



The LHC Physics Centre at CERN

LHCC - LHC Physics Centre at CERN

European Organization for Nuclear Research

LPCC
LHC Physics Centre at CERN

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News:

- LHC commissioning and operations status:**
 - see the latest [news](#) from the daily LHC programme coordinator's meetings.
 - see the planning for the week from the machine coordination [web page](#)
 - see the current status of the accelerator from the [LHC "page 1"](#)
 - see the current status of the experiments from the [LHC "page 3"](#)
 - More info and news archive from the LHC programme coordination [web page](#).
- LHC physics day:** starting from May 7, the LPCC will devote the first Friday of each month to discuss several topics related to LHC physics. If you plan to visit CERN, this is a good day to be here! Topics will be chosen as we move along. The current calendar includes:
 - May 7: Diffraction day:** focus on the modeling of diffractive properties of MB events, and a review of diffractive observables for the 2010-2011 run. Registrations are open from the Indico page.
 - June 4: Characterization of new physics at the LHC:** meeting dedicated to the exploration by ATLAS and CMS of the issues and tools that will enable the characterization of new physics at the LHC. This first meeting at the LPCC will set the stage for the organization of a more extended Workshop, to take place in the Fall. Registrations are open from the Indico page.
- Suggestions** for future topics are welcomed!

Thursday June 24, at 16:30: **LPCC Students Lecture on CERN and High Energy Physics, the grand picture**, by Prof. R. Heuer (CERN Director General). Abstract: The lecture will touch on several topics, to illustrate the role of CERN in the present and future of high-energy physics: how does CERN work? What is the role of the scientific community, of bodies like Council and SPSC, of the management of the experiments, in the definition of the physics programme? What are the plans for the future of the LHC and of the non-LHC physics programme? What is the role of R&D and technology transfer at CERN?

Coming events at CERN

- TH Cosmo Coffee, 19/05, 08:00 : [DBI and the galileon](#), by Dr. Tommaso Damour
- TH Theoretical Seminar, 19/05, 14:00 : [Quantum Gravity with Anisotropic Scaling](#), by Horava, Peter
- TH ISM Forum, 20/05, 14:00 : [Supernovae at the LHC](#), by Ligeti, Zoltan
- Particle and Astro-Participle Physics Seminars, 21/05, 14:00 : [Gravitational Wave Detection: The role of the LIGO/Virgo Analysis](#), by POSSENTI, Andrea
- Academic Training Lecture Regular Programme, 25/05, 11:00 : [Baryon Asymmetry of the Universe \(J/2\)](#), by Prof. J. Erlich
- Academic Training Lecture Regular Programme, 26/05, 11:00 : [Baryon Asymmetry of the Universe \(J/2\)](#), by Prof. Murayama, Hitoshi
- TH Theoretical Seminar, 26/05, 14:00 : [Algorithmic Complexity Methods for Mass Measurements with Missing Energy](#), by Kim, Jan-Woo
- Open Colloquium, 27/05, 16:30 : [Fundamental tests in Cosmo-Quantum Electrodynamics](#), by Mr. Hancke, Serge
- LHC Working Groups / Minimum Bias and Underlying Event, 31/05,

Until the early days of LEP, a large part of the scientific activity related to CERN's experiments was strongly centered at the Laboratory. Few places had the infrastructure to host activities such as the working groups preparing the Yellow Reports, and the limited access to information in the pre-web era made CERN the natural place to learn what was happening in the field. "I remember the days when we, the theorists, would come to CERN just to read the most recent preprints, which were reaching CERN's Library before we could get them in our institutes", says Michelangelo Mangano, a member of the Theory Group and the person responsible for the LHC Physics Centre project.

Nowadays, access to cheap and powerful computing enables remote groups to work

on the data produced at faraway CERN, and the fraction of activities related to the LHC physics that take place away from CERN has grown considerably in recent years. This represents a challenge for CERN in fulfilling its duty to provide comprehensive scientific support to the LHC physics programme, addressing the needs of the user community and CERN physicists. "Not everybody can afford to jet around the world attending workshops and meeting collaborators. Scientists who are at CERN most of their time must find here the inspiring atmosphere that will allow them to make the most of the LHC enterprise", explains Mangano. "CERN should continue to provide intellectual leadership to the physics

(Continued on page 2)

Nos 21 & 22 – 26 May & 2 June 2010



A word from the DG

A new resource for the entire LHC community

The first time I addressed the CERN community as Director-General in January 2009, I said that I wished to see the intellectual life of the Laboratory develop. With the experiments rapidly accumulating data, now is the time for that to happen.

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The LHC Physics Centre at CERN

(Continued from page 1)

community worldwide, and adapt its scientific support initiatives to this rapidly evolving landscape".

The LHC Physics Centre at CERN (LPCC) is the answer to this challenge. Its current and planned initiatives cover a broad spectrum, ranging from contributions to the education and integration at CERN of young researchers, to communication towards the whole physics community. "The LPCC provides a forum for discussion among the experiments, and with the theorists", continues Mangano.

Among other things, the LPCC will coordinate the activities of CERN's LHC-related workshops. "On 7 May we started the series of 'LHC physics day', mini-workshops on issues of current interest organized on the first Friday of each month", says Mangano. Working groups will be created with the aim of preparing the ground for comparison and combination of the results from the various experiments. "Two LHC Working Groups (LWGs) are already active, one on 'Minimum Bias and Underlying Event properties', the other on 'Rate normalisation'", he adds.

The recently created LPCC web page is being built up to become a portal to facilitate access to all information on LHC physics. All the presentations and workshops organized in the framework of the

LPCC activities are broadcast, recorded and archived on the web. The website contains links to the daily status reports on the LHC, to the LWGs, to relevant workshops, publications and other events. "It also contains lists and skill profiles of physicists in the CERN Theory group (TH) who can be contacted by the experimentalists for questions ranging from MonteCarlo tools to aspects of physics beyond the Standard Model. A periodic LPCC bulletin will soon start being distributed", says Mangano.

In the area of education, in coordination with CERN's Academic Training programme, the LPCC will promote the integration of PhD students at CERN. "Students from the LHC experiments and from the computing, accelerator and technical departments have already been actively involved in the planning of dedicated lectures, and initiatives will be introduced to familiarise them with the workings of CERN", says Mangano. "This will include web resources to help new arrivals, analysis tutorials organised in coordination with the experiments, poster sessions to present their work, and possible integration in research projects led by CERN Fellows and Staff".

"The LPCC is a great opportunity offered by CERN to the whole physics community, with the expectation that it will grow in time to assist and enhance the exploitation of the

physics output from the LHC" confirms Rolf Heuer, CERN Director-General.

Everybody is welcome to make comments and suggestions for new initiatives by sending an e-mail to:

lpcc@mail.cern.ch

CERN Bulletin



Did you know?

The LHC physics centres around the world

Two other centres for LHC physics are already operational: the LHC physics centre at Fermilab and the 'Physics at the Terascale' at DESY (Germany). Both centres support the local communities of particle physicists by providing a common infrastructure that enhances collaboration, training and the development of new tools for the LHC data analysis.

Towards higher intensities

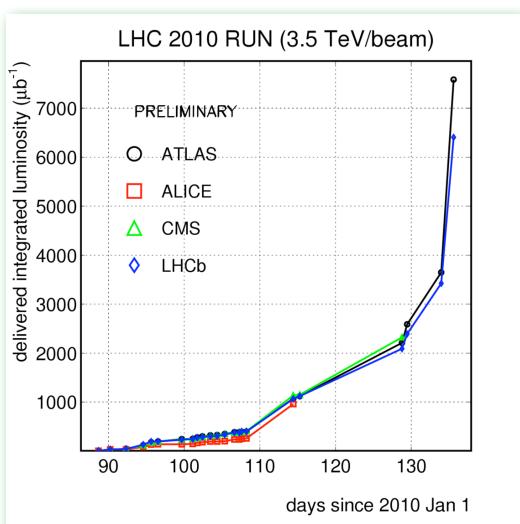
Over the past 2 weeks, commissioning of the machine protection system has advanced significantly, opening up the possibility of higher intensity collisions at 3.5 TeV. The intensity has been increased from 2 bunches of 10¹⁰ protons to 6 bunches of 2 x 10¹⁰ protons. Luminosities of 6 x 10²⁸ cm⁻²s⁻¹ have been achieved at the start of fills, a factor of 60 higher than those provided for the first collisions on 30 March.

To increase the luminosity further, the commissioning crews are now trying to push up the intensity of the individual proton bunches. After the successful injection of nominal intensity bunches containing 1.1 x 10¹¹ protons, collisions were subsequently achieved at 450 GeV with these intensities. However, half-way through the

first ramping of these nominal intensity bunches to 3.5 TeV on 15 May, a beam instability was observed, leading to partial beam loss. Work is now under way to understand, control and cure this instability by using longer bunches and by powering the special correction magnets (octupoles).

Single bunches of nominal intensity are now being accelerated with very good lifetimes. The collimator set-up is being refined and made more accurate for higher intensity bunches at 3.5 TeV in preparation for higher luminosity collisions in the coming weeks.

