass the achievements of the LHC experiments. It's not an easy task but, by observing detectors currently in opera-

tion and exploiting a decade's worth of technological advancements, we've made meaningful progress."

The LCD team is currently working on detectors for the CLIC experiment. "Electron-positron colliders like CLIC demand detectors with significantly more precision than those at the LHC," explains Lucie. "We've studied a variety of techniques to cope



### Physics and Frankfurt

Last weekend I had the pleasure of attending the Frankfurt book fair, where the Austrian publisher Edition Lammerhuber was launching a new book about the LHC. It's a beautiful volume, based on the photographs of Peter Ginter, who has been covering CERN for many years, and an essay by celebrated author Franzobel.

(Continued on page 2)

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## A word from the DG

(Continued from page 1)

### Physics and Frankfurt

**I had no doubt that the book would find success, but what really surprised me is how much interest there was at the book fair for CERN and the LHC in particular. Mr Lammerhuber had put on a splendid show, with CERN people available to explain our work, and a stand designed, also with the help of CERN personnel, to resemble the CERN Control Centre. Throughout the time I was there, his stand was by far the most popular place to be in the hall where science and culture books were presented, and the book's presence in Frankfurt generated much positive coverage for CERN in the German media.**

**Coming hot on the heels of the Ars Electronica festival of digital arts, as well as the Hay Festival of Literature and the Arts and the Davos meeting of the World Economic Forum, all of which gave CERN a high profile, Frankfurt serves to underline just how far we've come in bringing our science into mainstream culture. People are talking about science again, and in an era where everyone's life is intricately linked to science and technology, that's an extremely positive development.**

**Rolf Heuer**

*The Edition Lammerhuber book is trilingual, English, French and German. It is available in the library and will soon be available at the CERN gift shop.*

## Detectors on the drawing board

(Continued from page 1)

with this precision and other CLIC-specific issues. Many of these were pioneered for earlier linear colliders, but have since been adapted to fit CLIC's unique parameters."The team's work has culminated in two detector designs, published in the CLIC Conceptual Design Report.

At a glance, one could easily mistake the Linear Collider experiments for CMS. But while very similar, they incorporate a number of new elements to improve the efficiency and precision of the detectors. These include:

- More Precise Vertex Detectors: The pixel detector at the heart of the linear collider detector designs will have up to 40 times more readout channels and a much smaller pixel size (approximately  $20 \times 20 \mu\text{m}^2$ , compared to CMS's  $100 \times 150 \mu\text{m}^2$ ).
- Particle Flow Analysis: This technique combines information from different parts of the detector in order to extract the maximum knowledge from individual particles – including particles inside jets. To fully exploit this technique, the linear collider experiments are developing calorimeters with ultra-fine granularity.
- Tungsten Calorimeters: The sizeable CLIC collision energy (up to 3 TeV) means that the calorimeters designed by the LCD team need to be both deep and dense in order to avoid energy leaks. To accomplish this, they have designed the hadronic calorimeter to use tungsten absorbers instead of the traditional steel. As tungsten is

extremely dense, it can provide the required depth without dramatically increasing the size of the detector.

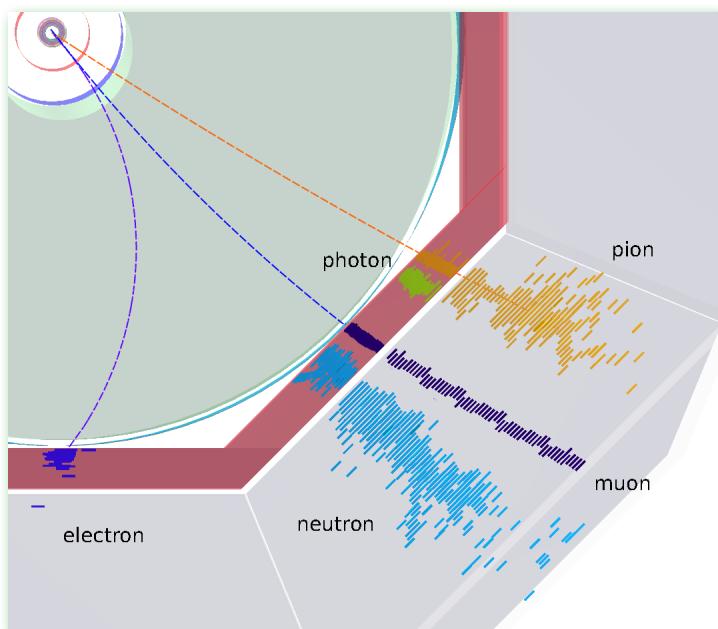
The LCD team performed 6 physics analyses to study the potential for discoveries and precision physics of their detector designs at CLIC. These analyses took simulated physics events and simulated background events, and overlaid them to create a "real" electron-positron collision environment. These data were then sent through a computer model of the detector to create a realistic readout. Finally, using highly specialised software, the physics signals were extracted from the detector readout.

By comparing the input physics event with the extracted physics signals, the LCD team was able, for example, to calculate Higgs boson properties and study whether it is an elementary particle or a composite particle. The LCD analyses have found the sensitivity to the Higgs compositeness scale to be significantly superior to what is possible at the LHC.

"While we need to continue to develop the detector technology, the analyses have shown that our detector concepts are feasible," concludes Lucie. "In fact, they are not just feasible – they can provide an unprecedented level of precision measurements for interactions that have only ever been theorised."

No matter what new detector makes it off the drawing board and into production, its design is likely to incorporate these linear collider concepts.

*Katarina Anthony*



*Calorimeters with ultra-fine granularity allow particle recognition inside jets.*

# LHC Report: Take Five

**T**ime has also been devoted to some special physics runs for TOTEM and ALFA. In these runs, the beam is de-squeezed to a  $\beta^*$  of 90 m in ATLAS and CMS. This is instead of the usual 1m  $\beta^*$ , and gives a larger beam size at interaction points. The increased beam size results in a reduced beam divergence at the interaction points. This permits TOTEM and ALFA to probe low-

**The LHC is continuing to perform well and an integrated luminosity of over  $5\text{fb}^{-1}$  has now been delivered to ATLAS and CMS. While keeping a close eye on beam induced heating and vacuum quality, the bunch current has been gently raised to over  $1.4 \times 10^{11}$  protons per bunch. This has given a peak luminosity of  $3.6 \times 10^{33} \text{ cm}^{-2}\text{s}^{-1}$ . Some long fills have helped production and recent high points include  $120\text{pb}^{-1}$  delivered in one fill and  $580\text{pb}^{-1}$  delivered in one week.**

angle scattering and allows them to measure the total cross section of proton-proton interactions and the absolute luminosity calibration.

The LHC finishes its 2011 proton physics programme on Saturday 29 October. Then it will go into a 6-day machine development period where, among other things, there will be a first look at proton-lead operation. After this, the operations team will start setting up for the lead ion run before a 5-day technical stop.

The experiments discuss their plans for the upcoming heavy-ion run in this week's Bulletin.

