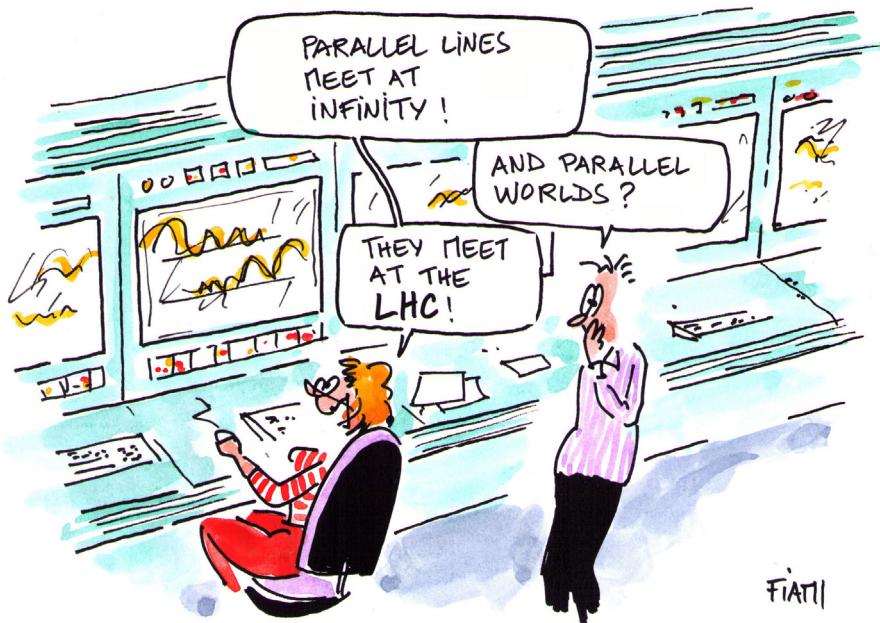


Nos 38 & 39 – 22 & 29 September 2010

## The Universe's extra bits



**G**iven the astonishing fact that 96% of the Universe is actually unknown, we can think of filling it with all sorts of weird and exotic things. Extra dimensions and parallel universes may indeed be real, that is, their existence is accepted by a large community of scientists who have worked out mathematical models and physical constraints. "The idea of a fifth dimension was first introduced by Kaluza and Klein at the beginning of the last century in an attempt to unify gravity and electromagnetism", confirms Ignatios Antoniadis from CERN's Theory Group. "I personally got involved in the study of extra dimensions in the 1990s, when I was working at the École Polytechnique in Paris."

Today, we know that extra dimensions could hide new forms of matter and energy as well as long-expected – yet undiscovered – particles, such as the graviton or the constituents of dark matter. Unfortunately, based on our current knowledge of Nature, scientists are not able to predict the exact number of possible extra dimensions. Some theories allow for just one or two dimensions beside the four (three for space + time, according to Einstein's relativity theory) that we experience every day, while others go as far as predicting the existence of 6 or more additional dimensions. "All the current theories that model the extra dimensions

(Continued on page 2)



A word  
from the  
DGs

### Scientific Opportunity: the Tevatron and the LHC

**T**he press makes much of the competition between CERN's LHC and Fermilab's Tevatron in the search for the Higgs boson. This competitive aspect is real, and probably adds spice to the scientific exploration, but for us such reporting often feels like spilling the entire pepper shaker over a fine meal. The media's emphasis on competition obscures the more important substance of our long-standing collaboration in scientific discovery.

(Continued on page 2)

### In this issue

- |   |   |
|---|---|
| News  |   |
| ● The Universe's extra bits                                 | 1 |
| ● A word from the DGs                                       | 1 |
| ● Latest news from the LHC                                  | 3 |
| ● Art in the countryside... with a taste of science         | 4 |
| ● A strange journey   | 5 |
| ● The European hadron therapy community touches base        | 6 |
| ● Textbook tests with tungsten                              | 7 |
| ● The European Graduate Course in Cryogenics hosted at CERN | 8 |
| ● Film Presentation: Big Bang, mes ancêtres et moi          | 9 |
| ● Bruno Ferretti (1913-2010)                                | 9 |

- |                    |    |
|--------------------|----|
| Official news      | 10 |
| Take note          | 12 |
| Academic training  | 14 |
| Language training  | 14 |
| Technical training | 15 |
| Seminars           | 17 |

### Published by:

The European Organization for Nuclear Research - CERN  
1211 Geneva 23, Switzerland - Tel. + 41 22 767 35 86

Printed by: CERN Printshop

© 2010 CERN - ISSN: Printed version: 2077-950X  
Electronic version: 2077-9518



# The Universe's extra bits

(Continued from page 1)

are equally valid and need to be tested with experiments", says Antoniadis.

Scientists believe that there could be two different types of extra dimensions: one in which light can propagate (we will call it 'electromagnetic') and another in which light cannot propagate and with which we can only interact gravitationally (we will call it 'gravitational'). Strictly speaking, the 'electromagnetic' type would still be part of our Universe as the type of interactions and the behaviour of light would be exactly the same. Therefore, parallel universes could only exist in 'gravitational' extra dimensions, those in which the photon cannot propagate.

The common feature of the two types of extra dimensions is that they must be finite and small, otherwise we would have already observed them. "The smaller the extra dimension, the higher the energy we need to probe it", explains Antoniadis. "Gravitational" extra dimensions could be

much larger (up to almost a millimetre), because in this case the persisting lack of information we have about them could be due to the fact that our experimental apparatuses can only interact with these dimensions through gravitation, a very weak force at the particle scale in our dimensions."

The LHC is producing particle collisions at 7 TeV, a very high energy, which will even increase to 14 TeV after the long machine shutdown planned for 2012. Providing such a high energy to particles could enable them to enter the extra dimensions, interact and then return to our dimensions to enter the detector and leave a track that would carry the information of the travel. "Both types of extra dimensions can potentially be probed by experiments at the LHC", confirms Antoniadis. "The high-energy proton-proton collisions could produce gravitons that would travel not only in our dimensions but also in possible extra ones. In the gravitational type of extra dimensions, the strength of gravitation would

be much higher than in ours and therefore the graviton would most likely disappear from our dimensions and stay in the extra ones. This would result in some missing energy – carried by the escaping graviton – in the detectors. This missing energy would be associated with other specific features and characteristic bits of information that would uniquely identify it as an escaped graviton. As for the 'electromagnetic' types of extra dimensions, they could be probed even more directly because particles can enter them, leaving a clear signal in our detectors that would directly confirm their existence."

For the first time, the LHC experiments are collecting data at energies that can potentially enable scientists to probe extra dimensions. However, before booking our trip to the closest parallel universe, let's allow a couple of more years for their data analysis to provide us with conclusive results!

CERN Bulletin



(Continued from page 1)

## Scientific Opportunity: the Tevatron and the LHC

Our laboratories and our communities have worked together for decades. Europeans have contributed greatly to the Tevatron's many successes, including the discovery of the top quark, the discovery of fast oscillations in the decay of strange B mesons and the many searches for new phenomena. Americans have contributed to many programs at CERN, notably the extraordinary precision measurements of LEP, and more recently construction of the LHC accelerator and detectors. Fermilab scientists played a vital role throughout 2009 in readying the LHC for operation and are now participating in the physics analysis. The LHC is fast establishing itself as a focal point for research at the energy frontier. It is a vital tool for all of us —and the largest high-energy physics program for the US. The rapid rise in luminosity, excellent performance of the LHC computing Grid and the deep understanding of both the LHC accelerator and the detectors are already extraordinary success stories.

