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## The new Building for Linac4 is ready ahead of schedule



Entrance to new Linac 4 tunnel.

For the time being, the new two-storey 3000 m<sup>2</sup> building looks like a huge empty hangar. Very soon, though, the ground floor will start to be filled with the technical equipment and the klystrons. The Linac4 itself will be installed in the tunnel excavated below the ground. "Being 12 metres underground, deep inside what remains of the old "Mount Citron", the tunnel provides excellent shielding for the new accelerator", says Maurizio Vretenar, Linac4 Project Leader.

The tunnel will be connected to the PS Booster that sits on a level two and a half metres higher. "One of the challenges we

faced was having to build the tunnel up to the wall of the PS area without causing any interference to the running machines. All the activities, in particular the excavation, have been conducted with great care, in order to minimize any shocks and vibration", explains Luz Anastasia Lopez Hernandez, the CERN official responsible for the civil engineering of Linac4. Indeed, Linac2, the PS Booster and the PS are the start of the LHC injector chain and any disturbance to them could interfere with the overall performance of the accelerator chain.

(Continued on page 2)



A word from the DG

### Reaffirming a long-standing partnership

CERN welcomes many VIP visitors, and each one is special. However, last Saturday's visit from Irina Bokova, the Director-General of UNESCO, has particular significance. UNESCO was the organization that steered CERN into existence in the 1950s, and it is at UNESCO's headquarters that our founding documents are held.

(Continued on page 2)

### In this issue

#### News

- The new Building for Linac4 is ready ahead of schedule 1
- A word from the DG 1
- The latest from the LHC: Last period of proton running for 2010 2
- CLIC/ILC researchers explore new avenues for collaboration 3
- A New Look for the Globe Gardens 4
- Cosmic ray synergies 5
- Retina neural circuitry seen with particle detector technology 6
- GLIF – Striving towards a high-performance-on-demand network 7
- Apprenticeship: a worthwhile option 8
- CAS Introduction to Accelerator Physics in Bulgaria 9
- Supertramp (de)tour to CERN 10
- Dutch hi-tech companies exhibit at CERN 10
- A big win for the CERN Golf Club at the ASCERI tournament 11
- Going Underground in Singapore 11
- Winner of video contest inspired by the LHC 12
- An 80th birthday celebration for the Ericsons 12
- Ombuds' Corner 13
- News from the Library 13

#### Official

14

#### Take note

14

#### Technical training

17

#### Seminars

18

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## A word from the DG

(Continued from page 1)

### Reaffirming a long-standing partnership

**Today, CERN and UNESCO have much in common. Both have the promotion of science and of global cooperation as part of their missions, and both set great store by the power of education to change the world for the better.**

**UNESCO has been an observer at the CERN Council ever since our foundation, and in recent years our converging interest in forging links with the developing world has seen important joint initiatives. In 2009, CERN held two schools in Kigali, Rwanda, covering the subjects of digital libraries and teacher training. Both promoted Rwandan and African expertise, and both were held within the framework of UNESCO's International Basic Science Programme (IBSP). Their success has led to a repeat being organized next month in the Moroccan city of Rabat, bringing together people from Morocco, Algeria, Benin, Cameroun, Senegal and Tunisia. Some of the participants will then spend a month at CERN.**

**Ms Bokova's visit gave us the chance to discuss other initiatives that our two organizations are working towards. One, for example, concerns the differences in school physics curricula from one country to another. A workshop planned for the second half of 2011 will address this question, looking at how good physics teaching can make a real difference to development and sustainability.**

**On Saturday, Ms Bokova and I also discussed a new agreement between CERN and UNESCO that would allow us to put such initiatives on solid ground, rather than each being managed on an ad-hoc basis. Our discussions confirmed our convergence of views and objectives, and reaffirmed our mutual commitment to develop and strengthen the cooperation between our organizations.**

**Rolf Heuer**

## The new building for Linac4 is ready ahead of schedule

(Continued from page 1)

But that's not all. In addition to the technical constraints - which also included the maximum length available for the tunnel, a challenge for the accelerator experts - CERN engineers faced another problem: given the position of the tunnel, the new building would have had to sit across the French-Swiss border, just a few metres from a 200 year-old milestone dating back to the Congress of Vienna. Current regulations forbid this, so the final shape of the building was non-rectangular, cleverly avoiding the borderline!

"The secret to the success of the work was the good cooperation among the teams working under the excellent coordination of the GS Department", says Maurizio Vretenar. "Every problem that came up during the construction work was solved in record time. This allowed us to be ahead of schedule and within the budget".

The first modules of the new Linac4 are expected to arrive and be lowered down in 2012. The accelerator should be completed by 2014.

*Francesco Poppi*



### Did you know?

Linac4 is one of the major renovation projects for the CERN accelerator complex and is the first project to be built in the framework of the LHC upgrade programme approved by the CERN Council which allocated additional resources amounting to 240 MCHF for the period 2008 to 2011.

Linac4 is scheduled to be commissioned in 2013-14 and connected to the PS Booster during the 2016 shut-down. It will supply beams at an energy of 160 MeV, compared to the 50 MeV beams of the current Linac2. This will make it possible for the PS Booster to deliver a beam intensity twice as high, which will contribute to increasing the LHC's luminosity.

Moreover, Linac4 has been designed to take into account future upgrades of the accelerator complex.

## The latest from the LHC: Last period of proton running for 2010

**D**uring the recent technical stop, which was brought forward by two weeks to 19-22 October, an aperture restriction in the beam 1 injection channel at Point 2 of the LHC was successfully repaired. The machine was restarted on Friday 22 October, with the priority to re-establish clean injection conditions in the repaired injection channel. This was achieved over the weekend, resulting in a return to physics operation with 312 bunches per beam on Sunday 24 October.

Since then, the number of bunches has been increased to 368, still using the 150ns bunch spacing scheme employed since late September. This has seen peak luminosities in excess of  $2 \times 10^{32} \text{ cm}^{-2} \text{ s}^{-1}$  and delivered integrated luminosity climbing above  $48 \text{ pb}^{-1}$  in the highest

luminosity experiments. Routine operation with 25 MJ stored beam energy was achieved.

For the last week of proton running in 2010, attention will shift to operation with 50ns bunch spacing, the scheme planned for 2011. The aims for this last week are two-fold: to uncover any unexpected problems with the 2011 scheme and, if all goes well, to rapidly increase the number of bunches and continue to deliver integrated luminosity to the experiments. This will be followed by a short period of machine development with proton beams early next week.

Around 3 November, the 2010 proton run will end and operation with lead ions will start, continuing until early December.

*CERN Bulletin*

# A New Look for the Globe Gardens

After months of conceptual development, plans to develop the site around the Globe are taking shape. The

innovative designs were drawn up for CERN by a unique collaboration consisting of landscape architects Charles and Lily Jencks, and "Group H", a group of architects headed by Globe designer Hervé Dessimoz. They comprise new venues, covered walkways, a café and gift shop, a separate VIP entrance and a physics-inspired garden for visitors. The landscape itself becomes a feature – dramatically altered to create a cosmic garden formed by shaped mounds, ponds, and a natural amphitheatre for public events.