*Mike Lamont for the LHC Team*

# Leading lead through the LHC

## ALICE

For the upcoming heavy-ion run, the ALICE physics programme will take advantage of a substantial increase of the LHC luminosity with respect to last year's heavy-ion run. The emphasis will be on the acquisition of rarely produced signals by implementing selective triggers. This is a different operation mode to that used during the first low luminosity heavy-ion run in 2010, when only minimum-bias triggered events were collected. In addition, ALICE will benefit from increased acceptance coverage by the electromagnetic calorimeter and the transition radiation detector. In order to double the amount of recorded events, ALICE will exploit the maximum available bandwidth for mass storage at 4 GB/s and the new event compression algorithm running on the High Level Trigger computer farm. The 2011 data will allow ALICE to extend the physics reach of identified particles, quarkonia, heavy flavours, jets and photons thanks to measurements with largely increased statistics and extended transverse momentum reach.

In anticipation of a future proton-ion run, LHC will perform feasibility studies just before the heavy-ion run starts. Measurements of proton-nucleus collisions are an essential component of the ALICE scientific programme. On the one hand, they will provide an insight into the structure of the entrance channel that leads in nucleus-nucleus collisions to the formation of hot and dense nuclear matter. On the other hand, they will enable us to disentangle cold nuclear matter effects from hot nuclear matter effects on the relevant observables providing information on the properties of the Quark Gluon Plasma.

*Yves Schutz and Despina Hatzifotiadou*

**Three of the LHC experiments - ALICE, ATLAS and CMS - will be studying the upcoming heavy-ion collisions. Given the excellent results from the short heavy-ion run last year, expectations have grown even higher in experiment control centres. Here they discuss their plans.**

## ATLAS

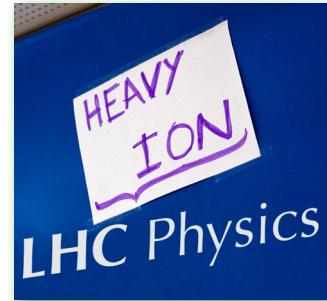
Less than a year ago, no one knew what would be discovered from the lead collisions at LHC energies. Yet, from the 2010 data, ATLAS found the first direct evidence of jet quenching and measured J/psi suppression. We also reported the apparent absence of similar effects for Z and W production, and performed advanced studies of particle flow and two-particle correlations.

With the new 2011 lead ion data, we can thoroughly characterize the di-jet asymmetry, which was the first sign of jet quenching, and events with a single jet balanced by an energetic photon can be used to gain further insights. As well, we can find answers to many other questions, for instance concerning the behaviour of Zs and Ws in the hot, dense soup of quarks and gluons.

This year, the LHC again offers something completely new: the possibility of proton-ion collisions. While this year's run is an accelerator feasibility test, ATLAS is optimistically hoping also to obtain the first sample of proton-ion collisions. The basic properties of such collisions at these energies are yet unknown, and they can be determined from even a few LHC fills.

We are all excited about these fascinating prospects!

*Will Brooks and Sasha Milov  
ATLAS Heavy Ion conveners*



## CMS

We are eagerly awaiting the start-up of the new heavy-ion run. All preparatory work to cope with the challenges of the new data-taking phase has been successfully completed. The short period of lead-lead collisions in 2010 generated such a fantastic amount of results that there are great expectations for the coming run. The machine teams are promising us an increase of data by a factor of ten or more. That would be simply fantastic. By being able to record new clean signals, such as photons recoiling against jets, we'll be able to study - in great detail - the striking phenomena connected with the quenching of jets in the new state of matter produced in lead-lead collisions. We'll produce plenty of electroweak vector bosons (Ws and Zs) to perform precision measurements that could challenge the predictions of the current models. It will be possible to study in more detail the suppression of the excited states of the Ypsilon resonance whose appearance in the 2010 data was one of the major results of the year. With large statistics it will also be possible to characterise up to the smallest detail the properties of the fluid produced in high centrality heavy-ion collisions.

Lastly, the pilot fill of proton-ion collisions that is currently planned will hopefully be a major step towards the very interesting 2012 physics programme.

*Guido Tonelli*

# Deceleration project bursts out of the starting-blocks

"Our kick-off meeting was a really great success," says Stéphan Maury of the Beams (BE) Department, who is responsible for the ELENA (Extra Low ENergy Antiproton ring) project. PH Department's

Walter Oelert, Chairman of the AD Users Committee and one of the instigators of the project, adds: "More than 90 participants showed up, over twice the number we were expecting! They were all very enthusiastic and eager to get ELENA off the ground." The meeting was attended by representatives of some twenty institutes from across the globe, all of whom had come to blow life into the ELENA project. But not only that – some of them also brought some excellent news.

"We were pleasantly surprised," Stephan Maury explains, "when, on the day of the meeting, three new experiments were proposed in the framework of the ELENA project. One is the fruit of a collaboration between the University of Tokyo and Aarhus University (Denmark), and consists in placing a target inside the ELENA ring; the second, promoted by GSI Darmstadt (Germany), aims to study spin changes of the proton; the third project, dubbed Gbar, was put forward by CEA Saclay (France) and involves measuring the gravitational behaviour of antihydrogen at rest. A formal proposal has already been submitted for the latter project which will be discussed at the SPS Experiments Committee on 25 October. The other two should be presenting technical files to the CERN scientific committees in the near future."

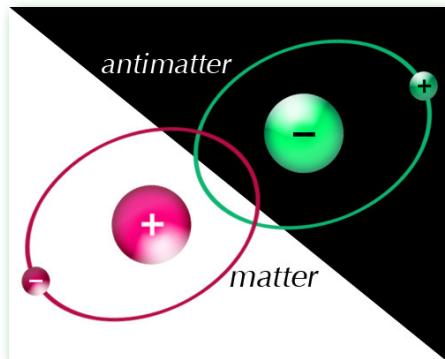
Should these new initiatives emerge as viable projects, the Antiproton Decelerator (AD) Hall where ELENA will be built and which already houses ALPHA, ASACUSA, ATRAP, ACE and soon the AEGIS experiment, will have to be converted to host them. "The future site of the ELENA ring is currently taken up by a platform. Our initial plan was simply to move this platform aside to make way for ELENA. But if we add these proposed new experiments we will need a whole new building, which will obviously need to be built!" Stéphan Maury explains.

And this will obviously cost money. But things are moving on the budget front. "We've already collected 2.06 MCHF to date and an additional 2.35 MCHF is under discussion in the laboratories (outside CERN) involved in the ELENA project," Stéphan Maury notes. "With the project now officially launched, all these research centres should

The starter's pistol was fired for the ELENA project on 28 September, with the kick-off meeting organised in collaboration with the Antiproton Decelerator Users Committee. With more than 90 scientists in attendance from 20 research centres throughout the world expressing their enthusiasm for the project...and some even more than that... the meeting was a great success.

be able to clarify their proposals internally and come forward with their contributions in the near future. Take the example of the University of Brescia (Italy) – they made no promises at the outset but have now come forward with 50,000€ for the project.