CERN Bulletin



The recent increase in LHC luminosity as recorded by the experiments. (Graph courtesy of the experiments and M. Ferro-Luzzi)

Sixteen silver wires to assemble 350 kg of copper

The future LINAC4 will use four types of accelerating structures, each playing a different role in increasing the energy of the beam.

The first of these are the radiofrequency quadrupole modules (RFQ, see box) which accelerate and focus the beam from the start. "The modules are complex items. Each had to be produced in 4 parts, corresponding to the 4 electrodes," explains physicist Serge Mathot, a vacuum brazing specialist in the Engineering (EN) Department. "To work properly, these modules must be aligned to a precision of a few microns. It is therefore essential for them to be machined and assembled with meticulous care."

To assemble the four parts of the RFQ module, Serge and his colleagues employ a technique known as vacuum brazing (see box). Sixteen silver-alloy wires are deposited on the surfaces to be assembled (see photo) and the whole assembly is placed in a vacuum furnace and heated to around 800°C. As the temperature rises, the 16 wires melt and interconnect the various components to form a single 350-kg copper block. "The problem is that each metre-long part expands by nearly 16mm when hot and must return to its original length with micron precision," Serge explains. "What's more, we can only keep the temperature above 800°C for a few minutes, otherwise the brazing material will run away into unwanted areas like the inner surfaces where the particles will be circulating." An error of just a few degrees Celsius or a slight over-exposure to high temperature and the

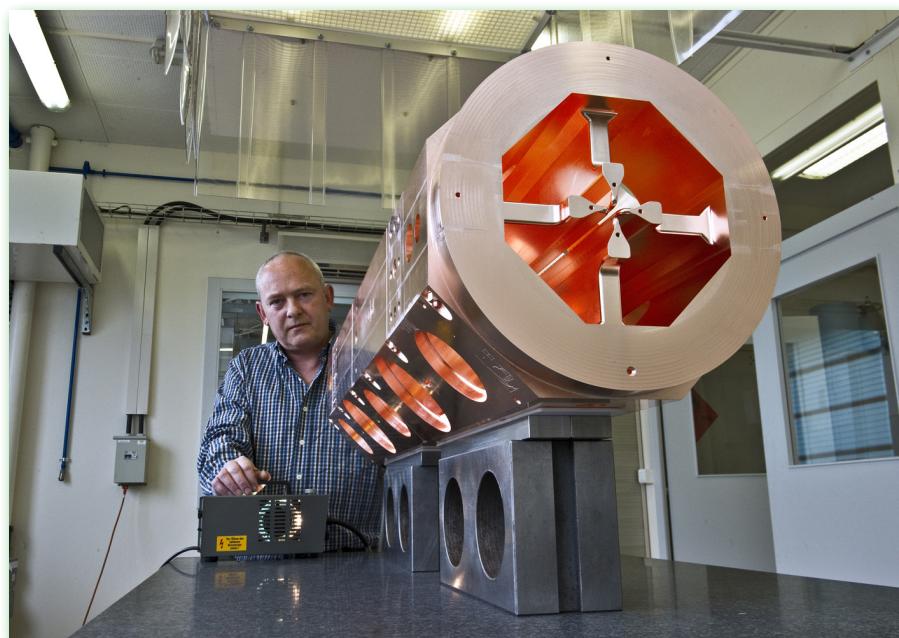
Assembly of the first radiofrequency quadrupole (RFQ) module for the future LINAC4 linear accelerator has just been completed by CERN's Assembly and Forming section (EN) using a technique called vacuum brazing which involves furnace-baking at 800°C and micron precision, leaving absolutely nothing to chance.

silver will overflow, thus jeopardising the whole cavity. Although the special silver-alloy used at CERN allows optimal brazing it is also a material that emits many electrons when subjected to an electrical field such as the radiofrequency that flows between the electrodes.

The assembly of the first RFQ module was a success. "We had never before brazed such large components with such high precision. It's an excellent result for all the teams who worked on this project!" Serge enthuses. Although CERN has more than 50 years' experience of using furnaces to braze many components for its accelerators and experiments, the brazing of the RFQ for the LINAC has been greatly helped by use of the newly-acquired vacuum furnace. Several months of preliminary studies and tests were needed to determine the precise behaviour of the various materials during the high-temperature process.

The next step will be the installation of flanges on the module for assembly with the other modules that will soon enter production. LINAC 4 construction is proceeding according to the schedule, which provides for commissioning in 2014 and connection to the accelerator complex in early 2015.

Alizée Dauvergne



Serge Mathot (EN/MME) and his team used the vacuum brazing technique to assemble the first RFQ module for the future LINAC4.

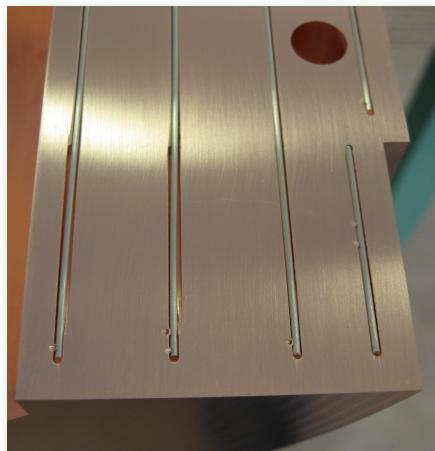
What's an RFQ?

Located at the very start of the linear accelerator, the RFQ (Radiofrequency Quadrupole) is used to accelerate and focus the particle beam. It comprises four electrodes and differs from conventional quadrupoles – such as the ones focussing the LHC beam close to the interaction points – in that the focussing operation is done by a radiofrequency electrical field that alternates the polarity on the electrodes (see photo). As the beam crosses the 3-metre long RFQ, the polarity of the field changes 300 times, as if it had passed through 300 conventional quadrupoles. In addition, the modulation on each of the electrodes generates a linear electrical field that accelerates the particles. These various features together enable the RFQ to perform three basic functions: to focus a low-energy beam, to bunch the particles into bundles from a continuous beam and to accelerate these bundles under the combined effect of the modulation and the supply of radiofrequency to the electrodes.

The electrodes are made of copper, a good conductor that facilitates circulation of the radiofrequency electric waves and dissipation of the heat.



Each of the 4 electrodes has a modulation along its length.



4 silver-alloy wires were deposited on grooves in 4 of the surfaces to assemble.

Bubbles for POPS

Starting in 2013, the PS's power system will get a new lease of life. The new system, which goes by the charming acronym of POPS (Power for the PS), is currently undergoing tests, following its installation inside the accelerator ring. In a ceremony held on Thursday, 6 May Converteam, the company that manufactured this enormous power system, officially handed it over to CERN.

The inauguration of POPS was well worth popping the champagne corks for. The replacement of the old power system was a long-standing concern for Frédéric Bordry, head of the Technology Department, who was head of the Power Converters Group at the time of the project launch, and who notes wryly, "I got so worried about it that people started referring to it as 'Freddy's nightmare!'" That is because practically the entire accelerator complex of CERN would be paralysed in the event of a power supply failure of the PS, which is a crucial link in the chain. And in addition it will have

At the beginning of May, the new power system of the PS (POPS) got its official send-off. Built around an array of static power converters, POPS is undergoing testing while waiting to be connected to the accelerator.

taken seven long years of development and manufacturing work before the successor to

the PS's venerable motor-generator set was installed and ready to go into operation.

The main problem is that you can't power a pulsed particle accelerator by simply connecting it directly to the electricity grid. That is because the accelerator magnets have to

(Continued on page 5)



Magid-Michel Saikaly, energy and infrastructure director at Converteam, receives a prize from Steve Myers, CERN's Director of Accelerators & Technology, for the development and fabrication of the new electrical power supply system for the PS, called POPS.



A word from the DG

(Continued from page 1)

A new resource for the entire LHC community

CERN is known as a global reference point for excellence in accelerator science, and our track record of providing world-class facilities is second to none. Simply stated, the division of labour between CERN and the experiments it hosts is that CERN has provided the beams and support systems from experimental areas to IT, while the experiments have done the physics. That doesn't mean, however, that CERN has no part to play in the intellectual life of the experiments. Our Theory group has always provided support to CERN's experiments, while CERN physicists, Staff and Fellows, are an essential part of every experiment conducted here.

With the LHC coming on stream, the time is right to create a focal point at CERN dedicated to the LHC research programme and open to everyone. Established earlier this year, the LHC Physics Centre at CERN (LPCC) serves this function and is already proving its

worth as a place where physics issues of importance to all the experiments can be discussed, developed and implemented through a broad collaboration of experiment and theory. The LPCC joins similar centres at places such as DESY and Fermilab. Its activities range from organizing workshops to developing physics tools and providing a series of regular lectures for graduate students. It is a resource for the entire LHC community. You'll find further details in this Bulletin and on the LPCC's web site.

One thing that I had not anticipated back in January 2009 was the amount of time I would spend talking to people from political and business circles about CERN's management practices. How, they want to know, does CERN manage to achieve so much with such a diverse community of people and such simple, consensual and non-hierarchical management structures? How too does a system in which the host laboratory is a smaller organization than

some of the collaborations it supports function so smoothly? Particle physics is a model of international, cross-cultural collaboration, and the LPCC is a further example of that ideal in action. The LPCC builds on a tradition that I saw developing during the LEP era.