The collaboration between our two

laboratories spans not only the science and engineering of building accelerators and detectors and analyzing physics, but also education and outreach to the public. For example, Fermilab and CERN take it in turns to run the annual Collider Physics School, where we train scientists, sharing completely what we know from the long experience at the Tevatron and the new tools developed for the much more complex and powerful detectors at the LHC. Our communication and outreach offices work closely together as part of the InterAction Collaboration with many other labs around the world.

The recent recommendation of the Fermilab Physics Advisory Committee to run the Tevatron for three more years was not aimed at gaining some time advantage for the Tevatron. Rather, the PAC proposed to increase the collective opportunity for our community to understand the central issue of particle physics today: electroweak symmetry breaking. For a very light-mass Higgs

around 120 GeV, where the indirect measurements indicate the Higgs should be, the Tevatron—with increased luminosity and time to improve analysis—could add crucial information to the observations at the LHC in the mode that is most difficult for all of us to observe: the Higgs decaying to B and anti-B mesons.

The funding agencies and advisory committees will study and vet this recommendation, guided not by the spirit of competition but by the goal of maximizing the scientific opportunity of our global program within the budget constraints they must work with. Both CERN and Fermilab directors are committed to supporting each other and the global particle physics community in addressing the most important fundamental questions of our era. We are both working to ensure that the spirit of competitive collaboration, unique to science, continues to thrive in particle physics.

Rolf Heuer and Pier Oddone

# Latest news from the LHC

The technical target for 2010 in terms of bunch spacing in the trains is 150 ns, which corresponds to a physical distance of about 45 m. This target will be progressively reduced next year to eventually attain the nominal value of 25 ns, equivalent to a distance of about 7.5 m between two bunches in the trains.

Following initial setting-up last week, this week tests were made to check the size of the crossing angle needed to avoid parasitic collisions when 150 ns trains are injected into the machine, and to measure the aperture with the nominal crossing angle –at injection – of 170 micro radians. The tests showed that the minimum angle needed with 150 ns spacing was 100 micro radians but that even when setting the crossing angle to the nominal value of 170 micro radians, there was more aperture than predicted in the experimental insertions.

**The setting-up to prepare the LHC for running with nominal ramp rates and with bunch trains instead of single-bunch injection have continued over the last two weeks. The goal is to reduce the machine filling time and increase its luminosity. Running with bunch trains requires the careful setting-up of crossing angles in order to avoid unwanted collisions on either side of the experiments.**

After performing the various tests, the commissioning team decided to stick with the 170 micro radian crossing angle and to complete the machine set-up with that value. During the beam energy ramp and squeeze phases, the crossing angle will be reduced to 100 micro radians for physics runs.

Running with crossing angles means that all the protection devices (injection, dump and triplet protection) have to be set up to match the new trajectories around the machine. This has taken most of this week.

*CERN Bulletin*



## Did you know?

### What is the crossing angle?

Particle bunches at the LHC do not actually collide exactly ‘head-on’. Instead, operators introduce the crossing angle between two colliding bunches. This is done in order to avoid too many unwanted parasitic collisions and interactions among the bunches. However, the lower the angle, the larger the probability that particles will interact with each other, and the higher the luminosity. Therefore, operators set the machine in such a way as to ensure the best compromise between high luminosity and a low number of unwanted interactions. The crossing angle is varied by setting the appropriate parameters on the magnets located just before the collision points where the experiments are installed (also called ‘interaction points’ or ‘experimental insertions’).

### What is the machine aperture?

The dynamic aperture of a particle accelerator is the maximum initial bunch oscillation amplitude that guarantees stable particle motion over a given number of turns. Several parameters determine the appropriate aperture, which can also be defined as the actual space that the beam can move in without producing particle losses along the path. When operators set the crossing angle at the collision points, their room for manoeuvre is represented in practice by the maximum aperture of the machine.

# Art in the countryside...with a taste of science

Did you have a chance to stroll around the village of Versonnex in August? If so, you might have come across a quite bizarre object, a sort of black and blue egg hanging

from a tree, with what could easily be taken for a ballroom chandelier on top of it. Beside the egg, a board read: "Found deep in the bowels of the basement: a boson belonging to one Mr Higgs", and then "It would appear

Between 13 July and 15 August, the second edition of the *Art en Campagne* exhibition took place in the countryside of the Pays de Gex and across the French-Swiss border. Works from around twenty artists were exhibited at various locations in the municipalities of Ornex (F), Versonnex (F) and Collex-Bossy (CH). The exhibition was not dedicated to science but, on closer inspection...

to be circulating in CERN's intimate circles but no trace of it has yet been found."

The "boson" was an artwork by Frederick Beeftink, one of the artists who participated in the second edition of the *Art en Campagne* exhibition (<http://www.artencampagne.info/>), organised by the two French municipalities of Ornex and Versonnex and the Swiss village of Collex-Bossy. The event was co-organised by Jean-Michel Tieffenbach, a member of the municipal council of Versonnex, and Michel Mercier, mayor of Ornex.

"We were inspired by what the Land Art artistic movement was doing in California in the 1960s. We then added the idea of a treasure hunt along the paths of our cross-border region", says Tieffenbach. "One of the rules we set for the exhibition was that the artists had to use only natural or biodegradable materials, and above all that

the works should not have a commercial value – a simple way of avoiding thefts". In the *Art en Campagne* exhibition, Nature is seen as a blank page, to be filled with wood, stones, earth, sand and rocks, and, of course, with one of the rarest natural elements: inspiration.

So, what has the Higgs boson got to do with all this? "The artist's intention was to underline in a humorous way that the exhibit was located near CERN's installations at Versonnex: a piece of humour spiced with a touch of mystery, and at the same time an aesthetic achievement... an egg, which promises to reveal something we don't yet know", continues Tieffenbach.

"Getting people from across the borders to meet was of course one of the aims of the exhibition: the LHC is a ring that can be viewed as a circle uniting the whole Pays de Gex and the neighbouring area of Switzerland. *"But we are also living in the area that was home to Rousseau, Voltaire and Madame de Staël. In its own modest way, Art en Campagne is making a contribution to the spirit of living together in a circle of enlightenment"*, Tieffenbach concludes."

Further information about the Land Art movement can be found on this Wikipedia page:

[http://en.wikipedia.org/wiki/Land\\_art](http://en.wikipedia.org/wiki/Land_art)

Roberto Cantoni



(Photo by Frederik Beeftink)

# A strange journey

Pierre Wasem and Tom Tirabosco are freelance cartoonists from Geneva. During a trip to Sarajevo, they came up with the idea of working together on a three-part comic book, the first of which they entitled "La fin du monde" (The End of the World). "Sous-sol" (Basement) is the second part of the trilogy, which will shortly be completed with "Sur la lune" (On the Moon).

Pierre Wasem, who wrote the script for "Sous-sol", has been mad about drawing since his early childhood. "I didn't have a television when I was a boy. My friends told me the stories of Captain Harlock, Captain Future, etc., and I created my own cartoons based on what they told me", says Pierre. "The job of a cartoonist is a lonely one. I would compare it to the task of a monk scribe of old: slow and repetitive, even gruelling".

Tom Tirabosco, who did the drawings for "Sous-sol", gained a "Maturité" diploma in the arts before going on to study at Geneva's Ecole des Beaux Arts. He published

CERN has certainly had plenty written about it over the years but who would have thought that it would one day be the subject of a dark comic book? That's just what's happened, though, with the publication of "Sous-sol" by two cartoonists from Geneva, Pierre Wasem and Tom Tirabosco.

his first book, for children, 13 years ago. Tom and Pierre have been cartoonists for 20 years.