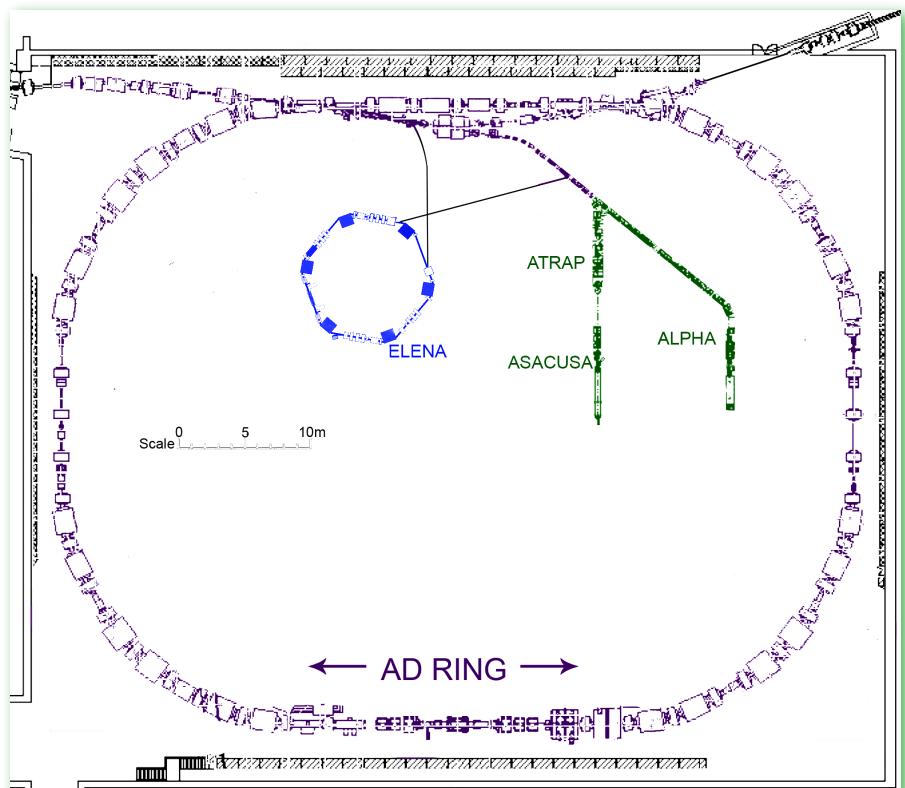
In addition to cash contributions, certain institutes have pledged contributions in kind, such as equipment manufacture (notably the magnets and the electron cooling system) and the secondment of highly qualified personnel. In this regard, the project coordinators have had the pleasant surprise of seeing the number of outside members of the ELENA team increase from the initially expected 28 to 32. They will join forces with the CERN team and dedicate themselves to making the future decelerator facility a success.



All the ELENA project participants will get together again in six months' time with the aim of moving ahead on many fronts. For the time being, CERN's ELENA team is working on the technical design of the machine and should submit its Technical Design Report by next summer.

More information can be found on the ELENA project in CERN Bulletin n°30-31, or in the press release issued on 28 September for the project's kick-off meeting.

Anais Schaeffer



Layout of the AD experimental hall: the Antiproton Decelerator ring (purple); the ALPHA, ASACUSA, and ATRAP experiments (green); the ACE experiment (not pictured); and the new ELENA ring (blue).

# OPERA's measurement: theory's speaking time

Last week, CERN theorists organised a workshop to discuss OPERA's recent result. The workshop took place the whole morning of Friday 14 October and saw fruitful discussions among theorists, experimentalists,

members of the OPERA Collaboration and members of the CERN community at large. The hot topic : assuming that OPERA's result is confirmed by other experiments, is there any theory that could "accommodate" it? "We have reviewed a large part of the articles published in arXiv after OPERA made its result public," says Ignatios Antoniadis, Head of CERN's theory group. "After several discussions and a rich exchange of views, the participants in the workshop concluded that - currently - there is no consistent theoretical model that can accommodate the measurement."

**Einstein's theory of relativity proven wrong, time travel finally possible, all our knowledge suddenly forced to change: superluminal neutrinos have triggered reactions from around the world. While the buzz spread, the theory community was following the usual scientific procedure, which implies understanding, thinking, reading, imagining, monitoring, reviewing and wondering: how could any theory account for OPERA's result?**

The main constraint on the existence of superluminal neutrinos as observed by OPERA comes from a paper published on 29 September by Andrew G. Cohen and Sheldon L. Glashow. "The argument presented by Cohen and Glashow is based on kinematics. It postulates that, while travelling from CERN to Gran Sasso, superluminal neutrinos lose some of their energy and emit electron-positron pairs. This phenomenon, not allowed if neutrinos have speeds slower than that of light, becomes possible if they travel faster," explains Ignatios Antoniadis.

However, if neutrinos were to lose a considerable part of their energy, this would show up in OPERA's plots...but it doesn't: the energy distribution of neutrinos arriving at OPERA is very much as expected, without any depletion due to the phenomenon indicated by Cohen and Glashow. "For the time being, what we can say is that we need to keep on working on possible theoretical models which could account for the OPERA result without violating the constraints imposed by other experimental measurements. But Cohen and Glashow have already warned us that it will be a very difficult job," says Christophe Grojean, a member of the theory group and one of the organisers of the workshop.

In other words, there's no breaking news just yet - just a confirmation that, in the coming months, the OPERA result will continue to be under the scrutiny of the world's scientific community.

CERN Bulletin

## A common strategy for better health

The ICTR-PHE 2012 conference that will be held in Geneva from 27 February to 3 March 2012 will bring together international experts from physics, medicine and biology, in the domains of both diagnosis and treatment. They will present the latest advances in their respective disciplines and discuss novel ways of fighting cancer. "Over the last couple of decades, physicists, biologists and physicians felt strongly that the time had come to collaborate and interact more closely," says Jacques Bernier, Head of the Radiotherapy Department at the Genolier Clinic in Switzerland and co-chair of the conference. "The collaboration is now mature and I hope that this joint conference will set up the basis for long-term cooperation."

Among others, medical imaging is a typical example of the importance of tight collaboration between physicians, physicists and biologists. "Improvement of morphological and functional imaging not only allows

Uniting physics, biology and medicine is no trivial exercise. The three disciplines might be seen as having different methodologies, issues and scientific approaches. However, there is one field – oncology – in which the three communities are putting their forces together to improve the health and well-being of patients.

earlier detection of small malignancies but can also help reduce the impact of the treatment's side effects on healthy tissue. Standard techniques produce lesser-quality images, making it difficult to distinguish healthy tissue. Improving this quality with new imaging strategies could lead to better targeting of the tumoral mass," says Jacques Bernier. High-precision imaging is a matter for physicists, who can contribute their state-of-the-art detectors and computing read-out solutions as well as experimenting with less toxic tracers.

Once the target is well identified, beams of particles can be used to kill the tumour – this is what hadron therapy is all about. "Hadron therapy has already proven effective, but biologists and physicians need to understand fully the processes involved in the treatment and its overall impact on the patient.



Doctors also need to establish protocols to improve their medical practice. Indeed, while physicists aim to reach the highest possible precision and technical performance, doctors must make sure that the sophisticated machines can be effectively operated to be beneficial to patients," observes Jacques Bernier.