With LEP, the scale of experiments at CERN took a big leap forward, as did the degree of collaboration between them. From operating as independent entities when LEP switched on in 1989, they went on to develop common working groups on many physics topics. And when LEP switched off in 2000, it was these working groups that had the last word. It's a model that works well. Sharing best practice and combining results delivers the best physics in the long run while not compromising the healthy spirit of competition that exists between the experiments. With the LPCC, the LHC community is picking up where LEP left off.

Rolf Heuer

Bubbles for POPS

(Continued from page 4)

be repeatedly and rapidly energised and de-energised. In the case of the PS, that means producing very high-power—60 megawatt—pulses of electricity, so as to deliver an energy of 14 megajoules to the magnet circuits—and then to reabsorb the same amount of energy, less than two seconds later; and to do so cycle after cycle. As an added challenge, the power supply system must withstand this punishing regime for millions of cycles every year.

The ‘pacemaker’ that has performed this task since 1968 is a giant piece of rotating machinery, a motor-generator set with an 80-tonne rotor turning at 1 000 revolutions per minute and performing ten million braking cycles per year. A record to be proud of! Still, 40 years is a long time, and so, inevitably, the PS’s motor-generator has begun to show signs of fatigue. Thus, in 2006 the rotor broke down and had to be replaced, in a feverish race against the clock (see Bulletin 27/2006).

The same year, the Power Group, AB-PO as it was called then, studied several possible solutions before coming up with a proposal to replace the machine. The additional budget resources that CERN’s Council approved in June 2007 made it possible to allocate funds for the new system.

The solution adopted was to construct an enormous array of static power converters and capacitor banks, housed in a new building and six large containers. The power converters are used to convert the AC

power supplied by the electricity grid into DC, so that it can be stored in the 60-tonne capacitor banks. The energy stored in the capacitors is transferred to the magnets—and then back again—through a system of 14 power converters arranged in an unusual architecture. “The converters we use are basically of the same type as those used in cruise ships such as the Queen Mary 2,” explains Jean-Paul Burnet, group leader for the Electrical Power Converters Group, who has been in charge of managing the project from the start. “What’s completely new is the circuit architecture.” The topology, developed jointly with EPFL, has been patented. It is this architecture that makes it possible to meet the PS’s peak power requirements.

Another difficulty was finding a manufacturer capable of producing such an unusual system. “The design required a lot of development work, with all the industrial risk that entails,” stressed Jean-Paul Burnet. Converteam, a leading manufacturer of power converters, especially for maritime use, took up the challenge. By 2009 the system had been installed and connected to a test line consisting of ten SPS magnets. The results of the testing done since then have validated the solution adopted. Freddy is emerging from his nightmare. But POPS will have to wait for the next extended shutdown of the accelerators, in 2012, to be connected to the PS and then the old rotating machinery can finally be retired.

CERN Bulletin



Did you know?

Finding an efficient way of storing energy is one of the ultimate challenges for electrical engineers. Batteries and capacitors have very limited storage capacity. That is why, among other things, electric cars have failed to enter the mainstream, their bulky batteries providing limited range before a recharge becomes necessary.

“To give you an idea, the 14 megajoules of energy needed to supply the PS’s magnets is equivalent to the energy of a third of a litre of petrol,” observes Burnet, the Electrical Power Converters Group Leader. So, 60 tonnes of capacitors, distributed in six containers, are needed to store the energy that is contained in... the fuel tank of a small lawnmower! Still, capacitors have improved considerably: in the last fifteen years, their energy density—the amount of energy they can hold per unit volume—has increased fivefold. New systems, more efficient than conventional capacitors have also appeared, such as the aptly named supercapacitors. A tonne of supercapacitors would have sufficed to store the energy needed for the PS. However, their lifetime is counted in thousands of charge/discharge cycles, whereas, as Burnet points out, “we needed a system that could handle 200 million cycles over 20 years of operation.” As space is not a major issue on the PS site, a solution using conventional capacitors was therefore the logical choice.



The team from the Electrical Power Converters Group (TE/EPC) is joined by the Director for Accelerators & Technology, the heads of the BE, TE and FI Departments, members of the CERN Management and representatives of the contractor Converteam in a group portrait in front of three of the containers that house the capacitor banks of the PS’s new power supply system, POPS.

Combining business with pleasure

Every month the Laboratory welcomes between 20 and 30 new staff members and fellows. About half of them have already been to CERN in another capacity but even if they are already familiar with the buildings and the people who work there, there's still a lot to learn about the administration of the Laboratory. And those arriving from a distance need advice on settling into the local area. "The new version of the Programme places emphasis on a friendly welcome and on targeted support to meet the needs of all participants", explains Cécile Granier, who was the project leader for the Programme's review.

As in the past, the Programme consists of two sessions. The first, which takes place once per month, lasts one morning. "As well as striving to provide a friendly welcome, we give new arrivals all the practical information they will need during their first few days at CERN, such as how to obtain a computer account and open a bank account, how the Health Insurance Scheme works, tips on integration in the local area, etc.", continues Nathalie Dumeaux, who coordinates the monthly sessions. With the aim of condensing the information and presenting it as

Newly recruited staff members and fellows are welcomed to CERN via the Induction Programme. Run by the Human Resources Department since 1996, it has recently been redesigned to adapt to the needs of the new arrivals. The new version will be officially launched in the Globe on 1st June.

efficiently as possible, the series of talks by specialists from the different services concerned has been replaced by an overview presented by a single person. Following this general presentation, the participants can move freely between stands run by the different services, selecting the information that concerns them personally. Another important innovation is the involvement of direct supervisors. "They are now invited to meet their new members of the personnel in the Globe and get to know them over lunch before taking them back to their Department to get them settled in", says Virginie Blondeau, a fellow working in the HR Department who was involved in the revision exercise.

The second session, which is held every three months and lasts a whole day, is designed to help new arrivals to integrate within their professional environment. The subjects covered include how CERN is organised, training opportunities, computer security, merit recognition, the Staff Association, equal opportunities, and

possibilities for involvement in education and communication. It's also another opportunity to meet other members of the personnel in a friendly, interactive atmosphere.

One important new feature of the second session is a presentation of CERN's scientific programme by Philippe Bloch, head of the Physics Department. "The department heads are becoming more involved in the Programme and tell us how important they consider it. They come and join the participants and speakers for the drink which follows the Director-General's talk at the end of the session, for example. It's a nice opportunity to meet and talk to people", says Virginie.

The new version of the half-day session of the Induction Programme for new arrivals will be inaugurated in the Globe on 1st June, while the first of the full-day sessions will be held in Building 40 on 10 June.

Find out more:

First session: <http://indico.cern.ch/categoryDisplay.py?categoryId=832>

Second session: <http://indico.cern.ch/categoryDisplay.py?categoryId=1586>

Alizée Dauvergne



Some of new arrivals groups, which followed the former Induction Programme.

The bowling balls

Almost 40 years ago, the web, Wikipedia and Google did not exist and it was much more difficult to know whether other people in other parts of the world or even in the same laboratory were facing the same problems or developing the same tools. At that time, Bent Stumpe was an electronics engineer, newly recruited to work on developments for the SPS Central Control room. One of the things his supervisor asked him

10 November 1972: CERN's Bent Stumpe places an order for 12 bowling balls for a total cost of 95 US dollars. Although not evident at first sight, he is buying the heart of some of the first tracking devices to be used in the SPS control room. Today, Bent Stumpe's device would be called a desktop mouse...

to build as soon as possible was a device to control a pointer on a screen, also called a tracker ball.

The heart of the device was the ball that the user would move his hand over, while the cursor followed the corresponding movements on the screen. "We

needed very round, well balanced and smoothly moving balls and we thought that bowling balls best met these requirements", recollects Bent Stumpe. "The SPS control room needed three such devices, plus a prototype, and so an order was placed for four bowling balls. As the firm only wanted to sell a minimum of 12 balls, the order was changed accordingly. This led to discussions with the purchasing office, which required an explanation for such an unusual material request."

Pointing devices, the ancestors of the tracker ball, already existed at CERN in the 1960s. They were used in the bubble chamber film-scanning devices in the DD Division, where Bent Stumpe worked before joining the SPS Division. "Having

conducted careful searches on the web, I realize today that other people in the world had come to similar solutions before me", he says. Recently, while he was looking for his own tracking device at CERN, Bent found another similar tool that was apparently used by another unit at CERN more or less during the same period. "It has very similar dimensions and seems to use the same optical principle but the designers apparently found another solution to allow smooth movements of the ball", he explains. While in Bent's device the big central ball slips over some very small balls to make the movement almost friction-free, in the other device the central ball moves over an air cushion. "The problem in this case is that one needs a compressor to make it work", says Bent.

The first mice that industry developed and commercialized in the 1980s, years after these first developments at CERN, were based on the same optical principle as the one designed by Bent. However, they were much smaller because everything was miniaturized compared to the original CERN design. "Our device was very big and the box that contained all the mechanics and electronics was installed under the console so that the user could only see the ball", he explains.