"The new exhibition in the Globe is spectacular, and the proposed garden would make it even more so, adding much to our visitors' experience of CERN," explains James Gillies, head of the Communication Group. "The new design extends the experience into the Globe's surroundings and provides a unique recreational area for the region."

**Designs to develop the grounds of the Globe of Science and Innovation have recently been unveiled. The plan is to extend the visitor activities on offer, transforming the area into a public arena for scientific exploration.**

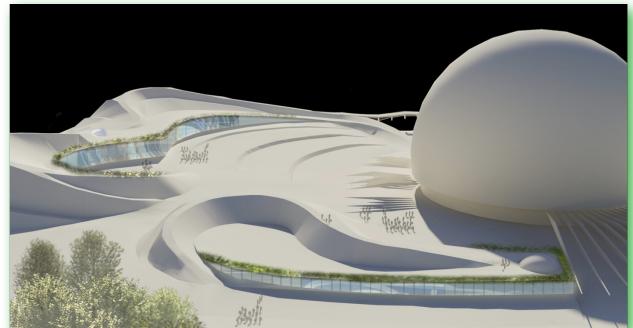
The design creates a new public space for CERN's regional neighbours, and has already attracted the attention of local authorities. "Representatives of the *Projet d'Agglomération franco-valdo-genevois* have expressed their support for the project," says Friedmann Eder, head of CERN's Relations with the Host States Service. "The plans provide a public area where local people will want to come and spend time, and while they are there, they will learn about CERN."

Charles Jencks is famous for reflecting science in the landscape. He has lent his creative flair to the CERN landscape plans, creating a highly conceptual garden that complements the existing and proposed

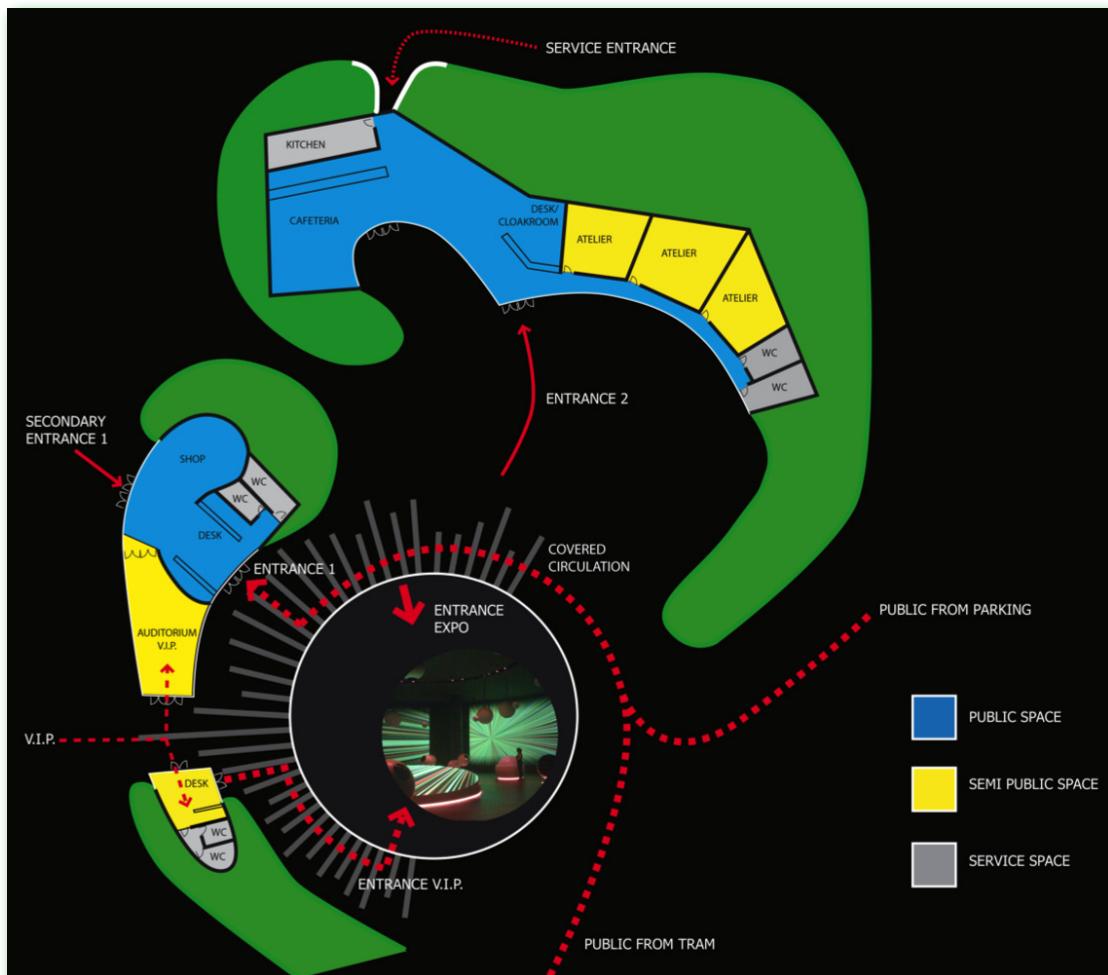
buildings. "The current plans develop the area surrounding the Globe; however, a broader vision for the whole area between Entrance A and B is being considered", explains Gillies.

The design sketches are now being converted into architectural drawings, which will be presented by the end of March. These plans will detail the scale and cost of the project, and will allow CERN to begin the fundraising from external sources that will turn the plans into reality.

Katarina Anthony



A 3D computer model of the Globe Gardens. © Jencks Squared and Groupe H.



Design for the new Globe Gardens. © Jencks Squared and Groupe H.

# CLIC/ILC researchers explore new avenues for collaboration

The International Workshop on Linear Colliders (IWLC), which was organised by the European Committee for Future Accelerators, hosted by CERN, and held at CERN and the International Conference Centre in Geneva, attracted a large audience of about 500 experts. Although there have been other joint conferences between the CLIC and ILC communities before, they have all been focused on specific technical and/or managerial issues.

The IWLC was part of an ongoing effort by CLIC and ILC to provide an environment in which researchers can exchange ideas, inform their peers about their most recent achievements and work together on

Researchers from CLIC and ILC met for their first common International Workshop on Linear Colliders, which was held in Geneva from 18 to 22 October. Although the talks were mostly scientific and technical, the political message behind them was a breakthrough, as the workshop showed the progress made in unifying the two communities.

common issues. Given the possible technical overlaps between the two projects, this was an opportunity to avoid a duplication of effort and take advantage of the great synergies between the two studies.