The ICTR-PHE conference will feature the participation of world-renowned experts in the field of oncology. "We hope to create a global network in which information between scientists from the various disciplines can be successfully exchanged. This will also help industry to develop the necessary technologies. The common effort of all the parties involved will certainly maximise the effect of the therapy and, ultimately, will dramatically improve the quality of life of patients," concludes Jacques Bernier.

Fabio Capello

# Accelerating sustainability large-scale facilities

The workshop, co-organised with the European Spallation Source (ESS) and the European Association of National Research Facilities (ERF), tackled a recognised need for addressing energy issues in relation with science and technology policies. It brought together more than 150 representatives of Research Infrastructures (RIs) and energy experts from Europe and North America. "Without compromising our scientific projects, we can change the way we manage energy, improving both energy efficiency and energy recovery," says Frederick Bordry, Head of CERN's Technology Department and scientific co-organiser of the workshop. "Today it is well understood that energy consumption is key when designing new scientific projects. For example, one of the CLIC project challenges is to reduce energy consumption drastically and to improve energy recovery."

**Scientific research centres and large-scale facilities are intrinsically energy intensive, but how can big science improve its energy management and eventually contribute to the environmental cause with new cleantech? CERN's commitment to providing tangible answers to these questions was sealed in the first workshop on energy management for large scale scientific infrastructures held in Lund, Sweden, on the 13-14 October.**

Workshop participants recognised the need for in depth understanding of each laboratory's energy consumption by mapping existing and potential energy usages. With this aim, CERN recently appointed Helfried Burckhart as the first Energy Coordinator. Hosted by the GS Department, Helfried will, among other things, gather information and conduct a quantitative audit of all forms of energies used at CERN. He will also investigate possibilities of energy savings, work out proposals for use of renewable energies, and act as contact for external enquiries.

Big science is not just a big energy consumer: technologies emerging from the construction and running of particle

accelerators can be further developed and used, for example, to recover energy and produce energy using renewable sources. "In this respect, CERN has an important role to play," says Bordry. "This workshop was also an opportunity for CERN's engineers to present technologies which can be used for the benefit of the environment."

The two-day discussions on energy quality and efficiency, recuperation, and cleantechs ended with a unanimous wish to have more opportunities to share knowledge on these topics. "CERN is candidate for hosting, in two years, the second workshop on energy management," announces Bordry. "It could be an opportunity for us to help develop a common approach to energy management for large-scale facilities."

*Marina Giampietro*



Participants at the energy management for large scale scientific infrastructures workshop.

# A new batch of CERN apprentices

This year CERN is once again hosting six electronics and physics lab apprentices. Over the coming four years they will learn the fundamentals of their trade under the expert eye of experienced CERN professionals.

The selection process is long and arduous. Every year, up to 150 candidates between the ages of 15 and 21 apply for the specialised sandwich courses in mechatronics offered by Geneva's Office pour l'orientation, la formation professionnelle et continue in partnership with the Geneva Industrial Union.

Only a handful of those specialising in electronics and physics laboratory techniques – with strong applications and even stronger motivation – will be fortunate enough to work alongside CERN experts for four years, as vacancies are strictly limited. Of all the candidates who apply for apprenticeships in these two fields, only six will make it all the way to CERN, which has long supported this form of training.

**Once again this year, CERN is hosting six electronics and physics lab apprentices. Over the coming four years they will learn the fundamentals of their trade under the expert eye of experienced CERN professionals.**

## Getting in

"To evaluate candidates' abilities and to unearth the best talent, we hold a kind of audition," explains Jean-Marc Bouché, who is responsible for the training of technical apprentices in the HR Department. "Candidates are shortlisted on the basis of the results of a written examination taken at an outside centre. They are then invited to CERN for the day where they take another series of written exams and practical tests where they have to perform tasks which are quite possibly outside their comfort zone, like building an electronic circuit board from just a drawing. This enables us to detect those who are capable of understanding and following instructions, taking the right kind of initiatives, and delivering high-quality results."

The six apprentices – three in electronics and three in physics laboratory techniques – are selected between January and June. The successful candidates then spend four years



From left to right: Eugénie Gallay, Adrien Tambasco, Bastien Ray, Frederika De Jaegere, Luca Fazzone and Loïc Garcia, the six apprentices who have just left CERN, having passed their diplomas. Jean-Marc Bouché is pictured behind them.

alternating between their school and CERN.

## Keeping pace!

"The apprentices work at CERN three to four days a week from their second year onwards (the practical part of the first year's curriculum is taught in a training centre) and return to the classroom for the rest of the week - the electronics apprentices in Geneva and the laboratory assistants in Lausanne. It's not always easy to keep pace," Jean-Marc Bouché admits. "Some apprentices live quite a long way away, in Thonon-les-Bains, Valleiry etc. so they have a long commute. You have to be highly motivated to keep going for four years."

"Throughout their time at CERN, the apprentices are supervised by professionals qualified in various specialities," Jean-Marc Bouché explains. "We monitor them all individually and try, as far as possible, to provide relevant and satisfactory work experience. Up until now, it has all gone smoothly and all our apprentices have found a speciality that suits them."

## The cherry on top

After four years of training the apprentices take a final exam, known as the CFC (Certificat Fédéral de Capacité). The practical part of the CFC requires them to do several specific projects which they must then present to a panel of experts. They also have to submit a report summarising their work at CERN. And once they have passed their exams? "While it might take some a few months to find work, others find jobs as soon as they finish," adds Jean-Marc Bouché. "But I do strongly encourage them to take a professional diploma (Maturité professionnelle) which opens the door to a university education."

The latest intake of CERN apprentices arrived at the end of August and they are already hard at work. They will be members of the CERN personnel for the next four years so we all wish them a pleasant and fruitful stay at the Organization.

Anaïs Schaeffer

# A table-top LHC

Published by the Austrian publisher Edition Lammerhuber in cooperation with CERN and UNESCO Publishing, LHC: the Large Hadron Collider is an unusual piece in the company's portfolio. As the publisher's first science book, LHC: the Large Hadron Collider

weighs close to five kilos and comes in a sleek slipcase featuring a vibrant heavy-ion collision from the ALICE detector. It's no surprise, therefore, that the book was paired with a well-known figure in Austrian literary circles: writer and playwright Franzobel, who provided the two large chunks of text that sit between the chapters containing images of the machine, the detectors, the computer centre, the Globe and "everyday" scenes at CERN that include a freeclimber in a test hall and a Buddhist monk between

Many years ago, when ATLAS was no more than a huge empty underground cavern and Russian artillery shell casings were being melted down to become part of the CMS calorimetry system, science photographer Peter Ginter started documenting the LHC's progress. He was there when special convoys of equipment crossed the Jura at night, when cranes were lowering down detector slices and magnet coils were being wound in workshops. Some 18 years of LHC history have been documented by Ginter, and the result has just come out as a massive coffee-table book full of double-page spreads of Ginter's impressive images.

cavities. One text is a conversation between Franzobel and CERN Director General Rolf Heuer about CERN, the LHC and the science behind it all, and the other is an attempt by the language pro to find the right words to describe the LHC adventure.