CERN's mice worked for more than 20 years. Since the conversion of the old SPS control room into the CERN Control Centre, Bent has lost track of the tracker balls built at CERN. If you happen to know where to find the SPS Tracker Ball (picture 1) or who designed the other tracker ball shown in picture 2, please get in touch with us: you'll be featured in the Bulletin and you'll make Bent very happy!

CERN Bulletin

UNPACKING LIST			
Poste	Fer	Compl.	Part.
M. Reniche	FIN/fj	Tél.:	4628
M. Stumpe	OFFRE DU	Tél.:	3180
Facture à Retenir			
Garantie bancaire de Frs			
Le			
Livraison LAB II/H/ 401*408/M. Stumpe			
Livravison : D. 694			
POS.	Fournitures	Unité	Quantité commandée
1	4 x Ball, Bowling "Gandiepin" 4 ¹ / ₂ " ± 005 DIA-No labels impressed or branded on surface.		
Note : Same type as supplied to Argonne and Seaco (Texas)			
Price to be confirm on the attached yellow copy.			
To be sent by air freight.			
1	01		
2	02		
3	03		
4	04		
5	05		
C	Date	%	Codes Montant
Multiple paiements Multiples Codes			

J.P. RENICHE
BUREAU DES ACHAT

The first order for 4 bowling balls later changed to 12 balls. The bowling balls became the heart of Bent Stumpe's mouse.



This tracker ball was among CERN's first tracking devices. The bowling ball is clearly visible (picture 1).



Another CERN tracker ball possibly older than Bent Stumpe's. If you happen to know who made it, please contact us! (Picture 2).

The inner workings of Bent Stumpe's tracking device

The x-y movements of the ball are transmitted to two bearings (one for each direction), which then transmit them to the incremental encoders. The encoders and the rest of the electronics then send a stream of digital signals to the computer telling it the direction and the speed of the movement.

AMS prepares for long stay in space

Following a trip to ESTEC in Noordwijk in the Netherlands, where tests confirmed its fitness for launch into space on board the International Space Station (ISS), the AMS experiment is now back at CERN for final modifications. "The collaboration agreed to adopt a modified configuration that, among other things, re-uses the permanent magnet of the AMS-01 prototype that was flown into space in 1998", says Samuel Ting, Spokesperson of the AMS experiment. Although less powerful, this magnet will allow AMS to function as long as the ISS remains in space, i.e. at least until 2020 and possibly until 2028, in line with the plans to extend the Station's lifetime set out by President Obama in February this year.

With the superconducting magnet, AMS's lifetime was initially expected to be around three years due to restrictions on the quantity of liquid helium needed to cool it that could be transported. However, recent tests carried out both at CERN and at ESTEC have shown that the actual lifetime would actually have been closer to two years. "There is no way to refill the magnet with superfluid helium on the Space Station, due to the termination of the shuttle programme at the end of 2010. This important fact, combined with the significant extension of the ISS's lifetime, convinced us to change the magnet", explains Samuel Ting.

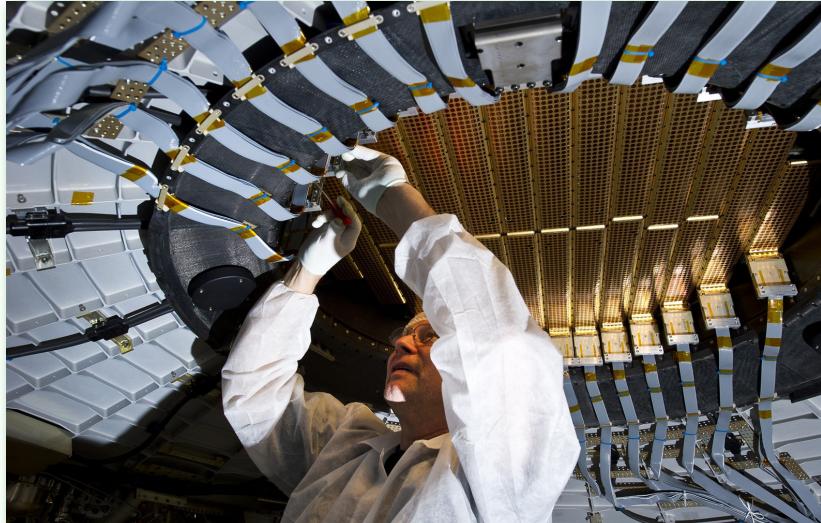
Following the successful space qualification tests at the ESA Technology Centre (ESTEC) in Noordwijk in the Netherlands, AMS is now back in the integration hall at CERN Prévessin. The collaboration is replacing the superconducting magnet with a permanent (non-superconducting) one, which will ensure reliable operation of the experiment for the recently planned longer run on board the International Space Station (ISS).

During the coming weeks, AMS will be reconfigured with the permanent magnet in a clean room in Prévessin. The magnet is the key component of a particle detector, serving to curve the trajectory of the charged particles so that they can be identified. The strength of the magnetic field is an important parameter determining the detector's resolution. "To compensate the magnet's

weaker field, physicists will add additional sensors to make sure that the two magnet systems have nearly identical momentum resolution. The increased data acquisition time will greatly improve the detector's sensitivity in the search for antimatter and Dark Matter", he says.

AMS will be tested using CERN's particle beams over the summer, allowing the new configuration to be checked and calibrated before the detector leaves European soil for the last time in September. Mission STS-134, the flight on which the AMS will journey to the ISS, has been given a window for lift-off between 15 November and 15 December. This should be the very last flight of the US space shuttle programme.

CERN Bulletin



Work is under way at the AMS integration hall at CERN Prévessin.

Agreement signed by DG with ITU

On 10 May CERN and the International telecommunication union (ITU) signed a framework agreement that is intended to strengthen the collaboration between the two organizations on scientific and technological issues. The agreement will facilitate the setting-up and implementation of joint initiatives of mutual interest, which in the near future are expected to concern the following fields: citizen cyberscience; extension of broadband communication systems to developing countries; training in digital libraries in these countries, as well as cybersecurity.

CERN Bulletin



Dr Hamadoun Touré, ITU Secretary-General, and Professor Rolf-Dieter Heuer, CERN Director General, sign a Memorandum of Understanding at the ITU Headquarters.(Photo ITU)

The first African School of Physics

Christine Darve was previously the secretary of a 'Physics Without Borders' meeting in Sarajevo, an experience that fuelled her passion to help the less fortunate

to benefit from developments in science. After meeting Steve Muanza, a physicist of Congolese descent who visited Fermilab in 2004, she initiated steps to organize a physics school that would bring scientific learning and technology transfer from European and American institutes to Africa. A physicist at IN2P3, the Centre de Physique

The first African School of Physics (ASP2010), a new physics school that will combine scientific learning and technology transfer, is to be organized in South Africa with the support of various institutes and laboratories from Europe and the US. Christine Darve, the head organizer and an accelerator engineer from Fermilab currently working in CERN's Technology Department, provides some insight into the programme's mission.

des Particules in Marseilles, Muanza is the director of this first African Physics School, which will take place from 1 to 21 August at the National Institute for Theoretical Physics (NITheP) in Stellenbosch near Cape Town.

"Physics at CERN is a global venture, but not many African scientists are involved,"

explains Christine Darve. "There are not a lot of teachers and professors in Africa who teach physics, so many African students study in places such as Europe and the US." Currently, there are 51 researchers from Africa at CERN, 18 of whom are from African institutes. "Sub-Saharan African countries are under-represented in CERN's collaborations", confirms John Ellis, CERN's advisor for non-Member States. "Among other objectives, this new type of school will help to consolidate existing and emerging collaborations, and may start new ones".

Out of 150 applications received, 59 students have been selected to take part in the programme. "Of these students, 40 are from 17 different African countries, nine others are from Stellenbosch University, and another 10 are from outside Africa, including the Netherlands, Canada and Spain", explains Christine. All of the African students will have their entire trip expenses covered by the school, which is supported by various institutes in Europe and the US. "In addition to its generous support, CERN will cover the travel fees for several talented lecturers and Fermilab will offer two International Fellowships," says Christine.

The school programme focusses on three main topics: theoretical subatomic physics, experimental subatomic physics, and accelerators and technology. During the final week two days will be spent at South Africa's iThemba Lab. "iThemba Lab is a place where you have cyclotrons and R&D based in South Africa. They also study medical and other applications," says Christine. A practice lab will allow students to learn about detector instrumentation, and an open forum day will provide information about technology transfer, including lectures and video links to CERN.

"It is important to link the end of the school, which is focused on applications and accelerators, with the real world," says Christine Darve. "We would like to be able to motivate people locally, because physics is a wonderful field, but also because this is a chance to transfer our knowledge and help everyone in society to benefit."