The CLIC and ILC communities discussed their many shared challenges, including issues with beam delivery systems and machine-detector interfaces, physics and detectors, positron generation, beam dynamics, damping rings, civil engineering and conventional facilities, and cost and schedule.

While technical issues and technology were the focus of the conference, the politics and policy of both projects were also discussed. "The conference explored how the reaction to a possible LHC discovery in the short or medium-term could affect ILC and CLIC, especially in view of the update of the European Strategy for Particle Physics in 2012", said Jean-Pierre Delahaye, CLIC study leader. Irrespective of which of the two is chosen as a future accelerator, the two communities expect to continue to work together towards an optimal solution.

Progress has been made on both colliders: CLIC has shown that it can generate a high-intensity drive beam by beam manipulation, and has demonstrated two-beam acceleration with high-field structures; ILC has achieved its 2010 goal of making sure that half of the ILC cavities (the superconducting accelerating structures) produced reach the desired acceleration gradient. Both projects are completing R&D reports and used the workshop as an opportunity to review technical issues. While the CLIC community is planning to present its Conceptual Design Report in 2011, the ILC will publish a more advanced Technical Design Report in 2012.

The IWLC was the first of several planned annual meetings of ILC/CLIC technical working groups. According to ILC Director Barry Barish, "the workshop was a real success – a big step has been made towards one community that jointly decides the future. Now we have to let science decide between the linear collider technologies."

To view images from the workshop, visit the photo album at :

<http://www.linearcollider.org/newsline/photogalleries/20101021/>

Katarina Anthony

This image shows the International Workshop on Linear Colliders (IWLC) 2010 poster. The background is a photograph of the Geneva skyline at sunset, with the iconic Jet d'Eau fountain spraying water into the air. The poster features the text "International Workshop on Linear Colliders 2010" and "IWLC2010" prominently. It includes sections for the "Programme Committee" and "Local Organizing Committee", listing names of key figures from various institutions like DESY, CERN, and Univ. Oregon. Logos for ECFA, ILC, CLIC, CERN, and CERN's International Conference Centre are at the bottom.

# Cosmic ray synergies

In research, as in education, you can sometimes get things done more rapidly and easily by joining forces. For roughly the past decade, physicists have been taking

their particle detectors to secondary schools. "The challenge now is to bring all of these existing projects together in a network," says Arnaud Marsollier, in charge of communication for the ASPERA network and organiser of the workshop.

The workshop held on Friday, 15 October was attended by representatives of major European educational projects and members of the European Particle Physics Communication Network (EPPCN) and the European Particle Physics Outreach Group (EPPOG). In all, 21 countries were represented, among them the United States with its QuarkNet project (see box). The purpose of the meeting was to discuss the possibility of enhancing the network of activities, in particular by pooling the various efforts. The large number of participants at the workshop showed the very considerable interest in and enthusiasm for this project. "By presenting ideas to everyone and sharing our practical knowledge, we reflected on how to put life into this project, at the European and not just at the national level," notes Arnaud. "Currently, the various players throughout Europe tend to work in isolation, with considerable efforts required to build and operate their individual cosmic ray detection systems and to conduct the project with teachers and pupils. I am convinced that, if we work together, we will

In laboratories, cosmic rays have been the subject of scientific research for many years. A more recent development is their appearance in schools, as educational tools. A recent workshop at CERN, organised by ASPERA in collaboration with EPPOG and EPPCN, had the goal of bringing together ideas and initiatives with a view to setting up a future common project.

be able to learn from each other's success and help new projects become operational more rapidly."

One of the advantages of jointly running a project using different detectors would be the creation of a common data format, which would make it possible to manage the data centrally and make them accessible for everyone. This would open the way to their exploitation for real science, although that is not the main focus. Another possibility is the creation of a simplified, low-cost kit that could be used to launch activities more rapidly in countries where the necessary resources do not yet exist. "Participants need not sign up to the full network immediately. An easy-to-use device would be a way of attracting the interest of new teachers," explains Arnaud.

The workshop spawned a large number of ideas. These now need to be structured with a view to proposing a network project to the European Commission. "It's very encouraging that we managed to get so many people together around a table. The support we received from CERN and the other institutions represented at that meeting will also be crucial for the project's success," he concluded.

Laëtitia Pedroso



Presentation at the Workshop on 15 October.



## Did you know?

### A secondary school near CERN gets its detector

As one of its representatives was visiting CERN, the educational network QuarkNet from the USA took the opportunity to install a cosmic ray detector in a French secondary school close to CERN. QuarkNet, an initiative of Fermilab and universities in Florida, Washington and Notre Dame in the United States, has already installed some 400 cosmic ray detectors in US schools and around 150 others in educational establishments in 18 other countries around the world. QuarkNet has obtained funding from the National Science Foundation (NSF) in the United States for extending the network to schools worldwide, by installing detectors in the vicinity of ILC conferences. Tom Jordan, one of the network leaders, spent two days at *Le Joran*, a secondary school in Prévessin, to install and calibrate the detector together with the physics teacher and students. *Le Joran* was not chosen at random: the school has signed up for a science laboratory partnership with CERN, and the physics teacher, Christophe Hugou, expressed a particular interest in the work on cosmic rays. The arrival of QuarkNet is thus a welcome development. The 20 students participating in the science laboratory will be able to harvest data and upload them to the network's webpage. Earlier, the same students took part in the European Researchers Night held on 24 September this year.

# Retina neural circuitry seen with particle detector technology

**S**een from the point of view of a particle physicist, eyes are image detectors that can gather many different types of data: light and dark, different colours, motion, etc. In particular, the retina, a thin tissue that lines the back of

the eye, is a biological pixel detector that detects light and converts it to electrical signals that travel through the optic nerve to the brain. Neurobiologists know that many different cell types are involved in these processes, but they don't know exactly how many there are, what they all do, or how they interact.

Alan Litke, an experimental particle physicist within the ATLAS collaboration, has been leading a team of physicists and engineers from the high energy physics community which aims to contribute answers to these questions. In collaboration with neuroscientists, this interdisciplinary team has worked to adapt the technology of particle detectors used in high energy physics to study the functioning of the retina. The main challenge is to understand how the retina processes and encodes the information about the outside visual world that it sends to the brain.

The experimental method used by the team involves placing a thin slice of retinal tissue in a chamber filled with a special solution that can keep the tissue alive for several hours. Images generated by a computer are focused on the retina's photoreceptors that detect the visual stimulus, convert it into electrical signals, and then send it through a network of interconnected neurons for further processing. The output electrical signals from this neural network are then detected by an array of microelectrodes implanted on a glass slide. "The inspiration for our instrumentation techniques came directly from those that were used to build the microstrip silicon detectors in the ATLAS tracker", explains Alan Litke. "For our first studies, we used arrays of 61 electrodes spaced at 60 µm; however, the cells we were looking for at the time represented such a small fraction of our sample that they were not identifiable in a statistically significant way. Therefore, we decided to design a new array with 512 electrodes, which allowed us to discover a new cell type in 2007".