The book was launched at the Ars Electronica festival in September and presented at the Frankfurt book fair last week. CERN's display drew a constant crowd of

visitors, members of the media and book professionals. With LHC physicists on hand to answer questions and three huge pallets of books about the accelerator, CERN stood out from the crowd. The stand also included: a live connection to the CCC, a mini control room with real operators on shift, a small exhibition with a model of ATLAS, a cloud chamber, and a few other exhibits.

The book will be on sale at the CERN bookshop but is also already available from general bookshops and online.

Barbara Warmbein



The new coffee table book, LHC: the Large Hadron Collider.

# CAS Accelerator Physics (Intermediate Course) in Greece

This course followed the established format of the intermediate school, with lectures in the mornings and

specialised courses in the afternoons. The latter provided "hands-on" education and experience in three topics: "RF Measurement Techniques", "Beam Instrumentation and Diagnostics" and "Optics Design and Correction". Participants selected one of the three courses and followed the chosen topic throughout the school. Guided studies and tutorials on core subjects, seminars and a poster session completed the programme.

An excursion included a visit to the Nea Moni monastery, a guided tour of two

The CERN Accelerator School (CAS) and the University of the Aegean jointly organised a course on intermediate-level Accelerator Physics in Chios, Greece, from 19 to 30 September, 2011.

medieval villages, Pyrgi and Mesta, and finished with a typical Greek meal in the port of Limena Meston. A small CERN exhibition was also arranged at the Homerion Cultural Centre in Chios, which was opened by the CERN Director-General Rolf Heuer, who also attended a special dinner organised the same evening by the municipality of Chios.

The school attracted a lot of interest, and participation had to be limited, with 74 students representing 22 nationalities attending. Feedback from all participants was

extremely positive, with the students praising the expertise and enthusiasm of the lecturers, and the lecturers noting the high standard and motivation of the students.

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:

[www.cern.ch/schools/CAS](http://www.cern.ch/schools/CAS)

*CAS School*



CAS Students pose for a group photo in Chios, Greece.

# A f(e)rmidable family

**O**livia Fermi is tracking neutrons. She featured her project called "On the Neutron Trail" by a visit to Italy on 29

September, for the 110th anniversary of Enrico Fermi's birth. Her project, inspired by her grandparents, Enrico and Laura Fermi, takes her on a pilgrimage through the history of nuclear physics. Olivia's long journey started at the site of the future Fermi centre (currently under construction) in Rome, where Enrico Fermi made some of his most important discoveries, and will include Hiroshima, where the first atom bomb was dropped, Fermilab and, of course, CERN.

A photographer by profession, Olivia Fermi visited CERN and met with physicists on 3 and 4 October. She also used the opportunity to take some photographs - in the hope of a possible artistic collaboration with the Organization - and cast her artist's eye (and camera lens) over the various experimental areas and key CERN landmarks she visited, including: the CERN Control Centre, SM18, nToF, ISOLDE and ATLAS. "CERN is the 'pure science' part of my Neutron Trail," says Olivia. "It was fascinating to see these experiments and the direct link between my grandfather's work and the physics of today."

Olivia is naturally drawn to the "social sci-



*Olivia Fermi, photographed outside the Globe of Science and Innovation while visiting the Organization.*

On October 28, Olivia Fermi will give a talk at the Graduate Center of the City University of New York (CUNY). She will present a biography of her grandparents, who she describes as models of global citizenship. More information:

<http://theengineinstitute.org/on-the-neutron-trail-enrico-and-laura-fermi>



## Did you know?

### Enrico Fermi, Nobel Prize for Physics, 1938

Enrico Fermi was born in Rome in 1901. At the age of 17, he entered the Scuola Normale Superiore in Pisa where he obtained a doctorate in physics in 1922. He taught physics, mathematics and mechanics at the University of Florence for two years from 1924 to 1926, during which time he developed the laws of statistics today known as the "Fermi-Dirac statistics". These enable us to understand the behaviour of fermions (particles subjected to the Pauli exclusion principle), such as electrons. In 1927, Fermi was appointed Professor of Theoretical Physics at the University of Rome.

In 1934, he evolved the  $\beta$ -decay theory, combining previous work on radiation theory with Pauli's idea of the neutrino. Following on from the discovery that same year of artificial radioactivity by Frédéric Joliot and Irène Curie, he demonstrated that nuclear transformation occurs in almost every element subjected to neutron bombardment. This work resulted in the discovery of slow neutrons, which notably led to the discovery of nuclear fission.

Four years later, Enrico Fermi was awarded the Nobel Prize for Physics for his work on the artificial radioactivity produced by neutrons, and on nuclear reactions brought about by slow neutrons.

In 1946, he accepted a professorship at the Institute for Nuclear Studies of the University of Chicago, a position he held until his death in 1954.

A fuller biography of Enrico Fermi (based on the Nobel Lectures, Physics 1922-1941, Elsevier Publishing Company, Amsterdam, 1965) can be found on the official Nobel Prize website (<http://www.nobelprize.org/>).

# CERN balances linear collider studies

The scientist who now holds this position, Steinar Staphnes, is charged with making the linear collider a viable option for CERN's future, one that could include either CLIC or the ILC. The transition to more involve the ILC must be gradual, he said, and the redefinition of his post is a good start. Though not very much involved with superconducting radiofrequency (SRF) technology, where ILC researchers have made significant advances, CERN participates in many aspects of ILC-related studies through combined working groups, site studies and detector and physics activities.

The forces behind the two most mature proposals for a next-generation collider, the International Linear Collider (ILC) and the Compact Linear Collider (CLIC) study, have been steadily coming together, with scientists from both communities sharing ideas and information across the technology divide. In a support of cooperation between the two, CERN in Switzerland, where most CLIC research takes place, recently converted the project-specific position of CLIC Study Leader to the concept-based Linear Collider Study Leader.



"Now, over the next year, we will have a new Linear Collider organisation that provides a common discussion base, more than before," Staphnes said. At the end of this year, CLIC completes its Conceptual Design Report. After that comes the fulfillment of the ILC mission, the delivery of its Technical Design Report (TDR) at the end of 2012. The

linear collider leaders are still discussing and deciding the shape of the post-2012 linear collider community.

This article is part of a longer one published on the ILC Newsline. Find the whole story at:

[newsline.linearcollider.org/2011/10/13/cern-balances-linear-collider-studies/](http://newsline.linearcollider.org/2011/10/13/cern-balances-linear-collider-studies/)

ILC Newsline

## GridPP returns to CERN

Officially launched in September 2001, GridPP was one of the original partners in wLCG, funding much of the early work at CERN. Over the last decade GridPP has gone from a mere proposal to almost 30,000 CPUs working for researchers scattered across the globe. Twice a year, GridPP meets to discuss the progress and future plans of the community and this year, for the first time since 2004, decamped to CERN for this biannual meeting on the theme "GridPP in the International Context".

The main meeting was held over 2 days in the IT auditorium and was the perfect opportunity to have contributions from experts based at CERN, alongside those from within GridPP. Opening with a welcome from Frederic Hemmer, Head of the IT Department at CERN, the meeting began with talks on the LHC machine and LHC

In early September, GridPP, the collaboration that manages the UK's contribution to the worldwide LHC Computing Grid (wLCG), celebrated a decade of work by holding its twenty-seventh collaboration meeting at CERN.

physics by Mike Lamont and Massimiliano Bellomo. These were followed by talks from each of the LHC experiments, also given by people based at CERN.