For full information about the programme of the school and a full list of the sponsors, speakers and logistics, please visit:

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

Carolyn Lee



August 1-21, 2010
NITheP at Stellenbosch
South Africa
Website:
<http://AfricanSchoolofPhysics.web.cern.ch/>

Application: ASP2010-Registration@cern.ch
Deadline: from Dec 1, 2009 until March 1, 2010
Bursaries and full support are available, to apply please provide a CV and a letter of motivation.
Contact: Steve Muanza muanza@in2p3.fr

Physics Topics:

- Theoretical Physics
 - Foundation of Nuclear and Particle Physics
 - Standard Model of Particle Physics
 - Beyond The Standard Model
 - Astro-Particle Physics
- Experimental Sub-Atomic Physics
 - Heavy Ion Physics
 - Nuclear and Particle Physics
 - Particle Detectors
 - ICF Computing
- Accelerators and Technology
 - Instrumentation
 - Beam Optics
 - Particle Accelerators
 - Medical Applications
 - Light Sources
 - Lasers
 - Fusion
 - Transfer of Technology
- GRID Computing
 - Application in Particle Physics Experiments

International Organizing Committee:

- B. Acharya (ICTP, IT)
- K. Assamagan (BML, USA)
- H. Bachacou (CEA, IRFU, FR)
- C. Darve (FNAL, USA)
- J. Ellis (CERN, CH)
- E. G. Ferreira (U. de Compostela, ES)
- J. Govers (Louvain U., BE)
- J. H. Kudoh (SUS, JP)
- M. Kado (LAL, Orsay, FR)
- Y. K. Kim (FNAL, Deputy Director, USA)
- H. Montgomery (JLAB Director, USA)
- S. Muanza (CPPM, Marseille, FR)
- S. Narison (LPTA, Montpellier, FR)
- P. Skands (CERN, CH)

Local Organizing Committee:

- B. Becker (Monica Institute, SA)
- J. Cleymans (U. Cape Town, SA)
- S. Connell (U. of Johannesburg, SA)
- A. Dabrowski (CERN, CH)
- H. Gray (Columbia U., USA)
- C. Lee (U. of Johannesburg, SA)
- T. Vilakazi (iThemba LABS Director, Cape Town, SA)

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- B. Bardeen (FNAL, USA)
- I. Giomataris (CEA IRFU, FR)
- L. Lederman (FNAL, USA)- Nobel Laureate

Logos of sponsors:

- CNRS
- IN2P3 Les deux infinis
- CERN
- NITheP National Institute for Theoretical Physics
- EPFL École Polytechnique Fédérale de Lausanne
- PSI Paul Scherrer Institut
- ICTP International Center for Theoretical Physics
- CEA Commissariat à l'énergie atomique et aux énergies alternatives
- Fermilab Fermi National Accelerator Laboratory
- BROOKHAVEN NATIONAL LABORATORY
- Jefferson Lab Thomas Jefferson National Accelerator Facility
- GOBierno de ESPAÑA Ministerio de Asuntos Exteriores y de Cooperación
- accid

Pop-up particle physics

You may remember noticing a pop-up Big Bang on your way to Restaurant No. 1 last November, as part of the Library's book fair. This was just one page from a rather original project to make a pop-up book about particle physics. The book – *Voyage to the Heart of Matter, the ATLAS experiment at CERN* – will be launched in the USA and Canada, in a new silver edition.

The book proved a popular Christmas gift in the UK when it was released last November – copies on sale there sold out in under two months. The new print run will go on sale in Australia and the UK, in addition to Canada and the US.

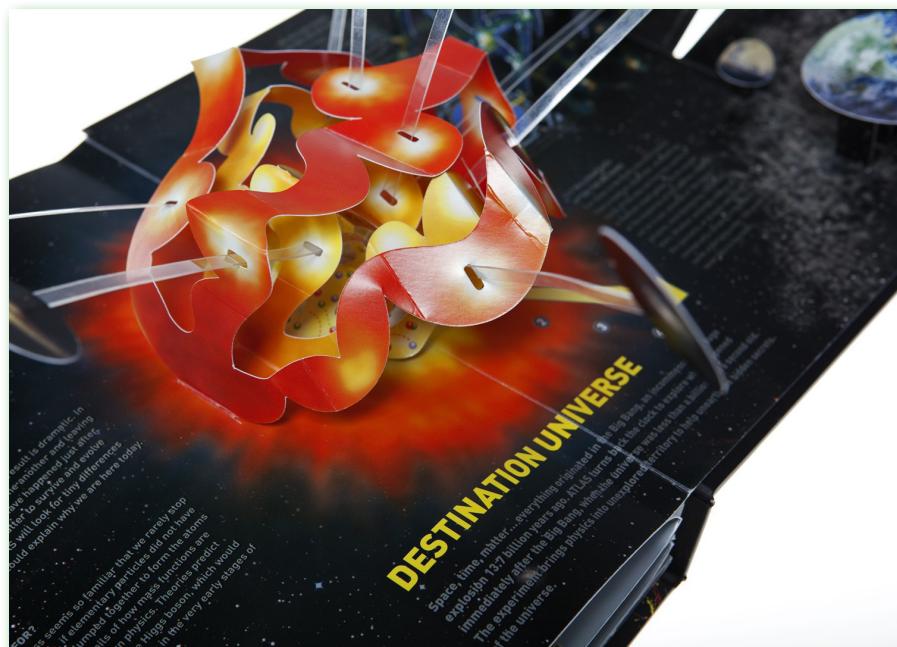
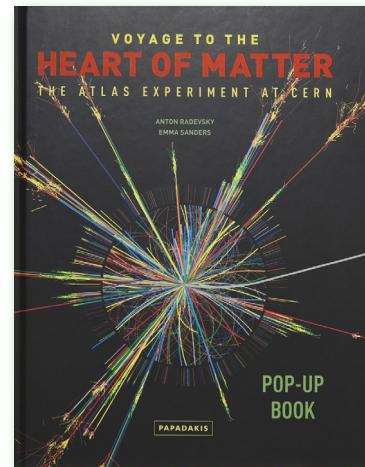
It will be launched to the press during the week of the New York book fair and will be followed by a public event at the New York Academy of Sciences on 25 May.

You can purchase a copy at the ATLAS secretariat, the Library or the Building 33 shop for 30CHF.

For more information about the launch event, see

<http://www.nyas.org/ATLAS>

CERN Bulletin



CERN in the Media – Video Presentations

In recent years CERN has dominated the media spotlight when it comes to particle physics. And particle physics has become cool and interesting among the general public. When CERN's Press Office announces media events, such as the start-up of the LHC in September 2008, the premiere of "Angels and Demons" in February 2009, the twentieth anniversary of the World Wide Web in March 2009 and the LHC First Physics event in March 2010, hundreds of journalists throng to CERN to capture the atmosphere and interview people. These events have resulted in thousands of print articles and hundreds of TV programmes around the world.

You may have seen them around the CERN site – cameramen, reporters and presenters roaming around hallways and cafeterias, interviewing people and doing their best to tell the world about the Large Hadron Collider.

Starting on 28 May, the CERN Press Office will be organizing film/news/TV programme presentations during lunchtimes every other Friday. This is your chance to see what the media have produced for the general public. We will show footage from various countries in various languages.

The first film will be The Time Machine by Yariv Friedman (BBD Polymedia – 2008), which focuses on the excitement and anticipation as the start-up of the LHC drew near in September 2008. Friedman visited CERN many times over about a year, chronicling

the challenges of bringing the world's largest particle collider to life. The film captures the human side of the project, as well as providing insight into the scientific breakthroughs that many physicists hope to make.

The English version will be shown in the Main Auditorium from 13:00 to 14:00 on 28 May, followed by the French version from 13:00 to 14:00 on 11 June . Everyone is invited to attend.

Carolyn Lee

When CERN travels abroad

The new 'Accelerating Science' exhibition was inaugurated in 2009 as part of the celebrations to mark the 450th anniversary of the University of Geneva. "CERN's travelling exhibition is an important tool for outreach in our Member states as it carries the main messages that constitute the backbone of the Laboratory's education and communication policy", explains Rolf Landua, head of the Education Group, which manages the exhibition. "The 2010 European Science Open Forum in Torino will gather a lot of experts and visitors from the general public who will be able to experience in an enjoyable way what we do and how we do it".

Covering more than 400 square metres, the exhibition has been designed to travel through the CERN Member States. It has a modular design based on five main zones. "Each zone carries a specific message: the first zone recounts the history of the Universe; the second zone takes the visitor

For the first time the new CERN travelling exhibition has gone abroad. The venue is Torino, in Italy, where it is being shown at the Museum of Natural Science in the framework of the activities of the EuroScience Open Forum (ESOF 2010). Soon after the event, the exhibition will fly to Copenhagen.

to the world of elementary particles; the third one allows visitors to listen to some of the favourite mysteries of the Universe that motivate CERN scientists to do their research; the fourth one shows the scientific tools – LHC and the experiments – that we use. The last zone contains a brand-new exhibit featuring the link between fundamental physics and technological advances upon which mankind increasingly depends", says Landua.