A few months ago, Pierre visited CERN with a photographer. After talking to Tom, the two of them decided to include a comic book about CERN in their trilogy. Their basic idea was to talk about particles and anti-particles, so CERN was an ideal source of inspiration. "Although I'd never been to CERN I was able to draw part of the LHC tunnel from the many photos taken during Pierre's visit to the Laboratory", explains Tom.

"Sous-sol" is a dark comic book, in which dream and reality are intermingled throughout and science is associated with fear of the unknown. "Science explores what we have yet to discover and we are always afraid of things we don't understand", says Pierre. In "Sous-sol", science and fiction are so closely



The cover page of the "Sous-sol" comic book.

intertwined that the reader can no longer tell the difference between them. "I like being plunged from an ordinary situation into another dimension", he says.

Although the two cartoonists consulted scientists to make their story more plausible, readers will notice that some situations are quite far removed from scientific reality. But cartoons have to be entertaining, and "Sous-sol" will not disappoint here. "In creating our comic book we wanted to tell a story, take our readers by the hand and take them on a strange journey..."

Laëtitia Pedroso



Pierre Wasem and Tom Tirabosco.

# The European hadron therapy community touches base

**O**n its second birthday, the PARTNER Initial Training Network was especially under the spotlight, as the European

Commission conducted a formal project review bringing together the institutes, companies and young researchers involved. The 21 PARTNER researchers experienced the thrill of presenting their work in this privileged setting. During the coffee breaks, they joked about this being their only chance in life to speak in the Nobel Forum – but who knows what these brilliant young minds will achieve! They certainly impressed the European Commission's Project Officer Gianluca Coluccio and Expert Reviewer Kaisa Hellevuo, who stated that PARTNER is a showcase project demonstrating what the EC wants to accomplish with Marie Curie Training Networks. They were particularly captivated by the multi-disciplinary nature of PARTNER and the quality of the Fellows' training and research – so much so that they even asked PARTNER to submit a follow-up project in the next round of project proposals in January 2011!

In addition to the scientific achievements, PARTNER is certainly providing a unique life experience to its researchers: when interviewed about the added benefits of carrying out their studies within such a network, all of them enthusiastically described the interaction with their fellow PARTNER researchers, and the word "friend" was certainly more used than "colleague". They all adopted the words of the project coordinator, Manjit Dosanjh from CERN: "You now have friends from 15 countries".

After the success of PARTNER's Mid-Term Review, the annual meeting of ULICE and the general meeting of ENVISION bathed in

**The European hadron therapy community gathered in Stockholm from 3 to 5 September for the annual ENLIGHT workshops. Three of the four EC-funded projects born under the umbrella of ENLIGHT (see box) were discussed in the prestigious Nobel Forum at the Karolinska Institutet.**

the same positive and collaborative atmosphere. Besides the detailed status reports on the projects' various aspects, three plenary talks gave a broader perspective of the current challenges in hadron therapy. Anders Brahme, whose groundbreaking paper published in 1988 laid the theoretical foundation of IMRT, offered a visionary overview of future hadron treatment facilities in Sweden. Then came Wolfgang Enghardt, who had led the development of the first PET device for real-time hadron therapy monitoring (the so called in-beam PET): he traced the history of medical imaging, reviewed the state-of-the-art in the field and described the steps needed to advance towards true real-time in-vivo dosimetry. The last plenary talk was given by Stephanie Combs, a radiation oncologist at the first European carbon ion treatment facility in Heidelberg, who presented the requirements and wishes of the medical community for future medical imaging tools.

After a final picture in front of Alfred Nobel's statue, the participants said goodbye to Stockholm. The ENLIGHT gathering has once again been successful in bringing together experts from many different fields from many countries, who will continue to exchange ideas and information all over Europe, for the benefit of cancer therapy.

Watch the movie:

<http://cdsweb.cern.ch/record/1291878>

*Audrey Ballantine, Manuela Cirilli,  
Evangelia Dimovasili,  
Manjit Dosanjh, Seamus Hegarty*



Souvenir photo from the ENLIGHT workshops.



**Did you know?**

## CERN's involvement in ENLIGHT

Manjit Dosanjh, CERN's Life Sciences Advisor and member of the KTT Group, is also co-ordinator of the ENLIGHT network and some of the related programmes. Established in 2002 to coordinate the European efforts in hadron therapy, today the network counts more than 300 participants from twenty European countries. A major achievement of ENLIGHT has been the blending of traditionally separate communities so that clinicians, physicists, biologists and engineers with experience and interest in particle therapy are working together.

Under the umbrella of ENLIGHT, there are currently four EC-funded projects; PARTNER, ENVISION and ENTERVISION, co-ordinated by CERN and ULICE, co-ordinated by CNAO. With a total funding of 24 million euros, these projects are directed towards the various aspects of developing, establishing and optimising hadron therapy.

PARTNER is a 4-year Marie Curie Training project that offers research and training opportunities to 25 young biologists, engineers, physicians and physicists. Currently, CERN is hosting four PARTNER fellows. The ULICE project addresses the issue of designing optimal and standardised hadron therapy facilities, providing access to existing facilities and sharing knowledge. ENVISION focuses on the development of medical imaging techniques and protocols for quality assurance during treatment. The last born, ENTERVISION, will complement ENVISION by providing training in the imaging field, and will start in February 2011.

# Textbook tests with tungsten

In a hall for test beam experiments at CERN, next to the CLOUD climate

experiment and an irradiation facility, sits a detector prototype that is in many ways a first. It's the first ever hadronic sandwich calorimeter (HCal) prototype made of tungsten. It's the first prototype for a detector for the Compact Linear Collider Study CLIC, developed by the linear collider detector R&D group (LCD group) at CERN. And it's the first piece of hardware that results directly from the cooperation between CLIC and ILC detector study groups. Now its makers are keen to see first particle showers in their detector.

The tungsten calorimeter has just moved from a workshop at CERN, where it was assembled from finely polished tungsten squares and triangles, into the test hall. It consists of 30 tungsten plates that are one centimetre thick and some 80 centimetres wide. Last week the 30 plates, which serve as absorbers in the calorimeter, were kitted out with layers of scintillators, the detectors that record what happens when particles get stopped in the tungsten and create showers of other particles. The scintillators, each sandwiched between two layers of tungsten, are imports from the CALICE collaboration: they form part of the CALICE HCal calorimeter and are thus well cali-

**CERN's linear collider detector group joins forces with CALICE in building the world's first tungsten hadronic calorimeter.**

brated and understood. The CALICE team, flown in from DESY, cabled it all up and prepared it for its first tests with real particles, first with muons, then from November onwards with hadrons.

Tungsten does not sound like an ideal material for building a detector. It is brittle, it is expensive, it has the highest melting point of all metals, meaning that you could never liquify it in a melting pot — the pot would melt first. But tungsten also has a number of advantages, especially for scientists who want to study particle showers from collisions in detectors and measure each particle with a method called particle flow. It is extremely dense, which means that it could make the subdetectors that need dense material — calorimeters — much smaller and could thus mean cost savings in the outer components, notably the magnetic coil and return yoke. The density of tungsten makes it the best absorber for the high-energy particles spraying out from the 3-TeV collisions at CLIC. A calorimeter measures the energy of passing particles, and in order to do that it needs to make them interact first. That is why a calorimeter consists of several different layer sandwiches: a dense absorber material (for example iron or tungsten) fol-

lowed by the 'detector layer' that records the passing particles from the particle shower.