For the present study (whose results are published in the 7 October, 2010 issue of

**Using particle physics techniques, high energy physics researchers have recently provided new insight into neural circuits inside the retina. After uncovering a new type of retinal cell and mapping how the retina deals with colours, the team from Santa Cruz (US), Krakow and Glasgow is now turning its attention to more complex issues such as how the retina gets wired up and how the brain deals with the signals it receives from the retina. All this using technology derived from high-density, multistrip silicon detectors...**

Nature: <http://www.nature.com/nature/journal/v467/n7316/full/nature09424.html>, the team had to further improve the array, producing a high-density 519-electrode array with 30 µm electrode spacing, which allowed it to achieve finer spatial resolution and an even higher efficiency. "In collaboration with neurobiologists from the Salk Institute, we succeeded in describing the neural circuits at the resolution of individual neurons and the neural code used by the retina to relay colour information to the brain", says Litke. "The very high granularity of the array and the possibility of simultaneous recording of signals from hundreds of the retina's output cells were instrumental in the correct identification of a complete local population of the output cells involved in colour perception". Technically, this required a miniaturisation process that people at CERN were familiar with. The multichannel integrated circuits to read out the electrical signals were designed by ATLAS member Wladyslaw Dabrowski and his group from the AGH University of Science and Technology in Krakow, and the high-density electrode arrays were developed by Keith Mathieson and Deborah Gunning from the Particle Physics Experiment group at the University of Glasgow. Ex-high energy physicist Alexander Sher, from the University of California, Santa Cruz, was one of the primary authors of the Nature paper.

Given the novel cross-disciplinary aspect of this research, Litke was confronted with the difficulty of obtaining funding to carry out the work. "When we started our studies, one of the core challenges was to get funds because practices in high-energy physics and biology are different. Coming from the world of high energy physics, we had no pilot neurobiology data to justify and validate our methods", explains Litke. "Our proposal reviewers either did not believe we could develop the technology or did not believe that recording the signals from hundreds of neurons simultaneously was that interesting." He is hopeful that the situation has now improved as the team has started to produce successful evidence of its approach.

The new technology opens the way to a wide range of possible biomedical applications, including the development of better methods for retinal prosthesis, and the treatment of retinal disease in people suffering from diabetes, thus potentially reducing the risk of blindness. Indeed, in some cases, diabetes can lead to the leakage of blood from tiny blood vessels into the eye. This can be treated with laser surgery. The multielectrode array technique can be used to evaluate and improve the effectiveness of different laser treatments.

So far, Litke and his colleagues have focussed on retinal processing, but they expect their results to be just the tip of the iceberg and that there is still a lot more to discover in this field. "These initial steps in understanding how visual information is processed by the retina do not exhaust the possible applications of our multielectrode array technology", Litke asserts. "In the future, we plan to apply this technology to other exciting domains: how the complex but precise neural circuitry of the retina develops, and what the brain does with the data it receives from the retina".

CERN Bulletin

# GLIF – Striving towards a high-performance on-demand network

The transfer of such large amounts of data at this speed has been made possible thanks to the GLIF community's vision of a new computing paradigm, in which the central architectural element is an end-to-end path built on optical network wavelengths (so called lambdas). You may think of this as an on-demand private highway for data transfer: by using it you avoid the normal internet exchange points and "traffic jams".

GLIF is a virtual international organization managed as a cooperative activity, with 'participants' rather than 'members', a lightweight governance structure, and administrative support from TERENA (the Trans-European Research and Education Networking Association). CERN is part of this community, and the IT Department is following all developments with great interest.

If you were passing through the Mezzanine in the Main Building a couple of weeks ago, you probably noticed the large tiled panel display showing an ultra-high resolution visualization model of dark matter, developed by Cosmogrid. The display was one of the highlights of the 10th Annual Global Lambda Grid Workshop demo session, together with the first ever transfer of over 35 Gbit/second from one PC to another between the SARA Computing Centre in Amsterdam and CERN.

"This network has the potential to become an important infrastructure for sending data between Tier 1s and Tier 2s, and the GLIF network is a resource that CERN could very well tap into to gain access to a high-service, predictable-performance, on-demand network" explains David Foster, Deputy Head of the IT Department. "The SARA-to-CERN data transfer is a demonstration of what's to come. It's pushing the state of the art in terms of data transfer". For the demonstration, equipment from Ciena and Extreme Networks was used, together with a 40Gbit/s lambda connection between Netherlight in Amsterdam and CERNLight,

built on a jointly owned dark fibre between Geneva and Amsterdam.

"CERN was an excellent host for the 10th GLIF Global LambdaGrid Workshop, a two-day event which brought together almost 100 leading users and providers of research networking. The close presence of many advanced and demanding users from the CERN community created the perfect environment for the participants to push back the frontiers in lambda networking again, as evidenced by several successful demonstrations and many inspiring talks and discussions", said Kees Neggers of SURFnet, Chair of the Governance and Growth Working Group.

The GLIF network is open to anybody sharing the vision of optical interconnection of different facilities and who voluntarily contributes network resources (e.g. equipment, lambdas) or actively participates in relevant activities. For more information on GLIF and the proceedings of the Workshop, please visit

<http://www.glif.is/>

Kristina Gunne



GLIF display.

# Apprenticeship: a worthwhile option

If you think you've seen this story before, that's because you have: for several years now, CERN's apprentices have been awarded the UIG prize.

The apprenticeship training programme is intended for young people aged between 15 and 21. It runs over four years and is available for two trades: electronics technicians and physics laboratory technicians (see box). This year, once again, the programme proved its mettle.

Each year, prizes are awarded to the best apprentices in the canton of Geneva at a special ceremony at which the 1 700 apprentices get their CFC (*Certificat fédéral de capacité*) diplomas. Despite its formal nature—the ceremony is attended by canton councillors and representatives of the major professional training bodies—the mood is a relaxed and festive one. This year Adrian Gaggero, a physics lab technician, was awarded a UIG prize for his outstanding performance during his training. At a separate ceremony, Audrey Grüter, in the same trade, also received a UIG prize awarded to the best apprentice in the field of mechatronics.

Jean-Marc Bouché, in charge of technical apprentice training in CERN's Human Resources Department, explains: "The apprenticeship programme is a very complete training programme that meets specific objectives laid down by the Swiss federal apprenticeship regulations and vocational and professional education and training ordinances. Up until the end of

**What better way is there to get good training than by alternating classwork with practical work? This is what CERN offers with its long-standing apprenticeship training programme, which this year again saw two young participants win awards from the *Union industrielle genevoise* (UIG).**

their second year all trainees follow practically identical courses, before choosing an area of specialisation. This allows them to explore the various aspects of their future profession, thereby gaining experience of numerous activities linked to their field of specialisation."