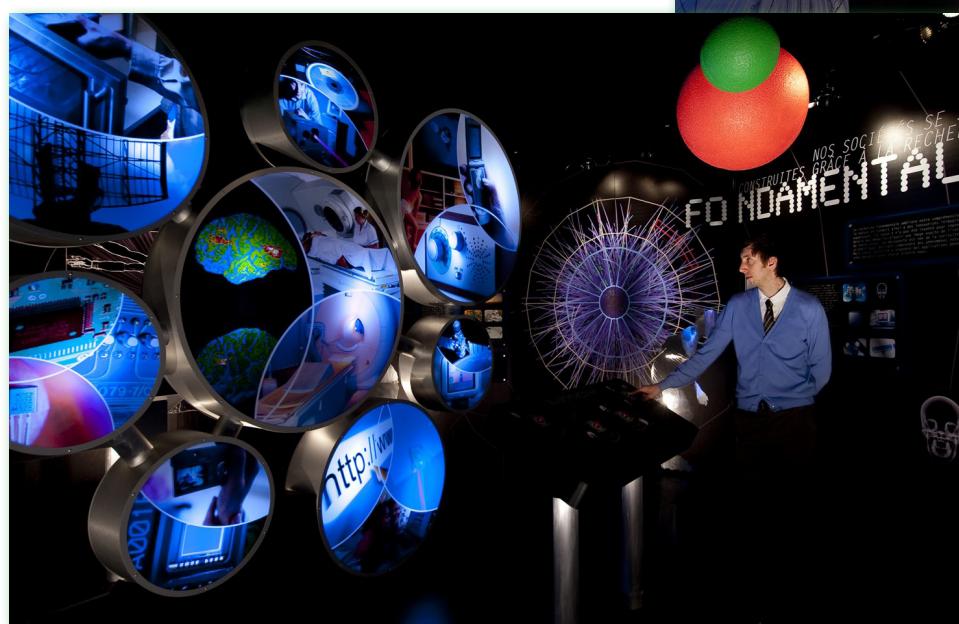
In Torino, CERN's exhibition is installed in the Regional Museum for Natural Science, next to 'The Invisible Wonder' exhibition promoted by the Italian National Institute for Nuclear Research (INFN). Together, the two exhibitions make up the "Explorers of the Universe" exhibition area, which has been open to the public since April 14.

CERN's exhibition is very popular and many requests are submitted to the Education Group from various institutions that would like to host it for their events. "The requestors are generally Science Museums or other communication stakeholders in the Member States. The selection of the venues is also based on the wish of CERN to be visible in some specific regions", explains Rolf Landua. After Torino, Accelerating Science will set off to Copenhagen, where it will stay from August to December 2010. Possible venues for 2011 are Austria, France and Portugal.

For more information about the CERN's exhibition in Torino, please visit:

<http://www.esof2010.org/explorers>

CERN Bulletin



View of the exhibition.



The CERN traveling exhibition was inaugurated in 2009.

Forging Ties between Young People from CERN and ESA

"One of the most amazing things about being a young researcher is the boundless opportunities for meeting people from all around the world, whether for the exchange of research ideas or for social purposes", says Yi Ling Hwong, a member of the CMS experiment and Vice-president of the CERN Student Club. "In a place like CERN such occasions are abundant but this was the first time that members of the CERN and ESA clubs for young people met to get acquainted with each other in an informal atmosphere".

An evening out was organized by the Student Club on Sunday 11 April, the main theme being to mingle and to share. "It was not hard to get the people from both groups to warm to each other, despite sometimes

The CERN Student Club (CSC) is the official club for the community of young people at CERN. In addition to organizing regular activities for its members, the club serves as a platform for young people to come together and meet people from other backgrounds. On 11 and 12 April, the network for young people from the European Space Agency (YoungESA) organized an excursion to CERN, in which more than 30 young researchers participated. The CERN Student Club was happy to host several activities for the members of the two communities.

being total strangers to the other's field of expertise or background", confirms Yi Ling Hwong. "Throughout the evening, it was repeatedly remarked upon how CERN and ESA share a striking resemblance in many aspects – from unique fields of research in subjects that are sometimes regarded as 'lofty' and unconventional, to the multicultural working environment and the perks and quirks that arise from it".

The following day, members of both groups met up again for lunch once those from the ESA group had concluded their tour of

CERN. The guests were visibly impressed by what they had seen at CERN, as reflected by a comment from one of the YoungESA members, Ignacio Clerigo: "Do you realize that what you are doing here will potentially change the history of mankind as we know it so far?"

The visit from the YoungESA group to CERN was a short but fruitful one, laying an important foundation for the community of young people at CERN to pursue similar activities in the future. "Besides the exchange of valuable knowledge and professional experience, it also brought new ideas and venture opportunities for each of the young individuals who took part in the activities, and this is the epitome of Friendship through Science", says Yi Ling Hwong.

A reciprocal visit by the CERN Student Club to ESA is already being planned. If you want to join the CERN Student Club's activities, please visit: <http://cern.ch/student-club> or contact student-club@cern.ch.

CERN Bulletin



Some of the participants in the first meeting of the ESA-CERN student clubs.



Enjoying the nice atmosphere.

150 Bulgarian students visit CERN

"It's interesting to combine astronomy and particle physics", explains Svejina Dimitrova, organiser of the programme and Director of Varna Astronomical Observatory. The three groups, each one comprising 50 students, first visited Pisa, Padua and other places in Italy related to Galileo's life. "Thanks to the visit, students understood telescopes and

Between 27 March and 8 April 2010, 150 Bulgarian students from the Astronomical Observatory in Varna visited CERN as part of the "From Galileo to CERN" programme.

why Galileo is such an important scientist", says Svejina. After Italy, they came to CERN for three days and visited several sites: Linac, the Computer Centre CCC, etc. "They became aware that particle physics is not only theoretical, but also practical",

confirms Svejina. And many vocations were born among the young students: "Since their CERN visit, they want to be scientists, physicists or engineers!", enthuses Svejina. The students are now preparing posters, presentations and other articles for a conference "CERN for Science and Society", which will take place on 30 May in Varna.

Alizée Dauvergne



Bulgarian students participating in the "From Galileo to CERN" educational programme.



Geneva marathon and semi-marathon 2010

Congratulations to all the CERN participants in the Geneva marathon and half-marathon who ran on Sunday 9 May. CERN performed exceptionally well in the inter-enterprise category, collecting the 1st and 2nd places in the Marathon competition, and 2nd place in the half-marathon competition.

More than 24 runners from CERN participated in either the Marathon or the half-Marathon.

A successful but not easy day in Geneva, as reported by Nick Ziogas: "37 to 40 was very tough for me. My goal was to improve from last year and I improved by 3 minutes 10 seconds which is fantastic really. So I am delighted!".

Participants in the leading CERN teams in each category are listed below.

MARATHON

<http://services.datasport.com/2010/lauf/genevema/RANG101.HTM>

1.	CERN	10:07.10,2
623	Ziogas Nicolas	M-H3 3:12.26,4 18.
241	Flückiger Martin	M-H5 3:19.08,0 1.
560	Sousa Filipe Jose	M-H1 3:35.35,8 8.

SEMI-MARATHON

<http://services.datasport.com/2010/lauf/genevema/RANG102.HTM>

2.	CERN	4:00.40,7
3606	Doebert Steffen	S-H3 1:17.29,8 3.
4672	Ruiz Camille	S-H3 1:18.14,1 4.
3613	Dore Graham	S-H3 1:24.56,8 32.
3699	Fernier Pascal	S-H4 1:33.17,6 18.

More information about the Geneva Marathon, including full results, can be found here:

<http://www.genevemarathon.ch>

Dave Nisbet



Some of the CERN Running Club participants after the Geneva Marathon 2010. From left to right: Junginger Tobias (marathon), Dore Graham (half-marathon), Cauphy Alain (marathon), Ruiz Camille (half-marathon), Ziogas Nicolas (marathon), Flückiger Martin (marathon).

If you see extra towels on 25 May, Don't Panic!



A recent Towel Day in Innsbruck.
(Wikipedia image)

We've suspected it for a long time, but now it's official. The meaning of life, the Universe and everything is to be found at CERN, under construction at the western end of the Meyrin site. When it's complete, Building 42 may not go so far as providing the answer to the ultimate question, but its denizens will be well equipped to give humankind a steer in the right direction.

For those Bulletin readers who are not fans of the author Douglas Adams, this may be a little bewildering. Everyone else will recognise the reference to Adam's sci-fi comedy classic, *The Hitchhiker's Guide to the Galaxy*. To cut a long story short, 42 is the answer to the ultimate question, as churned out by the largest computer ever built. What

remains uncertain is precisely what the ultimate question might be. The fact that CERN's latest building carries the number 42 has not escaped the attention of people both inside CERN and outside, particularly as we approach the anniversary of Adams' untimely death in May 2001. In honour of their favourite author, Adams' fans have declared 25 May International Towel Day – another cryptic reference to 'The Guide'. So if you see unusually large numbers of people carrying their towels with them on 25 May, Don't Panic, it's only about the most massively useful thing an interstellar hitchhiker can have! For more on Towel Day, see:

<http://towelday.org/>

CERN Bulletin



For years particle physicists have enjoyed monitoring the most cited articles thanks to the Spires system. This is obviously an important feature that is also carried forward by Inspire, a system currently available in its beta version. For colleagues based at CERN working in closely related disciplines or in technological areas, no system has been available to monitor the most cited articles within the various specific topics. As a result of the rapid changes in the information landscape, the Library is currently streamlining the set of databases CERN subscribes to. In this context the Library is now making different services available for site-wide evaluation.