While there are a number of electromagnetic calorimeters that use tungsten as an absorber, this one is the first hadronic sandwich calorimeter. "It studies different kinds of particles," explains Lucie Linssen, head of the LCD group at CERN, "and we ran many, many simulations to convince ourselves that it would work. Now we're looking forward to feeding the real data back into the simulation software GEANT4." During the simulations the team already found one tungsten speciality that might cause a problem in the frequent high-energy bunch crossings at CLIC: the development of a particle shower in the tungsten absorber is slower than in steel, making it harder to distinguish particles from different bunch crossings. "We're looking at two solutions — one is called time sampling, which is also done at the LHC," says Linssen. The other is opting for 'classic' iron in the calorimeter's forward regions — most overlaying showers would be created in the forward direction rather than around the interaction region. "In any case we have to carefully test the tungsten's behaviour to validate our simulations."

(reprinted from ICL NewsLine [www.linear-collider.org/newsline/readmore\\_20100909\\_ftr1.html](http://www.linear-collider.org/newsline/readmore_20100909_ftr1.html))

Barbara Warmbein



Hadronic calorimeter prototype made of tungsten for the linear collider detector, being equipped with CALICE scintillators. Image: CERN/M. Brice.

# The European Graduate Course in Cryogenics hosted at CERN

This year, as Wroclaw University of Technology was already heavily involved in organising the International Cryogenic Engineering Conference (ICEC), it requested that the

"liquid helium" week to be exceptionally held at CERN. While this is certainly a good choice from the point of view of large cryogenic helium systems, with the large cryo-plants cooling the Large Hadron Collider (LHC) and its experiments, CERN has only acted as host laboratory organizing the

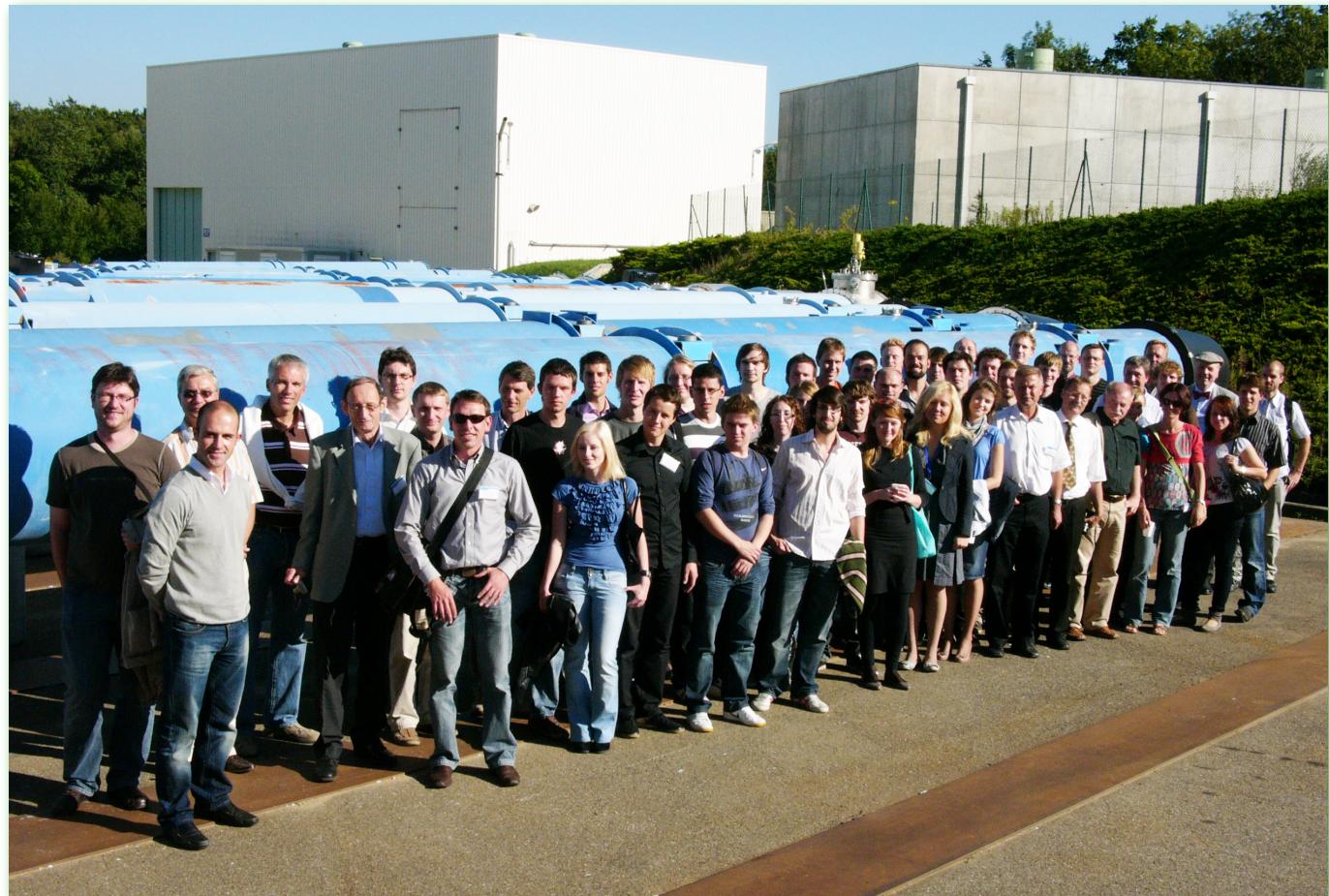
The "liquid helium" week of the European Graduate Course in Cryogenics was held at CERN from 30 August to 3 September 2010. This course scheduled annually since 2008 is a common teaching project of the Universities of Technology of Dresden, Wroclaw and Trondheim. It is focused on liquid natural gas, hydrogen and helium cryogenics. Attending students were carefully selected, and will take an examination giving ECTS credits for their academic curriculum.

course classes and visits, and the teaching and its validation remain under the responsibility of Wroclaw University of Technology as the responsible academic institution. However, the syllabus was adapted to include specific lectures, tutorials and laboratory work by CERN experts and visits of the cryogenic facilities on site.

Student accommodation and meals during the week were sponsored by six industrial companies (Air Liquide, Air Products, Linde Kryotechnik, SDMS Technologies, Velan and Weka).

In total, 45 students participated in the CERN week including 8 CERN staff who got the opportunity to join the classes.

*Laurent Tavian*





## Lunchtime Film Presentation

### ***Big Bang, mes ancêtres et moi***

by Franco-German TV producer ARTE (2009)

**W**hat do we know about the origins of the world today? This documentary presents a voyage into the mystery of these origins, accompanied by passionate scientists such as paleoanthropologist Pascal Picq, astrophysicist Hubert Reeves, physicist Etienne Klein and quantum gravity theorist Abhay Ashtekar. Organized around three key moments – the birth of the universe, the appearance of life, and the origins of mankind – this investigation takes us to various research areas around the world, including the large underground particle accelerator at CERN.

The German version of this film, "Big Bang im Labor", will be presented on 1st October.

**"Big Bang, mes ancêtres et moi" will be shown on  
Friday, 24 September from 13:00 to 14:00  
in the Main Auditorium  
Language: French**

**"Big Bang im Labor" will be shown on  
Friday, 1 October from 13:00 to 14:00  
in the Main Auditorium  
Language : German**

*Carolyn Lee*

# Bruno Ferretti (1913-2010)

**B**runo Ferretti, a key figure in European physics during the early days of CERN and the Laboratory's first director in charge of theoretical physics, passed away on 11 August. A leading physicist, he made important contributions in nuclear and elementary particle physics, quantum field theory and the physics of bremsstrahlung in crystals.