As the meeting progressed, the topics moved more towards discussion of grid technology and the future direction of the European grid, with talks covering middleware, a new distributed file system being tested at some sites and the role the European Grid Infrastructure will play in the future of the grid. After close of business on the Thursday, the group retired to Restaurant 1 for some well deserved refreshments and a chance to continue the discussion before heading to the Auberge de Dardagny for a dinner sponsored by Dell and Platform Computing.

After the first day of outward and forward looking talks, the Friday was dedicated to a review of the activities within the collaboration in the previous six months. Covering the four Tier-2 facilities in the UK, as well as security and hardware resilience, the talks were designed to update, inform and pass on experience to the wider collaboration.

David Britton, GridPP's project leader, was delighted with the meeting: "It was fantastic to get over half of the contributions from people based outside the UK. It was also a great opportunity for many members of GridPP to visit CERN and experience first-hand the excitement of being so close to the action. The event was extremely productive both inside and outside the formal meetings and we much appreciated the warm welcome from CERN."

The agenda and talks can be found at:

<http://www.gridpp.ac.uk/gridpp27/>

Neasan O'Neill

# Léman/Eléments: Familiar landscapes with unfamiliar details

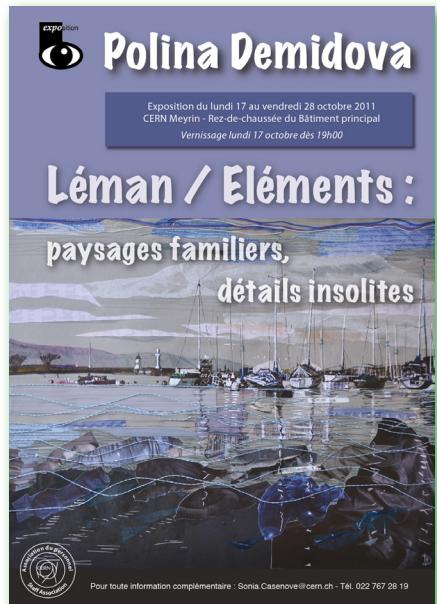
Electronics collect, refine and transmit information from the LHC and its detectors. Scientists then put the pieces together, reconstructing the "collage" of nature. In this respect, science, as much as art, underpins and influences modern society.

ATLAS's TRT components have been combined with bits and pieces from glossy fashion magazines and scientific papers to create landscapes from Geneva and France with a techno-mysterious look, influenced by the high-end science of CERN.

The technique of collage in art is very similar to the way in which the LHC and its experiments are built: a large number of independent parts are combined to create something unique.

Artwork by Polina Demidova, created with the technique of collage, is being exhibited in the Main Building until 28 October. Visual elements for the technique are usually images and text taken from glossy magazines, and bits and pieces of the information collected from different sources. These are then transformed into something altogether different. There is something special about these works of art, as some of them feature various electronic components from the ATLAS Transition Radiation Tracker (TRT).

Polina Demidova's artwork was created with the stated intention "to express the feeling of admiration that the artist experiences when seeing the walls of this cathedral of science and technology called CERN". The LHC in particular and high energy physics in general has had, and continues to have, an important impact on the scientific, cultural, and technological developments of society and industry. That's international state-of-the-art science in action – when the beauty of the construction is amplified



by the functionality and the very purpose of the resulting masterpiece.

The exhibition was organised by Sonia Casenove (Staff Association) and Andrey Loginov (Yale University, ATLAS TRT) -- we hope you will enjoy the artwork as much as we did!

Andrey Loginov

## Georges Charpak street sign unveiled

The unveiling took place on 17 October and was organised by the mayor of Saint-Genis-Pouilly. George Charpak's wife, Dominique, and Sigurd Lettow, CERN Director of Administration and General Infrastructure, attended what was an intimate and touching ceremony. The mayor's speech at the event praised Georges' commitment to scientific education.

The highlight of the event, however, was a witty and humorous speech by Dominique Charpak. "George had two real passions," she said. "The first was nuclear disarmament and the second was science education in primary schools and kindergartens." The new Saint-Genis-Pouilly international school, opening in 2015, is to be built on the new road – they couldn't hope for a better address!

Click here for more images from the unveiling.

<http://cdsweb.cern.ch/record/1390780>

Paola Catapano



From left to right: Sigurd Lettow, Dominique Charpak and the mayor of Saint-Genis-Pouilly.

# Make a movie in 48 hours

The films will be screened on 8 and 9 November, with the awards presentation on the 9th. The winner will receive a trip to the US to compete in the international version of the competition.

"There are so many short films being made now," says Hartman, "I think, however, that the 48hfp allows a critical creative mass to

This year, the 48-hour film project (48hfp) returns to Geneva after a one-year hiatus. Organized by Neal Hartman and the CERN film-making club, Open Your Eyes Films, the 48hfp challenges teams of film-makers to write, shoot, soundtrack and edit a 4 to 7 minute film in 48 hours from 4 to 6 November.

form. The result is that these 20 teams make 20 better films than if each participant were making their own." Each team draws a genre from a hat and is given a character, a prop and a line of dialogue that must appear in their film. The genres run the gamut from

"Dark Comedy" to "Period Piece" to "Musical or Western." "Some of the participants find it frustrating of course," says Hartman, "but most find it invigorating."

This year, the 48hfp will be partnering the Cinema Tous Ecrans (CTE) festival, the largest film festival in Geneva which is in its 17th year. The CTE is distinctive in that it caters to films in all formats: feature-length films, television series, short films, and a special section called "New Screens." This year the "New Screens" section revolves around online film production. "Part of the CTE festival is about the evolution of technology, but fundamentally the festival is about the lives of people, which makes collaboration with CERN very natural," says Claudia Durnnat, director of the CTE. This collaboration will also allow the participants to feel "as though they are a part of something much bigger," says Hartman.

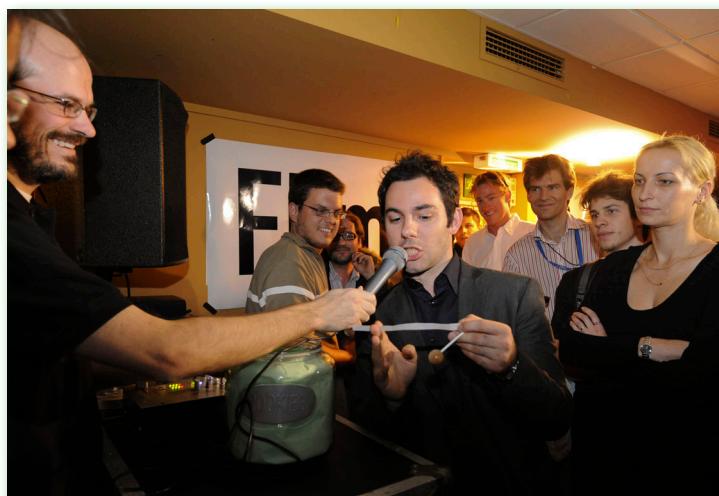
For more information on the 48hfp go to:

<http://www.48hourfilm.com/geneve/>

More info on CTE can be found at:

<http://www.cinema-tout-ecran.ch/>

Brokk Toggerson



At the start of the festival, contestants picked their film genre from a hat.