Thomson Web of Knowledge is a platform that integrates over 100 years of scientific literature and citations, covering more

News from the Library Discover more literature and be aware of the most popular articles!

than 256 disciplines. This tool offers various interesting features, including the citation report, which can be a good source of help for fellows and researchers when preparing job applications.

Elsevier's SCOPUS is another abstract and citation database of peer-reviewed literature going back as far as 1823. This resource, like Web of Knowledge, indexes not only journal articles but also book series or websites and provides a large choice of personalization features.

All CERN users currently have the possibility to test both these resources until 10 June 2010 for SCOPUS and 15 July 2010 for Web of Knowledge. Don't hesitate to try them out and give your feedback to tullio.basaglia@cern.ch.

More info about Web of Knowledge is available at

<http://wokinfo.com/>

More info about SCOPUS is available:

<http://www.info.scopus.com/>

A training session on SCOPUS will be organized on Friday 28 May 2010 at 10:00 in Room 513-1-027.

Everyone is welcome to participate! Please send an e-mail to catherine.havard@cern.ch to register for either of these training sessions.

CERN Library

Academician A.N. Sissakian 1944 – 2010

The Directorate of the Joint Institute for Nuclear Research (JINR, Dubna) deeply regrets to announce that Academician Alexei Norairovich Sissakian, the Director of JINR, a member of the Presidium of the Russian Academy of Sciences, a distinguished theoretical physicist and organizer of scientific research based on broad international cooperation, passed away on 1 May 2010 in his 66th year of life.

Alexei Norairovich Sissakian was born on 14 October 1944 in Moscow. In 1968 he graduated from the Physics Faculty of the M. Lomonosov Moscow State University and started work at the JINR Laboratory of Theoretical Physics under the guidance of Academician N.N. Bogoliubov.

The main scientific activities of A.N. Sissakian concerned elementary particle physics, approximation methods and equations of quantum field theory with nontrivial geometry, symmetry and topology, and the physics of strong interactions at high temperatures and densities. He initiated and headed the largest project of JINR towards the construction of a heavy-ion collider, NICA, to study phase transitions and critical phenomena in nuclear matter.



15 theses, headed chairs at the Moscow Institute of Physics and Technology and Moscow Engineering Physics Institute, and was a Professor at the M. Lomonosov Moscow State University, the vice-president of the International University "Dubna" and the head of its Theoretical Physics Chair.

A.N. Sissakian was the editor-in-chief of the journal "Physics of Particles and Nuclei, Letters", as well as deputy editor-in-chief of the journal "Physics Particles and Nuclei".

As Vice-Director of JINR during 1989–2005 and Director since 2006, Academician A.N. Sissakian made invaluable contributions towards maintaining and enhancing the potential of JINR, determining its future scientific prospects, renovating the Institute as an open international nuclear physics laboratory, and promoting broad cooperation with national and international research and educational centres.

Alexei Norairovich was always distinguished by his dedication to science and by a wonderful combination of great will power with kindness and sympathy to his relatives, friends, colleagues, to all people.

His colleagues and friends at CERN



Official news

Members of the personnel shall be deemed to have taken note of the news under this heading. Reproduction of all or part of this information by persons or institutions external to the Organization requires the prior approval of the CERN Management.

HOW MEMBERSHIP OF THE CERN PENSION FUND IS TAKEN INTO ACCOUNT BY CERTAIN FRENCH PENSION FUNDS

Information for current and former CERN staff members from the Rhône-Alpes branch of the Caisse Régionale d'Assurance Maladie (CRAM)

The Rhône-Alpes branch of the Caisse Régionale d'Assurance Maladie (CRAM) has recently informed CERN that, since 1 January 2010, periods of membership of the CERN Pension Fund can, under certain conditions, be used in the calculation of the pension paid by certain French pension funds.

For more information on this subject, please consult Circular DSS/DACI/2010/85 of 4 March 2010 pertaining to the manner in which periods of membership of compulsory pension funds of European or international organisations, to which France is a party, are taken into account

in determining the period used by French pension funds to establish the pension entitlement. The Circular can be accessed at the following sites:

http://www.securite-sociale.fr/textes/retraite/international/affiliation_instut_international_eu.htm

http://www.circulaires.gouv.fr/pdf/2010/03/cir_30654.pdf

Current and former CERN staff members who may be affected are kindly requested to contact the Rhône-Alpes branch of the Caisse Régionale d'Assurance Maladie (CRAM) directly at the following address: 35 rue Maurice Flandin, 69436 Lyon cedex 03. Telephone: 0821 10 69 10. Internet : www.cramra.fr and www.retraite.cnav.fr.



Take note

- NEW – CERN HOUSING SERVICE
- WWW BOOKING

You can now easily reserve your room at the CERN Hotel and plan your stay at CERN directly online with help of the online CERN Hotel reservation NOW available at the following address:

<https://edh.cern.ch/Hostel/>

Please contact the CERN Housing Service team if you have any queries (reception in Building 39, 74481).

GS-SEM Group
Infrastructure and
General Services Department



Take note

Industrial Exhibition
Administration Building
Bldg 61

Tuesday 8 June: 9 a.m. – 5.30 p.m.
Wednesday 9 June: 9 a.m. – 4 p.m.

LIST OF PARTICIPATING COMPANIES:

1. AD INDUSTRIE
2. ALCATEL VACUUM TECHNOLOGY (ADIXEN)
3. ALFA LAVAL
4. APAVE
5. ASSYSTEM
6. ATEM
7. ATOS
8. BODYCOTE
9. BURACCO
10. CEIHP
11. CITELE INDUSTRIE
12. CLEAN ENERGY PLANET
13. CLM INDUSTRIE
14. COVIMAG
15. CRYO DIFFUSION
16. DICONEX
17. EUROTHERM AUTOMATION SAS
18. FARRELL
19. FRAVIDEC
20. GARLOCK FRANCE
21. INITIAL
22. JEHIER
23. L'AMI COMMERCIAL
24. M. LABBE
25. NEXAN France
26. NUVIA
27. RBDH INDUSTRIES
28. ROFORGE
29. SAINT-GOBAIN SOLCERA
30. SDMS
31. SEEB INDUSTRIE
32. SEIV AQUITAINE
33. SOURIAU
34. THALES ELECTRON DEVICE
35. THERMO-EST
36. VELAN

"FRANCE AT CERN" – INDUSTRIAL EXHIBITION

Thirty-six French companies are presenting their latest technological advances during the industrial exhibition "France at CERN", featuring products and technologies specifically related to the activities of the CERN facility.

Presenting their know-how in electric vehicles, PSA - PEUGEOT/CITROEN are sponsoring the event. Seminars will be held in the Main Building's conference rooms, with special emphasis on the strategies of the Burgundy Nuclear Partnership and on "Element-14.com", a design engineer community for sharing Electronic Engineering Solutions.

Individual B2B meetings can be organized with the sales and technical representatives of participating firms and will take place at either the companies' exhibition stands or in the Main Building's conference rooms. Individuals wishing to make contact with one or more companies must use the contact details available from each secretariat of department or by using the following link:

http://gs-dep.web.cern.ch/gs-dep/groups/sem/ls/Industrial_Exhibitions.htm

B2B meetings will be coordinated by UBIFRANCE.

You will find the list of exhibiting and participating companies online at:

www.la-france-au-cern.com/cms/fr/liste-des-exposants

The exhibition "la France au CERN" (France at CERN) has been organised by UBIFRANCE, the French Agency for International Business Development, responsible for promoting French technologies and know-how abroad.

THIS EXHIBITION IS ORGANIZED BY:

Mission économique - UBIFRANCE en Suisse
Pfingstweidstrasse 60, CH-8005 ZURICH

Contact :

François Bouillon et Ludovic Peter

Tél. : +41(0)44 279 15 55

Email : francois.bouillon@ubifrance.fr ludovic.peter@ubifrance.fr

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

COME AND SEE OUR NEW HIGH TECH PRODUCTS!

Since 1977, GMP has been active in the fields of laser, spectroscopy, electro-optics and micropositioning. Its mission is to link between suppliers of high tech products with the end users.

On Wednesday 26 May between 10 and 12 a.m. - Room A, Main Building, (Bldg. 61/1-017) - you will be able to touch and try out our new laser products. Our specialized engineers will also be on hand to answer all your questions.

A drink will be offered at the end of the presentation.

There will also be the opportunity to plan meetings in the afternoon to further discuss and complicated questions.