Born and educated in Bologna, Ferretti was part of the group of people in Rome who pursued research in fundamental physics in the early 1940s, despite the hardships of the times. It was there, at the Physics Institute, that he worked with Edoardo Amaldi on ideas for what was to become CERN. In December 1950, at a meeting called by Pierre Auger in the headquarters of the *Centre européen de la culture* promoted by Denis de Rougemont, Ferretti submitted to the group for scientific studies and research a concise proposal, including costs, for "a European nuclear physics



From left to right: Felix Bloch, Bruno Ferretti, H J Bhaga and Wolfgang Pauli in 1948.

laboratory based on a large accelerator of elementary particles" (in the words of the group's resolution). This laid the foundations for the future CERN laboratory, fixing its direction in "basic science".

CERN's theory group was originally based in Copenhagen, but in 1957 Ferretti became the first Director of the Theoretical Studies Division here in Geneva. During

his time at CERN, the experimental programme for the 600 MeV Synrocyclotron and the up-coming 25 GeV Proton Synrotron was outlined following wide consultation in the Member States and many seminars at CERN. In April 1959 Ferretti was succeeded by Markus Fierz and returned to Bologna where he held the chair of theoretical physics until his retirement in 1988.

In Bologna he laid the foundations for the School and Laboratories for Nuclear Engineering and was the instigator of original research in science education. As professor emeritus, he remained active and enthusiastic, deeply convinced that theorists should keep in mind feasible measurements.

*His friends*



## VISAS FOR ENTRY AND STAYS IN THE HOST STATES

### 1. What is a visa?

A visa is an administrative document authorising nationals of countries subject to the visa requirement to transit, enter and stay in a foreign country.

The numerous types of visa include in particular:

a) **Short-stay visas (the Schengen C-type visa)**, which allows their holders to enter and reside in the Schengen Area<sup>1)</sup> for a continuous or a non-continuous period not exceeding 3 months within any six-month period with effect from initial entry into the Schengen Area;

b) **Long-stay visas (D-type visa or national visa for the purposes of taking up employment)**, which are required for stays of over three months, allowing the holder to obtain a legitimization document (*titre de séjour*) from the Host States:

- A "carte de légitimation" issued by the Swiss Federal Department of Foreign Affairs;
- A "titre de séjour spécial" issued by the French Ministry of Foreign and European Affairs.

Since 5 April 2010, the D-type visa is also valid for stays of up to three months in the Schengen Area.

### 2. Who is subject to a visa requirement?

To enter and stay in the Organization's Host States, Switzerland and France, any national of a third country (i.e. not a national of a country within the European Economic Area<sup>2)</sup> or Switzerland) is in principle subject to a visa requirement.

However, under various international agreements, nationals of some third countries are exempt from the visa requirement, mainly for short stays. This applies, for instance, to nationals of Argentina, Australia, Israel, Canada and the United States for short stays where the person concerned is not engaged in gainful employment.

Holders of a valid passport, together with a residence permit (*autorisation de séjour*) issued by a Schengen State, may travel or stay in the other countries within the Schengen Area for a maximum period of 3 months. This applies to members of the personnel and their family members in possession of legitimization documents issued by the Host States.

Cf.:

- List of residence permits giving entitlement to a visa-free entry to the Schengen Area (Annex 22 to the Schengen Manual),
- List of residence permits issued by Switzerland,
- List of residence permits issued by France.

You are also reminded that neither photocopies of legitimization documents currently being renewed nor expired documents are valid for crossing borders.

Persons leaving CERN definitively on completion of their functions may keep their legitimization documents for the period of time required for travel within the Schengen Area provided that the documents are valid throughout the period of travel and that they are returned to CERN once those concerned have reached their new country of residence.

The detailed legal provisions applying in each country may be consulted on the sites of the Swiss Federal Office for Migration and of the French Ministry of Foreign and European Affairs.

Given the complexity of the matter and that amendments can be introduced at any time, any person needing to travel to CERN must make prior enquiries at the competent consulate regarding the entry conditions applying to them, indicating the nature and duration of their projected stay.

### 3. What type of visa should be applied for?

#### a) Short term (maximum of 3 months in any period of 6 months)

An application must be submitted, accompanied by an official letter of invitation or a *Protocole d'accueil*<sup>3)</sup> to obtain a multiple-entry Schengen C-type visa from the Swiss or French consulate competent for the place of residence (cf. Paragraph 4 below).

Note: This visa does not allow the holder to obtain a *titre de séjour* and cannot be renewed.

#### b) Long stay (stay of more than 3 months)

- **For taking up residence in Switzerland for the first time**

Prior to departure, a person must obtain a Swiss multiple-entry long-stay D-type visa from the Swiss consulate competent for his place of residence (cf. Paragraph 4 below).

- **For taking up residence in France for the first time**

Prior to departure, a person must obtain a French multiple-entry long-stay D-type visa from the French Consulate competent for his place of residence (cf. Paragraph 4 below).

<sup>1)</sup> Schengen Area : Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland.

<sup>2)</sup> European Economic Area: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Norway, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.

<sup>3)</sup> Even if the Schengen C-type visa is obtained from a Swiss consulate on the basis of a letter of invitation, the protocole d'accueil is still required in all cases since it also serves as a work permit in France for nationals of countries who are not members of the European Economic Area (EEA) or who are not Swiss.

<sup>4)</sup> European Economic Area (EEA): Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.



## VISAS FOR ENTRY AND STAYS IN THE HOST STATES (CONTINUED)

Spouses and dependent children or ascendants of a Swiss national or of a national of a State within the European Economic Area<sup>4)</sup>, except France, are subject to special provisions if they accompany him or join him in France (cf. CERN/DSU-RH/13173 of 19 June 2007) :

- If they are subject to an entry visa requirement, a short-stay (C-type) visa must be applied for instead of a long-stay visa;
- If they are not subject to an entry visa requirement, no visa will be required.

### Note:

If the definitive place of residence has not been determined at the time the visa is applied for, applications for a D-type visa must be submitted to both the Swiss and French Consulates.

#### • **Removals from Switzerland to France**

A French D-type long-stay visa must be obtained from the French Consulate in Geneva (cf. Paragraph 4 b) below) with a view to obtaining a special French "titre de séjour".

#### • **Removals from France to Switzerland**

No action is required for members of the personnel who are already in possession of a Swiss legitimation card (*carte de légitimation*). Family members will obtain a Swiss legitimation card on presentation to the Swiss authorities of a photocopy of their special French "titre de séjour".

## 4. How to obtain a visa

The official invitation procedure must be complied with. It is imperative that all the necessary visas be obtained prior to arrival at CERN and that they be valid for the necessary period of time, since no extension of the stay or change in the type of visa is possible.

#### a) For Switzerland

An official letter of invitation (cf. new model letters of invitation which must be adapted according to whether the length of stay is shorter or longer than 90 consecutive days), signed by an authorised member of the personnel (cf. paragraph 5 below), is sent to the prospective member of the personnel, either by the Department

of Human Resources or by the secretariat of the group or experiment concerned.

If a visa is required, the member of the personnel submits a visa application for himself and his family to the competent Swiss consulate (normally the one competent for his place of residence) together with the original of the official letter of invitation.

In the event that the family joins the member of the personnel after he has taken up his appointment, family members who are subject to a visa requirement must provide the competent Swiss consulate with a photocopy of the "*carte de légitimation*" of the member of the personnel concerned in support of their visa application.

#### b) For France:

##### o *Maximum stay of three months in any six-month period : the "Protocole d'accueil"*

Only citizens of countries outside the European Economic Area and Switzerland who are conducting research work or providing university-level education or training at CERN are entitled to a *Protocole d'accueil*.

The *Protocole d'accueil* duly completed and signed by one of the authorised persons (cf. Paragraph 5 below) is forwarded to the Relations with the Host States Service. The latter service appends its seal, has the *Protocole d'accueil* signed by the Sub-Prefecture in Gex (on Mondays, Wednesdays or Fridays) and returns it the same day to the authorised person concerned. The latter forwards the *Protocole d'accueil* to the scientist concerned, in principle attaching it to the official letter of invitation for Switzerland.