It's not always easy to find the right placement for each of the 24 apprentices under Jean-Marc's care. "I always try to find the apprentice a traineeship placement that corresponds to his or her request. It's made easier by the fact that so many different domains are represented at CERN. Colleagues in the Laboratory's various services play a big role in placing the apprentices, and I would like to express my gratitude to all of them," says Jean-Marc. His responsibilities also include monitoring the programme so as to maintain close coordination with the instructors and supervisors.

For those seeking employment, today's job market can be a forbidding place, and having a successful apprenticeship under one's belt can make all the difference. "Very few of our graduates end up not finding work. Of course, motivation and determination remain the main factors that determine a trainee's success," concludes Jean-Marc.

Laëtitia Pedroso

## Did you know?

The apprenticeship programme is open to young people from all the Member States. Knowledge of French is a prerequisite, as French is the language of instruction.

Applications can be made on the UIG website, or directly through an employer. All applications are centrally processed by the UIG. Candidates will be required to undergo a test organised by the UIG in March, April or May. Their CVs are then sent to the various employers, who conduct their own selection procedure.

The first year of training takes place outside CERN, at a training centre called CEP (*Centre d'enseignement professionnel*, UIG-UNIA). Here, trainees learn the basic skills of their trade and prepare them for work in an industrial setting.

Six new apprentices join the scheme every year. Study and work alternate, with two days of classroom instruction typically followed by three days in a firm. To obtain the CFC diploma, they must not only pass the final examination, but also demonstrate the practical and theoretical skills needed to work in their chosen trade, in addition to presenting the projects in which they participated and the work they performed during their apprenticeship at CERN.



UIG award presentation at CERN.

# CAS Introduction to Accelerator Physics in Bulgaria

The course was extremely well attended with 109 participants representing 34 different nationalities, coming from countries as far away as Australia, Canada and Vietnam.

The intensive programme comprised 39 lectures, 3 seminars, 4 tutorials where the students were split into three groups, a poster session where students could present their own work, and 7 hours of guided and private study. Feedback from the participants was extremely positive, praising the expertise and enthusiasm of the lecturers, as well as the high standard and excellent quality of their lectures. For the first time at CAS, the CERN Director-General, Rolf Heuer, visited the school and presented a seminar entitled "CERN & High Energy Physics – the Grand Picture".

In addition to the academic programme, the students had the opportunity during the traditional one-day excursion to visit the Aladja Monastery built into the local rock and enjoy a visit to the beautiful Cape Kaliakra. An evening visit was also organised to the Varna Observatory in collaboration with Ms Svejina Dimitrova, Head of the Astronomic Observatory and Planetarium, Varna.

**The CERN Accelerator School (CAS) and the Institute for Nuclear Research & Nuclear Energy (INRNE – Bulgarian Academy of Sciences) jointly organised a course on Introduction to Accelerators, at the Grand Hotel Varna, Bulgaria, from 19 September to 1 October, 2010.**

The next CAS course will be the Joint School on Particle Accelerators (CERN-US-Japan and Russia) on the topic "Synchrotron Radiation and Free Electron Lasers". The course will

take place in Erice, Italy from 6 to 15 April, 2011. The next specialised course will be on "High Power Hadron Machines" and will take place in Bilbao, Spain from 24 May to 2 June, 2011. Information can be found on the CAS website

<http://www.cern.ch/schools/CAS>

*CERN Bulletin*



*The DG visits the Varna Observatory.*



*The CERN Accelerator School group photo.*

# Supertramp (de)tour to CERN

**N**ot content with merely unveiling the mysteries of the Universe, CERN has also been able to improve the performance of one of the world's most famous singers and saxophonists, John Helliwell, the leader of the rock band Supertramp! In his words: "Tonight in Lyon I shall play the saxophone better than before I came here". And Gabe Dixon, keyboard player and songwriter, added: "I would love to write a song about the Universe now. If only I could put all this into poetic words... that would be a real accomplishment".

The members of Supertramp were brought to CERN by Patrick Geeraert, former Head of CERN's Finance Department and current Head of Administration at ESO. The programme of the band's short visit included a tour of the SM18 hall. Guided by Rolf Landua, Supertramp found the experience extremely inspiring. "What we've been told today gave us a fantastic opportunity to learn. The efforts you make to understand and visualize these things knock you out", said Cliff Hugo, bass player.

**During their recent European tour celebrating forty years since their debut album, the members of the famous British rock-band Supertramp decided to take a break and pay a visit to CERN on 16 October, the day after their concert at Geneva Arena. It was a fast break for the authors of the popular "Breakfast in America", as their next concert was in Lyon the same evening.**

Not surprisingly for members of a band that has been playing together for 40 years, the aspect of CERN that Supertramp loved the most was the collaboration among thousands of scientists to figure out solutions, and the sharing of knowledge and discoveries. For Martyn Ware, founding member of the bands The Human League and Heaven 17, this was not the first time he had visited an international scientific organisation. "I recently visited the Paranal Astronomical Observatory in the middle of the Atacama desert. To be in the place where we will discover the secrets of the Universe and where the World Wide Web was born is worth thousands of science lessons, it's a dream for me... it's fantastic!"

"I am not at all scared by black holes but something I'd like to do when I pass away is to be cryogenically frozen so that I can come back about 300 years from now, still

alive, when a lot of scientific questions will have answers" said Carl Verheyen, Supertramp guitarist. "And now I'm going to read the CERN Bulletin for the rest of my life!" Hurrah!

Francesco Poppi



Supertramp's John Helliwell with anti-matter trap.

## Dutch hi-tech companies exhibit at CERN

**T**he exhibition, supported by the Dutch Ministry of Economic Affairs and organised by the Netherlands National Institute for Subatomic Physics (Nikhef), in cooperation with the Foundation for Fundamental Research on Matter (FOM), the FOM Institute for Plasma Physics Rijnhuizen, and Dutch Scientific, an association of manufacturers of scientific equipment, will be held in the Main Building from 8 to 11 November (see on page 14). "The last Holland @ CERN exhibition took place fifteen years ago", says Robert Klöpping from Nikhef, Dutch Industrial Liaison Officer for CERN and Purchasing Advisor for Grenoble ESRF. "This kind of event is very important for Dutch industry as it allows us to show what Dutch companies can do and gives firms the

**Twenty-seven Dutch companies will present the state of the art of their technological developments at the industrial exhibition Holland @ CERN from 8 to 11 November. The exhibition is designed to help strengthen the ties between fundamental science and Dutch industry.**

opportunity to network directly with CERN experts in order to tailor their products to their demands".

The participating companies are those that have been collaborating with CERN and ESRF in the past five years. "They include firms whose activity is in fields of mutual importance for CERN and industry, such as precision mechanics, cryogenics, magnets, computing, measuring technology, engineering, optics, simulation, etc.", explains Klöpping.