## CERN fire fighters roll out in style

**M**easuring 13m<sup>3</sup> and weighing 2.5 tonnes, the truck can carry several types of response materials in the event of chemical or radiological accidents, pollution incidents or floods. It can also pull trailers carrying fire extinguishers and oxygen masks. "Despite its size, this vehicle is extremely practical and flexible, and it can be put to work quickly and easily," says Patrick Berlinghi, logistics officer for the Fire Brigade. "It is equipped with a rear-view camera and lighting on the rear and the side. It can also be loaded and unloaded very quickly, as it takes only 15 seconds to lower the truck box and open the doors!"

Bulletin CERN





# Security bingo for the paranoid

We have received complaints that the previous SECURITY BINGO was too easy... So, are you extremely cautious of computer security? Show us and win one of three marvellous books on computer security! Just print out this page, mark which of the 25 good practices below you already follow, and send the sheet back to us at Computer.Security@cern.ch or P.O. Box G19710, by October 31st 2011.

Winners[1] must show us that they follow at least five good practices in continuous horizontal row, vertical column or diagonal. For details on CERN Computer Security, please consult <http://cern.ch/security>.

[1] In the event of more than three credibly correct replies, we will draw from the pool of replies.

## I personally...

...encrypt all files on my computer.	...have enabled Firefox' NoScript plug-in.	...will always call you back to verify your identity.	...still employ a mobile phone without mail and Internet capabilities.	...use multifactor authentication for logging into CERN.
...have a polarisation filter attached to my laptop screen.	...never use any wireless connection (Wifi or GSM).	...check all activity on my computer once a day.	...have deleted my Facebook and Twitter profiles long ago.	...never access my bank through their web-site.
...shred all unused CDs/DVDs/USB sticks with my data on.	...run static code analysers and check compiler outputs.	...have put Epoxy glue in the USB ports of my computer.	...only communicate through secure protocols (SSH, HTTPS, ...).	...only surf with the "Lynx" web browser.
...do not own a Visa/Mastercard.	...watch my back when using my computer in a public place.	...reinstall my computer every 6 months.	...keep a 16+ letters long passphrase as CERN password.	...renew my password every month.
...accept only encrypted and signed mails.	...never print via the network.	...never need administrator or root privileges for normal activity on my computer.	...get all software written by me reviewed by colleagues.	...have given up on computers long time ago.

Computer Security Team



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.

# Complaint of harassment - go for an informal or formal procedure?

**D**on\* is a CERN staff member with an indefinite contract who has been working for some years on an important technical project. As the project is large, it involves pooling the efforts of many people from different Departments. Walt\* is one of the Project Leaders, and is not from Don's Department. For a long time, their working relationship was quite pleasant. Walt was satisfied with Don's work, and on several occasions shared his appreciation with his hierarchy.

However, a dispute arose between them during a presentation to the Collaboration. Don presented things that Walt strongly disagreed with. Irritated, he criticized Don in an unpleasant manner in front of everyone, even going as far as saying Don's work was useless as it was contrary to the project strategy. Later on, Don discovered that Walt had been discrediting him with his hierarchy and had started to gossip about him with his colleagues in order to isolate him from the Collaboration, with the aim of getting him off the project. At that point, Don went to the Ombuds intending to file a harassment complaint against Walt.

After an initial discussion about what had happened, Don was not completely sure if he should follow his complaint with an informal or a formal procedure.

The choice was entirely his, as the Ombuds always remains neutral in such actions. On the one hand, Don's past relationship with Walt had been rewarding and he did not want to attack him. But on the other hand, he wanted the harassment to officially stop. Such a choice is by no means easy and all aspects and conditions of both procedures were discussed at length so that Don would have all the necessary information to make his decision.

After few days of reflection, which allowed him to take a little step back from the situation, Don came to a well thought-out decision. In both cases, the Ombuds' assistance was available: either in helping both parties to reach an informal resolution of the conflict, or in helping him with some of the aspects of the formal procedure. This support would be provided, of course, without interfering with any possible formal process of investigation.

## Conclusion

The decision to start an informal or a formal procedure in the case of an alleged harassment is entirely at the discretion of the complainant. His/her choice should be respected. However, a discussion with the Ombuds may help people to make the decision they really want, by reaching an educated knowledge of the conditions and procedures of possible actions.

The following informal guidelines may give you some insight in order to help you know what you want to do. These guidelines can be read on a voluntary basis and are not official CERN documents:

<http://ombuds.web.cern.ch/ombuds/links/Harassment-comp-Ombuds-version-1.0.pdf>

<http://ombuds.web.cern.ch/ombuds/links/Harassment-manag-Ombuds-version-1.0.pdf>

## Contact the Ombuds early!

<http://cern.ch/ombuds>

Vincent Vuillemin

\* Names and story are purely fictitious.



## News from the Library

**O**f course, you are welcome to continue visiting the Bookshop as before, as the stock will continue to be displayed in our premises in Building 52. You will be able to pay by cash (only CHF accepted), credit card (all major credit cards accepted), or budget code directly in the Bookshop. No more queues at the bank!

The Bookshop collection is available here. Just look for the book you want, and order

# A new start for CERN Bookshop

Since 11 October, the CERN Bookshop (Building 52, first floor, inside the Library) is entering a new era. This is thanks to a collaboration with the CERN Central Stores and the Logistics Services of GS, who are directly managing the Bookshop's stock. As a result, you can order the books you want and have them delivered directly to your office by simply creating a 'material request' document in EDH.

it using the material request form linked to the book record. The Bookshop catalogue is also available on EDH.

If you want us to purchase on your behalf a book that is not available in the Bookshop catalogue, please use this form.

Please alert us if you encounter any problem. Your feedback is precious to us: [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.

## NEW PROCEDURE FOR DEPARTURE FORMALITIES

As part of the process of simplifying procedures and rationalising administrative processes, the HR and GS Departments have introduced new personalised departure formalities on EDH.

These new formalities have applied to students leaving CERN since last year and from 17 October 2011 this procedure will be extended to the following categories of CERN personnel: Staff members, Fellows and Associates.

It is planned to extend this electronic procedure to the users in due course.

### What purpose do departure formalities serve?

The departure formalities are designed to ensure that members of the personnel contact all the relevant services in order to return any necessary items (equipment, cards, keys, dosimeter, electronic equipment, books, etc.) and are aware of all the benefits to which they are entitled on termination of their contract.

The new departure formalities on EDH have the advantage of tailoring the list of services that each member of the personnel must visit to suit his individual contractual and personal position.

### What the member of the personnel has to do

When HR Department confirms the termination of contract, the member of the personnel receives an email containing all the information needed to complete the departure formalities, i.e.:

- a letter (in pdf) constituting official notification of the departure conditions deriving from the contractual position of the member of the personnel concerned; all the information contained therein relates to the personal position of the member of personnel concerned;
- a termination sheet (on EDH) listing all the services which the member of the personnel must visit to complete the departure formalities.