If a visa is required, the scientist concerned submits an application for one from the competent consulate together with the original of the *Protocole d'accueil*. The scientist's family members are also covered by the *Protocole d'accueil*.

##### o *A stay of over three months : "Note verbale" to the French Ministry of Foreign and European Affairs*

This procedure applies to persons who are entitled to a *titre de séjour spécial* issued by the French Ministry of Foreign and European Affairs.

The duly authorised person (cf. paragraph 5 below) responsible for issuing the invitation draws up a *Note verbale* (cf. model) and e-mails it to the Relations with the Host

States Service (relations.secretariat@cern.ch).

The latter Service forwards the Note to the French Ministry of Foreign and European Affairs, which carries out the necessary checks and assents to the issuing of a D-type long-stay visa marked « carte PROMAE à solliciter dès l'arrivée ».

No sooner than one week and no later than two months after the Note is despatched, the scientist concerned must go to the Consulate indicated to complete the formalities. However, if the competent consulate is in Geneva (for persons residing in the Cantons of Geneva or Vaud), the person concerned should wait until the Cards Office of CERN's Department of Human Resources contacts him.

In the event that the family joins the member of the personnel after he has taken up his appointment, the members of the family subject to a long-stay visa requirement must also comply with the *Note verbale* procedure described above.

It takes about three weeks to complete the various steps to obtain a long-stay visa, and they should therefore be taken in good time. The special *Titre de Séjour* must be applied for on arrival at CERN since the D-type visa is valid for a maximum of three months.

## 5. Persons authorised to sign letters of official invitation

The persons authorised to initiate the official invitation procedure are listed in the document "Procedure for obtaining Swiss and French visas" published on the <http://www.cern.ch/relations> web site under the "Visas, residence" heading.

*Relations with the Host States Service  
Tel.: 72848*

*relations.secretariat@cern.ch*



## REMINDER - EXTENSION/ SUPPRESSION OF ALLOWANCE FOR DEPENDENT CHILDREN AGED 20 TO 25

Members of the personnel with dependent children aged 20 to 25 (or reaching 20 during the 2010/2011 school year), for whom an allowance for dependent children is currently paid, are invited to provide the Education Fees Service with a:

### SCHOOL CERTIFICATE

Unless we receive, **by 31 October 2010 at the latest**, a school certificate or similar written proof (work placement contract, evidence of sandwich courses or apprenticeship) covering your child / children for the school year 2010/2011, we will be obliged to stop payment of the allowance for dependent children as well as membership of the health insurance scheme at the appropriate date, retroactively if necessary.

*Education Fees Service  
HR/SPS-SER  
Tel. 72862 / 71421*

## GENERAL INFORMATION MEETING ON THE EUROPEAN CO-OPERATIVE ASSOCIATION OF INTERNATIONAL CIVIL SERVANTS (AMFIE)

Wednesday 29 September 2010 at 11h00 (160/1-009)

Mr. Dimitri ARGYROPOULOS, Chairman of AMFIE's Board of Directors and Mrs. Janine RIVALS, Member of AMFIE's Board of Directors, will make a general presentation on AMFIE's personal financial services and how they may benefit international civil servants. They will also focus on the particular financial challenges faced by expatriate civil servants and on the solutions AMFIE can offer. The presentation will be followed by a question and answer session.

Private consultations - 9:00 to 11:00 and 14:00 to 17:30 (5/1-030).

Web page: [www.amfie.org](http://www.amfie.org).

Participants who wish to meet AMFIE's representatives for one-to-one private consultations are invited to contact directly Mrs. Janine Rivals (+33/1 45 35 70 79, GSM +33/6 63 58 36 62 or [jr@amfie.org](mailto:jr@amfie.org)) or AMFIE's Secretariat in Luxembourg (+352/42 36 61-1 or [amfie@amfie.org](mailto:amfie@amfie.org)). A dedicated form will also be available for this purpose in the meeting room during the presentation.

*HR Department (Tel. 74125)*

---

<sup>1)</sup> AMFIE is a cooperative society open exclusively to international civil servants. It is managed by a group of active and retired international civil servants. Created in 1990 as a fully licensed financial institution, it is subject to the laws and regulations which govern the activities of Luxembourg's financial sector.

The Cooperative offers its members a broad range of financial services and products at little or no cost in the six currencies available to accounts holders (EUR, CHF, GBP, USD, CAD, AUD).

## NEW MANDATORY COMPUTER SECURITY COURSE

Just like any other organization, CERN is permanently under attack - even right now. Consequently it's important to be vigilant about security risks, protecting CERN's reputation - and your work. The availability, integrity and confidentiality of CERN's computing services and the unhindered operation of its accelerators and experiments depend on the combined efforts of the CERN Security Team and you. In order to remain par with the attack trends, the Security Team regularly reminds CERN users about the computer security risks, and about the rules for using CERN's computing facilities.

Since 2007, newcomers are required to follow a dedicated basic computer security course informing them about the "Do's" and "Dont's" when using CERN's computing facilities. This course has recently been redesigned. It is now mandatory for all CERN members (users and staff) owning a CERN computer account and must be followed once every three years. Members who have already successfully passed this course will be reminded once the renewal date is approaching; members who have never done this course before will be asked to do so in the next few months. Usually this course takes less than 15 minutes, and is available at:

<http://sir.cern.ch>



# External meeting



## GENEVA UNIVERSITY

### École de physique - Département de physique nucléaire et corpusculaire

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

#### Wednesday 22 September 2010

##### PARTICLE PHYSICS SEMINAR

àt 17:00 – Auditorium Stückelberg

##### New Physics with Leading Baryons at the LHC

Dr. Sebastian White, Brookhaven National Laboratory, BNL

The leading baryon remnants in high energy proton-proton and nuclear collisions carry a great deal of information. In the ATLAS experiment a new device for high energy pp collider physics - the Zero Degree Calorimeter (ZDC) - has been providing information from this kinematic region and ATLAS triggers since LHC startup.

Previous high energy collider experiments have measured leading protons, albeit in a minuscule range of Feynman  $x$ , and this has led to the very productive field of hard diffraction. ATLAS ZDC measurements, instead, cover neutral leading baryon and photon production over the range  $0.2 < x_F < 1.0$  and provide a wealth of information about correlations between the forward baryon sector and the central region. These data are of interest, particularly, for new topics, which become interesting at the very high energies accessed by the LHC. For example, due to the shrinking of the diffractive peak and the growth of the hard component in pp collisions at the LHC, there is growing interest in characterizing these collisions in terms of collision impact parameter as suggested by Bjorken and by Frankfurt et al. The ultimate aim is to be able to trigger on very central collisions with the highest overlapping gluon density of the colliding nucleons.

Triggering on centrality is more challenging in pp scattering than in the Heavy Ion collider case where it is well known.

The information about forward production is critical also for understanding the dynamics of the interaction of the highest energy cosmic rays in the atmosphere.

Planned measurements of diffractive and non-diffractive photonuclear interactions during the upcoming ATLAS Heavy Ion run by the University of Geneva group will employ the ZDC for triggering and data analysis. This measurement will allow for the first time to study photon nucleus interactions at  $s^{1/2}$  up to 1 TeV.

The ATLAS ZDC addresses a number of interesting technical challenges. Not least of these is the 200 Watts of continuous beam energy (5 Gigarad/year) which the LHC dumps into each detector at design luminosity. The ZDC has far exceeded the time of flight performance of all other ATLAS detector subsystems. I will discuss the techniques used to obtain this high performance from sparsely sampled waveforms.