With the aim of allowing CERN to take full

advantage of Dutch industry's ability to design and invent new processes and technologies, Holland @ CERN is not simply set up to sell equipment, but also to establish an efficient cross-fertilisation between fundamental science and industry. A series of technical and scientific seminars will be organised in parallel with the technology exhibition. "There will also be an All Dutch Night, during which the companies can informally meet Dutch people working at CERN and ESRF", says Klöpping. The official opening ceremony will be held on 9 November in the Council Chamber, and will be attended by Sigurd Lettow, CERN Director for Administration and General Infrastructure, Harald Reichert, Director of Research at ESRF, Jos Engelen, Chairman of the Dutch NWO, and Boude Wijn van Epenennaam, Dutch UN Ambassador.

"We would like to organise Holland @ CERN every two or three years, which might be possible, provided that the Ministry continues to support us. Of course, return on the companies' investment will be a crucial issue in this respect", Klöpping concludes.



# A big win for the CERN Golf Club at the ASCERI tournament

Competitions took place on the Dreihof Golf Club at Essingen in southern Germany, starting with the singles Stableford competition on the first day and a 4 ball, better ball Stableford group competition the next day. CERN's four-man team – Peter Jones, Per Werner, Claes Frisk and Alasdair Ross – came first in the group competition, with Peter Jones, CERN's star

The CERN Golf Club returned victorious from the autumn ASCERI (Association of the Sports Communities of the European Research Institutes) tournament which was held from 17 to 20 September.

golfer from the IT Department, winning the individual competition.

The autumn ASCERI tournament included competitions in football, tennis and cart racing as well as golf. Over 230 representatives of research institutes across Europe took part.



The CERN Golf Team (left to right: Peter Jones, Alasdair Ross, Claes Frisk and Per Werner) celebrates its victories at ASCERI.



**Did you know?**

## CERN Golf Club

The CERN Golf Club was founded in October 1982 and is a CERN Staff Association club. The Club became an affiliated Corporate Association of the French Golf Federation (FFG), in the Rhone-Alpes League, in 1991. It welcomes experienced golfers and also offers classes for beginners.

## Going Underground in Singapore

The various bodies and corporations working on the USC project are currently studying the feasibility of constructing up to 40 caverns (60 m below ground) similar in size to an LHC experiment hall, in a similar type of rock. Civil engineering and geotechnical experts are calculating

**Singapore has plans to build a massive Underground Science City (USC) housing R&D laboratories and IT data centres. A delegation involved in the planning to build the subterranean complex visited CERN on 18 October 2010 to learn from civil engineers and safety experts about how CERN plans and constructs its underground facilities.**

the maximum size of the cavern complex that can be safely built. The complex could one day accommodate between 3000 and



The delegation from Singapore.

5000 workers on a daily basis, so typical issues of size and number of access shafts need to be carefully studied.

At first glance, you might not think the LHC has much in common with the USC project; as Rolf Heuer pointed out: "CERN tries to keep the number of personnel underground to an absolute minimum, whereas you're going to open up the caverns to huge numbers". However, many issues are remarkably similar, such as environmental impact studies, international procurement strategy for the various consultants and contractors, and safety aspects like emergency escape shafts, fire detection, access control and ventilation systems, etc.

"We are more than happy to share some of the lessons learnt during the LHC construction and from the feasibility challenges we are facing for future underground projects like CLIC" explained CERN head of civil engineering, John Osborne.

After a fruitful exchange, the delegation visited the CMS site at Cessy, including the above-ground control room and the Underground Service Cavern, also called USC!

John Osborne



News from the Library

## Lost in citations? Try EndNote Web

For a few months now, CERN users have EndNote Web at their disposal, which comes together with access to the Web of Science online database. This bibliographic management tool will ease your work when collecting and organizing citations related to a research paper you are writing. It allows you to collect publication references from a wide variety of online sources via an online search, import text files or directly capture a bibliographic reference on a webpage with the Firefox EndNote plug-in.

You can store up to 10,000 references, which you can then access from any computer and share with your colleagues. Thanks to this tool, you can format in one click your bibliography, according to the style of the journal you intend to submit your paper to. Last but not least, if you need to export references already stored in EndNote Web, these can be saved in a standardized format, which makes them easy to manipulate and portable to other formats.

The CERN Library will soon organize a training session on the use of this tool, as well as other bibliographic management software, and on a variety of information resources (bibliographic databases, online books and journals, encyclopaedias) useful for your work.

Registration to use EndNote Web is necessary and is free for all CERN users.

Access:

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

Please send your feedback to:

[library.desk@cern.ch](mailto:library.desk@cern.ch)

CERN Library

## Winner of video contest inspired by the LHC

Luke, who works in the film industry in Los Angeles and also takes physics classes, came across a video promoting the contest while he was browsing the American Natural History Museum website. "It seemed like a perfect opportunity to combine my passion for science with my craft of filmmaking", says Luke.

Luke decided to make a video about the LHC. To him, CERN embodies the ideals of scientific progress and discovery, continually expanding the boundaries of our knowledge. "I have never actually been to CERN but it's high on the list of places I want to visit when I travel to Europe", says Luke. There is a lot of misleading information on the Internet about CERN – especially about the LHC. Luke wanted to clarify what the LHC is doing and why. He does so with a lot of humour and respect.

While making his video, Luke was inspired by contemporary science educators, as well as by science documentaries, including Carl Sagan's "COSMOS", Jacob Bronowski's

A video contest was launched this year to mark the 10th anniversary of the Frederick Phineas and Sandra Priest Rose Centre for Earth and Space. Luke Cahill, a 27 year-old BFA graduate, has just won the contest with a movie about CERN.

"Ascent of Man", and even early Disney science films. As he mentions in the video, "Science is, and always will be, a journey of discovery, enquiry and curiosity. It is the quest for knowledge, the method by which we can discover the inner workings of our universe and, to me, there is no venture more important."

Luke is currently producing a series of short science videos like "LHC" on a variety of topics. He looks forward to producing and directing science documentaries akin to "COSMOS" and "The Ascent of Man."

To see the video, go to:

<http://www.amnh.org/news/2010/10/winner-announced-for-rose-center-anniversary-video-contest/>

Laëtitia Pedroso

## An 80th birthday celebration for the Ericsons

A Chinese proverb says that happiness is when friends coming from far and away meet and talk to each other. These wise words could very well be used to sum up the celebrations in honour of the 80th birthdays of Magda and Torleif Ericson, a couple in the normal sense of the word and often also in the field of physics. Torleif joined CERN's Theory Division in 1960, initially to work at the intersection of nuclear and particle physics at the Synchrocyclotron, and retired in 1995.

During the celebratory event on 17 September, speakers reviewed the depth and breadth of the contributions which both Torleif and Magda have made to the-

oretical physics in general and to nuclear physics in particular. José Bernabeu, Guy Chanfray, Wolfram Wiese, Achim Richter and Anthony Thomas all covered the considerable research that has been stimulated by the Ericson-Ericson correlation(s) over the past 50 years.