The member of the personnel must visit all the services listed on the termination sheet in order to complete the formalities. The services may be visited in any order provided that the deadlines shown on the termination sheet are complied with. Thus, priority must be given to completing certain formalities, whereas others cannot be completed until the last day of contract.

The services concerned consult the member of the personnel's termination sheet in EDH and then validate completion of the departure formalities by clicking the 'signature' box. They may add comments for internal use.

The member of the personnel must visit all the services indicated on the termination sheet, failing which completion of the departure formalities will not be validated.

This visit must be made even if the member of the personnel is staying on at CERN under a user contract.

NB: It is essential for all departure formalities to have been completed by the time of termination of contract.

### Further assistance

Further information can be found in the departure formalities procedure in the admin e-guide:

[https://cern.ch/admin-eguide/formalites/proc\\_form\\_dep.asp](https://cern.ch/admin-eguide/formalites/proc_form_dep.asp)

If you encounter any difficulties with this new EDH document, we invite you to e-mail the service-desk@cern.ch explaining the problem.

HR and GS Departments



Take note



Save lives  
Give your blood

**On Wednesday 2 November 2011  
From 8.30 to 16.00**

## BLOOD DONATION

**CERN  
RESTAURANT 2**

Organized by EFS (Etablissement Français du Sang) of Annemasse

**Number of donations during the last blood donation:  
- 147 donors in July 2011**

**Let's do better !!!**

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



<http://www.dondusang.net>



# 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)*

### Laser Users

28-OCT-11, 9h00 – 12h30, en anglais

### Radiological Protection

28-OCT-11, 13h30 – 17h30, en anglais

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

*Isabelle Cusato (HSE Unit)*



# Meeting at CERN

## 103rd Meeting of the SPSC

from Tuesday 25 October 2011 at 09:00 to  
Wednesday 26 October 2011 at 16:00  
Council Chamber, Bldg. 503

### News from the Non-LHC Experiments at CERN

Claude Vallee / CPPM Marseille

### Tuesday 25 October 2011

09:00 - 13:00 OPEN SESSION

09:00 Status and plans of the NA61 experiment 30'

Speaker: Marek Gazdzicki / Johann-Wolfgang-Goethe Univ. (DE)

09:40 Status and plans of the NA63 experiment 20'

Speaker: Ulrik Uggerhoj

10:10 Status and plans of the CAST experiment 30'

Speaker: Esther Ferrer Ribas / IRFU/CEA-Saclay

10:50 Coffee Break 20'

11:10 Status and plans of the OSQAR experiment 30'

Speaker: Pierre Pugnat / CNRS - LNCMI-G (Laboratoire National des Champs Magnétiques Intenses de Grenoble

11:50 Status and plans of the UA9 experiment 20'

Speaker: Walter Scandale / Universite de Paris-Sud 11 (FR)

12:20 A proposal to measure the gravitational behaviour of antihydrogen at rest 30'

Speaker: Patrice Perez / IRFU-CEA - Centre d'Etudes de Saclay (CEA)



# External meeting

Geneva University Physics Department

24, quai Ernest-Ansermet  
CH-1211 Geneva 4

### Monday 31 October 2011

17h00 - Ecole de Physique, Auditorium Stueckelberg

PHYSICS COLLOQUIUM

« Electron counting in quantum dots in and out of equilibrium »

Prof. Klaus Ensslin

Solid State Physics Laboratory, ETH Zurich, 8093 Zurich, Switzerland

Electron transport through quantum dots is governed by Coulomb blockade. Using a nearby quantum point contact the time-dependent charge flow through quantum dots can be monitored on the basis of single electrons. This way electron transport has been investigated in equilibrium as well as out of equilibrium. Recently it has become possible to experimentally verify the fluctuation theorem.

The talk will also address electron counting experiments in graphene.

*Information :*

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

*Organizer : G. Pasztor*



# Seminars

## MONDAY 24 OCTOBER

### ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

### TRLO II - flexible FPGA trigger control

H. JOHANSSON / CHALMERS

## TUESDAY 25 OCTOBER

### SPSC MEETING

09:00 - Council Chamber, Bldg. 503

### PSC / News from the Non-LHC Experiments at CERN (103rd Meeting of the SPSC)

CLAUDE VALLEE / CPPM MARSEILLE

### LHC SEMINAR

11:00 - Main Auditorium, Bldg. 500

### Constraining new physics in Bs oscillations at LHCb

W. HULSBERGEN / NIKHEF (NL)

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

### TBA

P. HESLOP / DURHAM

## WEDNESDAY 26 OCTOBER

### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

### TBA

R. MAHBUBANI

### ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

### A novel technique to measure a reaction of key importance to gamma ray observations of supernovae

A. MURPHY / UNIVERSITY OF EDINBURGH

## THURSDAY 27 OCTOBER

### COLLIDER CROSS TALK

11:00 - TH Auditorium, Bldg. 4

### Charm CP violation searches at LHCb

M. GERSABECK, VLADIMIR GLIGOROV / CERN

## FRIDAY 28 OCTOBER

### DETECTOR SEMINAR

11:00 - Salle Anderson, Bldg. 40

### Performance of the ATLAS Inner Detector

M. ELSING / CERN

## MONDAY 31 OCTOBER

### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - IT Auditorium, Bldg. 31

### Advanced lectures on multiprocessor programming (1/3)

C. VON PRAUN / ACM

## TUESDAY 1 NOVEMBER

### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - IT Auditorium, Bldg. 31

### Advanced lectures on multiprocessor programming (2/3)

C. VON PRAUN / ACM

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

### Higher-Spin Theories in Odd Dimensions

S. LAL / HRI ALLAHABAD

## WEDNESDAY 2 NOVEMBER

### CERN THEORY GROUP RETREAT

Les Houches - Centre de Physique

### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - IT Auditorium, Bldg. 31

### Advanced lectures on multiprocessor programming (3/3)

C. VON PRAUN / ACM

### ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

### Recent research activity of exotic nuclei and development of ultra fast timing detector

USHASI DATTA PRAMANIK / UNIVERSITY OF CALCUTTA

## THURSDAY 3 NOVEMBER

### CERN THEORY GROUP RETREAT

Les Houches - Centre de Physique

### COLLIDER CROSS TALK

11:00 - TH Auditorium, Bldg. 4

### Search for Resonances in the Dijet Mass Spectrum from 7 TeV pp Collisions

M. GOUZEVITCH / LABORATOIRE LLR

## FRIDAY 4 NOVEMBER

### CERN THEORY GROUP RETREAT

Les Houches - Centre de Physique

### DETECTOR SEMINAR

11:00 - Bldg. 40-Salle Dirac

### ALICE Time of Flight Detectors

C. WILLIAMS / INFN, BOLOGNA

### COMPUTING SEMINAR

11:00 - IT Auditorium, Bldg. 31

### The rise of accelerators: a EU HPC vision for a petascale future

F. SPIGA / ICHEC, DUBLIN