The style of this talk will be at the level of graduate physics and engineering students

#### Wednesday 29 September 2010

##### PARTICLE PHYSICS SEMINAR

àt 17:00 – Auditorium Stückelberg

##### T2K in the era of neutrino physics

Dr. Gustav Wikstrom, UniGE

The T2K neutrino oscillation experiment has been taking data since the beginning of the year, and several neutrino beam events have been observed in the Super-K detector, 295 km from the J-Parc accelerator and the ND280 detector.

The main goals of the experiment are to measure the disappearance of muon neutrinos and the appearance of electron neutrinos, as well as precise measurements of neutrino-nucleon interactions. A positive appearance signal would make it possible to search for neutrino CP-violation. The expected sensitivity to oscillation parameters are presented in the context of the many unanswered questions that prevail in the neutrino sector of the standard model.

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

Organizer : G. Pasztor



## Academic training

### CERN ACADEMIC TRAINING PROGRAMME 2010

#### LECTURE SERIES

20, 21, 23 and 24 September 2010

11:00-12:00 - Main Auditorium, Bldg. 500

#### Detector Developments for the High Luminosity LHC Era

by Dr. Arno Straessner (TU Dresden)

Monday 20 September

##### Calorimetry and Muon Spectrometers

- Part I : In the first part of the lecture series, the motivation for a high luminosity upgrade of the LHC will be quickly reviewed together with the challenges for the LHC detectors. In particular, the plans and ongoing research for new calorimeter detectors will be explained. The main issues in the high-luminosity era are an improved radiation tolerance, natural ageing of detector components and challenging trigger and physics requirements. The new technological

solutions for calorimetry at a high-luminosity LHC will be reviewed.

Tuesday 21 September

##### Calorimetry and Muon Spectrometers

- Part II: When upgrading the LHC to higher luminosities, the detector and trigger performance shall be preserved - if not improved - with respect to the nominal performance. The ongoing R&D for new radiation tolerant front-end electronics for calorimeters with higher read-out bandwidth are summarized and new possibilities for the trigger systems are presented. Similar

developments are foreseen for the muon spectrometers, where also radiation tolerance of the muon detectors and functioning at high background rates is important. The corresponding plans and research work for the calorimeter and muon detectors at a LHC with highest luminosity are presented.

Thursday 23 September

#### Tracking Detectors - Part I.

Calorimetry, muon detection, vertexing, and tracking will play a central role in determining the physics reach for the High Luminosity LHC Era. In these lectures we will cover the requirements, options, and the R&D efforts necessary to upgrade the current LHC detectors and enabling discoveries.

Friday 24 September

#### Tracking Detectors - Part II.

Calorimetry, muon detection, vertexing, and tracking will play a central role in determining the physics reach for the High Luminosity LHC Era. In these lectures we will cover the requirements, options, and the R&D efforts necessary to upgrade the current LHC detectors and enabling discoveries.

Organiser: Maureen Prola-Tessaur/PH-EDU



## Language training

#### Language Training English Courses

Nathalie Dumeaux Tel. 78144  
nathalie.dumeaux@cern.ch

### ENGLISH COURSES

#### New courses - University of Cambridge ESOL examination course

We will be starting two new courses in October leading to the Cambridge First Certificate in English (level B2 of the European Framework) and the Cambridge Advanced English (level C1) examinations.

These courses will consist of two semesters of 15 weeks with two two-hourly classes per week. There will be an average of eight students per class. Normally the examination will be taken in June 2011 but strong participants could take it earlier.

People wishing to take these courses should enrol:

[http://cta.cern.ch/cta2/f?p=110:9:1927376177842004::NO::X\\_\\_COURSE\\_ID,X\\_STATUS:4133%2CD](http://cta.cern.ch/cta2/f?p=110:9:1927376177842004::NO::X__COURSE_ID,X_STATUS:4133%2CD)

and they will then be required to take a placement test to check that their level of English is of an appropriate level.

Please note that we need a minimum of seven students enrolled to open a session.

For further information please contact Tessa Osborne 72957.

#### General and Professional English Courses

The next session will take place from 4th October 2010 to 5th February 2011 (2 weeks break at Christmas).

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://cern.ch/Training>

or contact Nathalie Dumeaux, tel. 78144.

#### Oral Expression

The next session will take place from 4th October 2010 to 5th February 2011 (2 weeks break at Christmas).

This course is intended for people with a

good knowledge of English who want to enhance their speaking skills.

There will be on average of 8 participants in a class. Speaking activities will include discussions, meeting simulations, role-plays etc. depending on the needs of the students.

#### Writing Professional Documents in English

The next session will take place from end of September to end of January 2011 (2 weeks break at Christmas).

This course is designed for people with a good level of spoken English who wish to improve their writing skills. Timetable will be fixed after discussion with the students.

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

<http://cern.ch/Training>

or contact Mrs Dumeaux: tel. 78144, or Tessa Osborne: tel. 72957.

## CERN TECHNICAL TRAINING: AVAILABLE PLACES IN FORTHCOMING COURSES

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

### Software and system technologies

Business Objects advanced	20-Oct-10	20-Oct-10	English	1 day
C++ Part 2: Object-Oriented and Generic Programming	22-Nov-10	25-Nov-10	English	4 days
CERN openlab Multi-threading and Parallelism Workshop	9-Nov-10	10-Nov-10	English	
CERN openlab/Intel Computer Architecture and Performance Tuning Workshop	22-Sep-10	23-Sep-10	English	2 days
ITIL Foundations (version 3)	22-Nov-10	24-Nov-10	English	3 days
ITIL Foundations (version 3) EXAMINATION	28-Oct-10	28-Oct-10	English	1 hour
JAVA - Level 1	25-Nov-10	29-Nov-10	English	3 days
JAVA 2 Enterprise Edition - Part 1: Web Applications	27-Oct-10	28-Oct-10	English	2 days
JCOP - Finite State Machines in the JCOP Framework	17-Nov-10	19-Nov-10	English	3 days
JCOP - Joint PVSS-JCOP Framework	11-Oct-10	15-Oct-10	English	4.5 days
Linux LPI 101 - Introduction à Linux et LPI 102 Administration systèmes sur Linux	1-Nov-10	4-Nov-10	English	4 days
Oracle Database SQL Tuning	25-Oct-10	27-Oct-10	English	3 days
Oracle Databases: Advanced PL/SQL Programming	27-Sep-10	29-Sep-10	English	3 days
PERL 5 - Advanced Aspects	30-Nov-10	30-Nov-10	English	1 day
PERL 5 - Introduction	25-Oct-10	26-Oct-10	English	2 days
Python - Hands-on Introduction	18-Oct-10	21-Oct-10	English	4 days
Python: Advanced Hands-On	16-Nov-10	19-Nov-10	English	4 days
Secure coding in C/C++	12-Oct-10	13-Oct-10	English	2 days
Web Applications with Oracle Application Express (APEX) 3.2	20-Sep-10	22-Sep-10	English	3 days

### Electronic design

Altium Designer - Advanced training for experts	8-Oct-10	8-Oct-10	French	1 jour
Altium Designer - migration for occasional PCAD users	5-Oct-10	7-Oct-10	French	3 jours
Altium Designer 6.0 - Foundation & Board Implementation	22-Sep-10	30-Sep-10	French	5 jours
CEM DES CONVERTISSEURS DE PUISSANCE	3-Nov-10	5-Nov-10	French	3 jours
LabVIEW Connectivity with RADE applications	11-Nov-10	12-Nov-10	Bilingual	2 days
LabVIEW Core I with RADE introduction	11-Oct-10	13-Oct-10	Bilingual	3 days
LabVIEW Core II	14-Oct-10	15-Oct-10	Bilingual	2 days
LabVIEW Core III	8-Nov-10	10-Nov-10	Bilingual	3 days
LabVIEW Data Acquisition and Signal Conditioning Course	4-Nov-10	5-Nov-10	Bilingual	2 days
Siemens: Profinet IK-PNSYS	28-Oct-10	29-Oct-10	French	2 jours