A concert by the violinist Jean-Philippe Audoli and the pianist Blandine Eynaud and an informal dinner rounded off the celebrations, which were attended by friends and colleagues from CERN as well as from other European and American institutions. A video recording of the event can be seen at

<http://cdsweb.cern.ch/record/1293658>

CERN Bulletin



## Ombuds' Corner Le coin de l'Ombuds

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

### Time and stress management

**T**ed\* had been working in the Organization for many years. Thanks to his expertise, he was promoted to a position where, in addition to his usual daily tasks, he also had to manage strategic projects involving close contacts with people in different Departments. At the same time, the personnel in his unit had been reduced, so Ted had to deal with many urgent requests from people bursting into his office at all hours of the day.

Ted found himself in a stressful situation, having to manage his strategic projects, which required deep thought and reflection, while constantly being interrupted

by people needing his help, even for a few minutes. His professional conscience told him that he had to be accountable for everything, so he didn't bring the problem to his hierarchy but started to use lunch times and do overtime to get through his work. This situation continued for about two months until Ted started to lose sleep and lose weight, constantly worried about his multiple jobs.

During a medical examination, he was so down that he started to cry and said he couldn't stand it any longer. He then acknowledged that he was suffering from burnout and had to take sick leave.

### Conclusion

The earlier problems are voiced, the easier a solution can be found. If Ted had come to the Ombuds, for example, an improvement in his work schedule could have been worked out and/or he could have been offered training in managing time and stress.

### Contact the Ombuds early!

<http://cern.ch/ombuds>

Vincent Vuillemin

\* Names and story are purely fictitious.



### Staff members with 25 years' service at CERN in 2010

**T**he 38 staff members who are celebrating 25 years at CERN in 2010 were invited by the Director-General to a reception in their honour on 21 October.

ASBURY	David	IT
BAUDRENGHIEN	Philippe	BE
BERGSMA	Felix	PH
BERNAL	Jean-Manuel	TE
BERRIG	Olav Ejner	BE
BONT	Hillebrand	GS
BOURGEOIS	Nicolas	PH
BOURREL	Thierry	EN
CARMINATI	Federico	PH
DE METZ-NOBLAT	Nicolas	BE

DORE	Vincent	IT	MESENGE	Pascal	EN
DUJARDIN	Martial	EN	MISSIAEN	Dominique	BE
DURET	Dorothée	TE	MORPURGO	Giulio	EN
ESCAFFRE	Sonia	EN	OBERLI	Luc	TE
FERNIER	Pascal	BE	OVALLE	Ernesto	BE
GEERAERT	Patrick	FP	PEDERSEN	John	EN
GILOUX	Christian	TE	PETRILLI	Achille	PH
GRONIGER-VOSS	Eva-Maria	DG	RAMSEIER	Gilles	TE
HEAGERTY	Denise	IT	SPANGGAARD	Jens	BE
HEGARTY	Seamus	HR	TARDY	Thierry	EN
ISNARD	Christian	IT	VAN HOVE	Erwin	FP
JONES	Robert	IT	VINCENT	Patrick	EN
JOUBERJEAN	Franck	IT	VOSS	Rüdiger	PH
LAGRANGE	Thierry	FP			
MARIN	Antonio	BE			



## Official news

### EDUCATION FEES: INDEXATION OF THE AMOUNTS FOR ACCOMMODATION, MEALS AND SCHOOL TRANSPORT FOR THE 2010-2011 ACADEMIC YEAR

At its meeting on 21 September 2010, the Standing Concertation Committee approved the calculated indexation of the amounts for accommodation, meals and school transport for the 2010-2011 academic year. Accommodation fees for the 2010-2011 academic year will be paid in the form of a lump sum of 537 CHF per month (paid at the rate of 100%). The

amount used for the calculation of meal payments will be 18 CHF per meal (paid at the rate of 75%). The ceiling for school transport fees has been set at 615 CHF for the 2010-2011 academic year.

*Education Fees Service  
HR Department  
Tel. 72862 / 71421*



### Take note

From 8 to 11 November 2010  
Administration Building, Bldg. 61  
From 9-00 to 17-30

### HOLLAND AT CERN – INDUSTRIAL EXHIBITION

Sponsored by EVD, an agency of the Dutch Ministry of the Economy

Twenty seven companies will present their latest technology at the industrial exhibition "Holland at CERN". Dutch industry will exhibit products and technologies which are related to the field of particle physics.

Individual interviews will take place directly at the stands in the Main Building. The firms will contact relevant users/technicians but any user wishing to make contact with a particular firm is welcome to use the contact details which are available from each Departmental secretariat or at the following URL:

[http://gs-dep.web.cern.ch/gs-dep/groups/sem/ls/Industrial\\_Exhibitions.htm#Industrial\\_exhibitions](http://gs-dep.web.cern.ch/gs-dep/groups/sem/ls/Industrial_Exhibitions.htm#Industrial_exhibitions)

You will find the list of exhibitors below.

#### LIST OF EXHIBITORS:

- |                                     |  |  |
|-------------------------------------|--|--|
| 1. Schelde Exotech                  | 10. Imtech Industry International B.V. | 19. Sience &Technologies BV            |
| 2. Vernooy BV Triumph Group         | 11. VDL ETG Projects                   | 20. 3D Worknet BV                      |
| 3. INCAA Computers                  | 12. Machinefabriek Boessenkool B.V.    | 21. Veenstra-Glazenborg                |
| 4. DeMaCo Holland bv                | 13. Dutch Space B.V.                   | 22. Bayards Aluminium Constructies BV  |
| 5. TNO Science & Industry           | 14. Heinmande BV                       | 23. Hitec Special Measuring Systems BV |
| 6. Janssen Precision Engineering BV | 15. Stirling Cryogenics BV             | 24. Sumipro BV                         |
| 7. Hositrad VacuumTechnology        | 16. CryoZone BV                        | 25. Heemskerk Innovative Technology    |
| 8. Velmon Lastchniek BV             | 17. IRMCO bv                           | 26. Heeze Mechanics                    |
| 9. Genius Klinkenberg Int BV        | 18. ECM Technologies                   | 27. Wijdeven                           |

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



Take note



Sauvez des vies  
Donnez votre sang

**Le mercredi 03 novembre 2010  
de 8h30 à 16h00**

## COLLECTE DE SANG

Organisée par l'EFS (Établissement Français du Sang) d'Annemasse

CERN  
RESTAURANT 2

**On wednesday 3 November 2010  
From 8.30 to 16.00**

## BLOOD DONATION CAMPAIGN

Organized by EFS (Établissement Français du Sang) of Annemasse

Veuillez, si possible, vous munir de votre carte de groupe sanguin.  
If possible, please, bring your blood group Card.





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

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

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

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

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

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

The quantum adventure has only just begun!

**Monday, november 15th 2010 - 18h30**



**Jochen Mannhart**

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

**QUANTUM PHYSICS ON THE SCALE OF DAILY LIFE**

**Tuesday, november 16th 2010 - 18h30**



**Wolfgang Ketterle**

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

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

**Wednesday, november 17th 2010 - 18h30**



**David Gross**

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

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

**Thursday, november 18th 2010 - 18h30**



**Alain Aspect**

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

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

**Friday, november 19th 2010 - 18h30**



**Rainer Blatt**

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

**THE QUANTUM WAY OF DOING COMPUTATIONS**



## 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

Agile Project Management with Scrum	15-Nov-10	16-Nov-10	English	2 days
C++ Part 2: Object-Oriented and Generic Programming	22-Nov-10	25-Nov-10	English	4 days
CERN openlab Multi-threading and Parallelism Workshop	10-Nov-10	11-Nov-10	English	2 days
Emacs - way beyond Text Editing	09-DEC-10	09-DEC-10	English	3 days
ITIL Foundations (version 3)	22-Nov-10	24-Nov-10	English	1 day
ITIL Foundations (version 3) EXAMINATION	13-DEC-10	13-DEC-10	English	1 hour
JAVA - Level 1	25-Nov-10	29-Nov-10	English	3 days
JAVA 2 Enterprise Edition - Part 2: Enterprise JavaBeans	13-DEC-10	15-DEC-10	English	3 days
JCOP - Finite State Machines in the JCOP Framework	17-Nov-10	19-Nov-10	English	3 days
JCOP - Joint PVSS-JCOP Framework	29-Nov-10	03-DEC-10	English	4.5 days
Linux LPI 101 - Introduction à Linux et LPI 102 Administration systèmes sur Linux	1-Nov-10	4-Nov-10	English	4 days
Object-oriented Design Patterns	06-DEC-10	08-DEC-10	English	3 days
Optimising Oracle - Foundations	25-Nov-10	26-Nov-10	English	2 days
Oracle - Programming with PL/SQL	06-DEC-10	08-DEC-10	English	3 days
Oracle - SQL	01-DEC-10	03-DEC-10	English	3 days
PERL 5 - Advanced Aspects	30-Nov-10	30-Nov-10	English	1 day
Python: Advanced Hands-On	16-Nov-10	19-Nov-10	English	4 days
XML - Introduction	01-DEC-10	02-DEC-10	English	2 days

### Electronic design

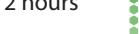
Certified LabVIEW Associate Developer (CLAD)	26-Nov-10	26-Nov-10		1 hour
Cours de base Automation du bâtiment	13-DEC-10	15-DEC-10	French	3 jours
LabVIEW Connectivity with RADE applications	11-Nov-10	12-Nov-10	Bilingual	2 days
LabVIEW Core I with RADE introduction	29-Nov-10	01-DEC-10	Bilingual	3 days
LabVIEW Core II	02-DEC-10	03-DEC-10	Bilingual	2 days
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
Radiation effects on electronic parts and systems	18-Nov-10	19-Nov-10	English	1.5 days
Signal Integrity: Advanced High-Speed Design and Characterization	22-Nov-10	26-Nov-10	English	5 days

### Mechanical design

CATIA-Smartteam Base 2	26-Nov-10	14-DEC-10	French	7 jours
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### Office software

A hands-on overview of EVO	26-Nov-10	26-Nov-10	English	0.1 day
Dreamweaver CS3 - Level 2	22-Nov-10	23-Nov-10	French	2 jours
EXCEL 2007 - level 1 : ECDL	29-Nov-10	30-Nov-10	English	2 days
EXCEL 2007 (Short Course I) - HowTo... Work with formulae, Link cells, worksheets and workbooks			15-Nov-10	15-Nov-10
Bilingual		0.5 day		
EXCEL 2007 (Short Course 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
Individual Coaching	4-Nov-10	4-Nov-10	Bilingual	1 hour
Individual Coaching	02-DEC-10	02-DEC-10	Bilingual	1 hour
Powerpoint 2007 - Level 2	5-Nov-10	5-Nov-10	French	1 jour
Project Planning with MS-Project	15-Nov-10	19-Nov-10	French	2 days
Sharepoint Collaboration Workspace	25-Nov-10	26-Nov-10	French	2 jours
Sharepoint Collaboration Workspace	13-DEC-10	14-DEC-10	English	2 days
Windows 7	16-Nov-10	16-Nov-10	English	3 hours
WORD 2007 - level 2 : ECDL	18-Nov-10	19-Nov-10	French	2 hours





## Technical training

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

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 1 NOVEMBER

#### HR SEMINAR

8:30 - Globe, Bldg. 80

#### Induction Programme - 1st part

N. DUMEAUX, S. LYNN HOBSON / CERN  
E. MACARA, D. SERAFINI

#### TH JOURNAL CLUB ON STRING THEORY

14:00 - TH Auditorium, Bldg. 4

#### TBA

J. DRUMMOND

### TUESDAY 2 NOVEMBER

#### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

#### Chronology protection in AdS/CFT and the stringy exclusion principle

J. RAEYMAEKERS

### THURSDAY 4 NOVEMBER

#### ISOLDE SEMINAR

08:00 - Bldg. 26-1-022

#### ISAC targets and ion sources

P. BRICAULT / TRIUMF

#### INTC MEETING

13:30 - Council Chamber, Bldg. 503

#### INTC / 38th Meeting of the INTC

PROF. PETER BUTLER / UNIVERSITY OF LIVERPOOL

### MONDAY 8 NOVEMBER

#### CERN HEAVY ION FORUM

08:00 - Bldg. 160-1-009

#### From QCD color coherence to inclusive hadronic distributions at colliders

#### TH JOURNAL CLUB ON STRING THEORY

14:00 - TH Auditorium, Bldg. 4

#### TBA

M. VASILIEV / LEBEDEV INST.

### TUESDAY 9 NOVEMBER

#### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

#### Remodeling the A-Model

A. BRINI / SECTION DE MATHÉMATIQUES, UNIVERSITÉ  
DE GENÈVE

### THURSDAY 11 NOVEMBER

#### TH PHENCLUB

14:00 - TH Auditorium, Bldg. 4

#### Scientific Computing in CERN TH J. ANDERSEN

#### TH BSM FORUM

14:00 - TH Auditorium, Bldg. 4

#### Low Scale Flavor Gauge Symmetries

M. REDI

### FRIDAY 12 NOVEMBER

#### PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

#### TBA

R. BRITTO / CEA SACLAY

### WEDNESDAY 10 NOVEMBER

#### TH COSMO COFFEE

11:00 - TH Auditorium, Bldg. 4

#### Pseudo-Dirac Dark Matter

A. DE SIMONE / EPFL

#### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

#### Dissecting a hadron-collider data analysis

G. DISSERTORI / ETH ZURICH

#### ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

#### ISOL@MYRRHA

D. PAUWELS / IKS - KULEUVEN