### Mechanical design

ANSYS DesignModeler	28-Oct-10	29-Oct-10	French	2 jours
AutoCAD 2010 - level 1	30-Sep-10	8-Oct-10	French	4 jours
AutoCAD Electrical 2010	25-Oct-10	12-Nov-10	French	5 jours
CATIA-Smartteam Base 2	1-Oct-10	19-Oct-10	French	7 jours
CATIA-Smartteam Base1	8-Nov-10	24-Nov-10	French	6 jours

### Office software

ACCESS 2007 - Level 1 : ECDL	27-Sep-10	28-Sep-10	French	2 jours
CERN EDMS for Engineers	20-Oct-10	20-Oct-10	French	1 jour
CERN EDMS for Local Administrators	5-Oct-10	6-Oct-10	French	2 jours
CERN EDMS MTF in practice	2-Nov-10	2-Nov-10	French	0.5 jour
Dreamweaver CS3 - Level 2	22-Nov-10	23-Nov-10	French	2 jours
Dreamweaver CS3 - Niveau 1	30-Sep-10	1-Oct-10	French	2 jours
EXCEL 2007 - level 1 : ECDL	7-Oct-10	8-Oct-10	French	2 jours
EXCEL 2007 - level 1 : ECDL	29-Nov-10	30-Nov-10	English	2 days
EXCEL 2007 - Level 2: ECDL	21-Oct-10	22-Oct-10	French	2 jours
EXCEL 2007 (Short Course I) - HowTo... Work with formulae, Link cells, worksheets and workbooks				
Bilingual	0.5 day			
				15-Nov-10 15-Nov-10



# Technical training

Marie-Laure LECOQ 74924  
ENSEIGNEMENT TECHNIQUE  
TECHNICAL TRAINING  
technical.training@cern.ch



EXCEL 2007 (Short Course II) - HowTo... Format your worksheet for printing	15-Nov-10	15-Nov-10	Bilingual	0.5 day
EXCEL 2007 (Short Course III) - HowTo... Pivot tables	16-Nov-10	16-Nov-10	Bilingual	0.5 day
Indico - Conference Organization	7-Oct-10	7-Oct-10	English	0.5 day
Indico - Meeting Organization	7-Oct-10	7-Oct-10	English	0.5 day
Individual Coaching	19-Oct-10	19-Oct-10	Bilingual	1 hour
Individual Coaching	4-Nov-10	4-Nov-10	Bilingual	1 hour
OUTLOOK 2007 (Short Course I) - E-mail	18-Oct-10	18-Oct-10	Bilingual	0.5 day
OUTLOOK 2007 (Short Course II) - Calendar, Tasks and Notes	18-Oct-10	18-Oct-10	Bilingual	0.5 day
OUTLOOK 2007 (Short Course III) - Meetings and Delegation	19-Oct-10	19-Oct-10	Bilingual	0.5 day
Powerpoint 2007 - Level 2	5-Nov-10	5-Nov-10	Bilingual	1 day
Project Planning with MS-Project	15-Nov-10	19-Nov-10	French	2 jours
Sharepoint Collaboration Workspace	25-Nov-10	26-Nov-10	French	2 jours
Sharepoint Designer (Frontpage) - Level 2	14-Oct-10	15-Oct-10	French	2 jours
Windows 7	16-Nov-10	16-Nov-10	English	0.5 day
Windows 7	28-Sep-10	28-Sep-10	French	0.5 jour
WORD 2007 - level 1 : ECDL	4-Oct-10	5-Oct-10	French	2 jours
WORD 2007 - level 2 : ECDL	18-Nov-10	19-Nov-10	French	2 jours
WORD 2007 (Short Course II) - Working with long document: styles and tables of contents 0.5 day	4-Nov-10	4-Nov-10	Bilingual	

## Special course

Demonstrating Reliability with Accelerated Testing	20-Sep-10	21-Sep-10	English	2 days
Designing effective websites	27-Sep-10	28-Sep-10	English	2 days

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



## Seminars

### MONDAY 20 SEPTEMBER

#### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

#### Detector Developments for the High Luminosity LHC Era (1/4)

D. BORTOLETTO / PURDUE UNIVERSITY

### TUESDAY 21 SEPTEMBER

#### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

#### Detector Developments for the High Luminosity LHC Era (2/4)

D. BORTOLETTO / PURDUE UNIVERSITY

#### COMPUTING SEMINAR

11:00 - IT Auditorium, Bldg. 31-3-004

#### Scalable Networking for Cloud Datacenters

A. BECHTOLSHEIM / ARISTA NETWORKS

#### CERN JOINT EP/PP SEMINARS

11:00 - Bldg. 222/R-001

#### Measurement of CP Violation in Bs --> J/psi phi Decays at CDF

M. KREPS / UNIVERSITY OF WARWICK

#### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

#### TBA

D. FORCELLA / ENS

### WEDNESDAY 22 SEPTEMBER

#### LHCC MEETING

09:00 - Main Auditorium, Bldg. 500

#### 103rd LHCC Meeting AGENDA OPEN Session

T. WYATT / UNIVERSITY OF MANCHESTER

#### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

#### TBA [Proton radius]

A. DE RUJULA / CERN

### THURSDAY 23 SEPTEMBER

#### COMPUTING SEMINAR

10:00 - IT Auditorium, Bldg. 31-3-004

#### High quality software through collaborative development and testing

D. CHADWICK, R. SCHOON, N. BERNEY / IBM RATIONAL

#### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

#### Detector Developments for the High Luminosity LHC Era (3/4)

D. BORTOLETTO / PURDUE UNIVERSITY

### FRIDAY 24 SEPTEMBER

#### ACADEMIC TRAINING LECTURE

#### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

#### Detector Developments for the High Luminosity LHC Era (4/4)

D. BORTOLETTO / PURDUE UNIVERSITY

#### PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

#### TBA

F. GLIOZZI / UNIVERSITA' DI TORINO

### MONDAY 27 SEPTEMBER

#### COMPUTING SEMINAR

11:00 - IT Auditorium, Bldg. 31-3-004

#### Patterns for Parallel Programming

T. MATTSON / INTEL CORP.

#### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

#### TBA

J. WALCHER / CERN

### TUESDAY 28 SEPTEMBER

#### SPSC MEETING

09:00 - Main Auditorium, Bldg. 500

#### 98th Meeting of the SPSC - in preparation

C. VALLEE / CPPM-MARSEILLE

#### CERN JOINT EP/PP SEMINARS

11:00 - Bldg. 222-R-001

#### Four quark states, glue balls and mixing of pseudoscalar mesons studied at KLOE

B. DI MICCO / CERN/UNIVERSITA' DEGLI STUDI DI ROMA TRE

#### CERN COMPUTING COLLOQUIUM

14:00 - BE Auditorium Meyrin, Bldg. 6-2-024

#### Towards an Exabyte File System

J. HUGHES / HUAWEI

#### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

#### TBA

K. PAPADODIMAS

### THURSDAY 30 SEPTEMBER

#### TH BSM FORUM

14:00 - TH Auditorium, Bldg. 4

#### TBA

J. SANTIAGO / UNIVERSITY OF GRANADA

### FRIDAY 17 SEPTEMBER

#### CONFERENCES & WORKSHOPS

14:00 - Main Auditorium, Bldg. 500

#### Celebration in Honour of Magda and Torleif's 80th Birthday