Karine ROBERT
GS-Department



ACCU MEETING

**DRAFT Agenda
for the meeting to be held
on Wednesday 9 June 2010
At 9:15 a.m. in room 60-6-002**

- | | |
|--|--|
| 1. Chairperson's remarks | 7. CERN Global Network |
| 2. Adoption of the agenda | 8. An update on Safety at CERN |
| 3. Minutes of the previous meeting | 9. Reports from ACCU representatives on other committees |
| 4. Matters arising | 10. Users' Office news |
| 5. News from the CERN Management | 11. Any Other Business |
| 6. Report on services from GS department | 12. Agenda for the next meeting |

Anyone wishing to raise any points under item 11 is invited to send them to the Chairperson in writing or by e-mail to

Christopher.Onions@cern.ch

Chris Onions (Secretary)

ACCU is the forum for discussion between the CERN Management and the representatives of CERN Users to review the practical means taken by CERN for the work of Users of the Laboratory. The User Representatives to ACCU are (CERN internal telephone numbers in brackets):

Austria	G. Walzel (76592)	Norway	J. Nystrand (73601)
Belgium	C. Vander Velde (Chairperson) (71539)	Poland	M. Witek (78967)
Bulgaria		Portugal	P. Bordalo (74704)
Czech Republic	S. Nemecek (71144)	Slovak Republic	A. Dubnickova (71127)
Denmark	J.B. Hansen (75941)	Spain	I. Riu (76063)
Finland	K. Lassila-Perini (79354)	Sweden	K. Jon-And (71126)
France	N. Besson (75650)	Switzerland	M. Weber (71271)
	A. Rozanov (71145)	United Kingdom	M. Campanelli (72340)
Germany	H. Lacker (78736)	Non-Member States	S. McMahon (77598)
	O. Biebel (72974)		D. Acosta (71566)
Greece	G. Tsipolitis (71162)		E. Etzion (71153)
Hungary	F. Siklér (76544)		C. Jiang (71972)
Italy	G. Passaleva (75864)		N. Zimine (75830)
	N. Pastrone (78729)	CERN	E. Auffray (75844)
Netherlands	G. Bobbink (71157)		F. Teubert (73040)

CERN Management is represented by S. Bertolucci (Director for Research and Computing), S. Lettow (Director for Administration and General Infrastructure) and J. Salicio Diez/PH with C. Onions/PH as Secretary. Human Resources Department is represented by J. Purvis, the General Infrastructure Services Department by M. Tiirakari and the CERN Staff Association by M. Goossens. Other members of the CERN Staff attend as necessary for specific agenda items. Anyone interested in further information about ACCU is welcome to contact the appropriate representative, or the Chairperson or Secretary (75039 or Christopher.Onions@cern.ch).

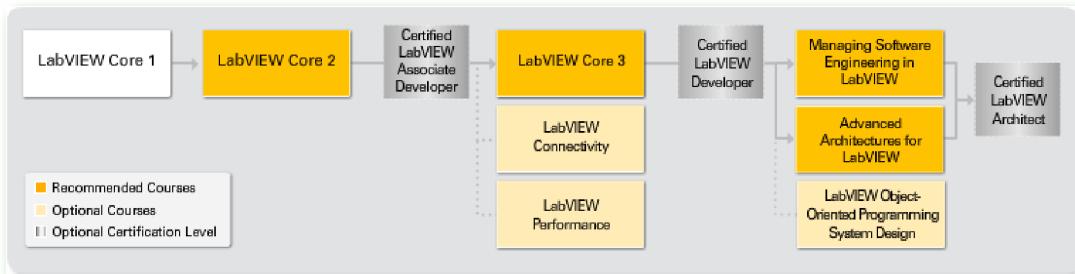
<http://cern.ch/ph-dep-ACCU/>



Technical training

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LABVIEW SUPPORT AT CERN



Since the beginning of 2009, due to the CERN restructuring, LabVIEW support moved from the IT to the EN Department, joining the Industrial Controls and Electronics Group (ICE).

LabVIEW support has been merged with the Measurement, Test and Analysis (MTA) section which using LabVIEW, has developed most of the measurement systems to qualify the LHC magnets and components over the past 10 years. The post mortem analysis for the LHC hardware commissioning has also been fully implemented using LabVIEW, customised into a framework, called RADE, for CERN needs.

The MTA section has started with a proactive approach sharing its tools and experience with the CERN LabVIEW community. Its framework (RADE) for CERN integrated application development has been made available to the users. Courses on RADE have been integrated into the standard National Instruments training program at CERN. RADE and LabVIEW support were merged together in 2010 on a single email address: labview.support@cern.ch

For more information please have a look at the LabVIEW support webpages

<http://wikis.web.cern.ch/wikis/display/EN/LabVIEW+support>

CERN Technical Training: The new LabVIEW Training path.

National Instruments introduce the new LabVIEW Training path and new courses. With the LabVIEW application development training courses, you can learn recommended techniques to reduce development time and improve application performance and scalability.

The LabVIEW Core 1 with Rade Introduction course is the first step in any LabVIEW learning path. LabVIEW Core 1 introduces you to the LabVIEW environment, its features, dataflow programming, and common LabVIEW architectures in a

hands-on format. Learn to develop test and measurement, data acquisition, instrument control, data-logging, and measurement analysis applications. Participants are also informed about the RADE framework

The next session of this course will take place in English on June 7-9 2010.

The LabVIEW Core 2 course teaches you to design complete, stand-alone applications with the LabVIEW graphical development environment. This course, an extension of the LabVIEW Core 1 course, introduces you to common design techniques for successfully implementing and distributing LabVIEW applications for research, engineering, and testing environments.

The next session of this course will take place in English on June 10-11, 2010

The LabVIEW Core 3 course teaches you structured practices to design, develop, test, and deploy LabVIEW applications. You will learn recommended application development techniques such as hierarchical VI development, event-based architectures, appropriate user interface design, error handling strategies, and effective documentation. Learn how to analyze your application requirements, choose the correct design pattern and data structures for your application, and quickly test and deploy your design, so you can reduce development time and improve application performance and scalability.

The next session of this course: to be scheduled

The LabVIEW Communication with RADE applications course builds on the lessons taught in the LabVIEW Core 3 course. Learn to identify the components of integrated systems and implement networking technologies for your applications. Also extend your application functionality and reduce development time by using technologies such as DLLs, ActiveX and the Internet to

take advantage of the capabilities of other applications. Participants will also learn how to use the Rapid Application Development Environment (RADE) tools to interface with the CERN control infrastructures

The next session of this course will take place in English on 1-2 July, 2010

The Managing Software Engineering in LabVIEW course helps you cultivate the skills you need to effectively manage and deliver large LabVIEW applications in single- or multi-developer environments. This course teaches common practices for managing large, team-oriented application development projects from specification to deployment. By incorporating these application development practices in your projects, you can improve development processes and optimize applications and resources to effectively reduce development time and costs.

The next session of this course will take place in English on 8-9 July, 2010

In the **Advanced Architectures for LabVIEW course**, participate in discussions and work independently and collaboratively to learn how to architecture an application and then design the components to support the architecture. In addition, gain experience with advanced NI LabVIEW design patterns, such as functional global variables, plug-ins, X controls, and subpanels. The course concludes with an assignment that requires you to draft a system architecture and design some of the components based on the high-level system requirements your instructor gives you

The next session of this course: to be scheduled

More information on our catalogue:

<http://cta.cern.ch/cta2/f?p=110:9>

or contact us with your questions/comments at Technical.Training@cern.ch



Technical training

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CERN TECHNICAL TRAINING: AVAILABLE PLACES IN FORTHCOMING COURSES

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

Software and system technologies

C++ Part 2: Object-Oriented and Generic Programming	25-MAY-10	28-MAY-10	English	3 days
Certification: Ingénieur en Sécurité Fonctionnelle	07-JUN-10	10-JUN-10	French	3.5 jours
Emacs - way beyond Text Editing	16-JUL-10	16-JUL-10	English	1 day
ITIL Foundations (version 3)	31-MAY-10	02-JUN-10	English	3 days
ITIL Foundations (version 3) EXAMINATION	22-JUN-10	22-JUN-10	English	1 hour
JAVA - Level 2	05-JUL-10	08-JUL-10	English	4 days
JAVA 2 Enterprise Edition - Part 2: Enterprise JavaBeans	21-JUN-10	23-JUN-10	English	3 days
JCOP - Finite State Machines in the JCOP Framework	22-JUN-10	24-JUN-10	English	3 days
JCOP - Joint PVSS-JCOP Framework	31-MAY-10	04-JUN-10	English	4.5 days
Le Langage C (ANSI et C99)	24-JUN-10	02-JUL-10	English	4 days
Oracle - Programming with PL/SQL	28-JUN-10	30-JUN-10	English	3 days
Oracle Certified Professional	07-JUN-10	11-JUN-10	English	5 days
Project Development using Python	29-JUN-10	02-JUL-10	English	4 days
Python - Hands-on Introduction	12-JUL-10	15-JUL-10	English	4 days
Python: Advanced Hands-On	08-JUN-10	11-JUN-10	English	4 days
Secure coding for Java	15-JUN-10	15-JUN-10	English	1 day
Secure coding for Web Applications and Web Services	14-JUN-10	14-JUN-10	English	1 day
Secure coding in C/C++	16-JUN-10	17-JUN-10	English	2 days
Web 2.0 development with AJAX	28-JUN-10	30-JUN-10	English	3 days
Web Applications with Oracle Application Express (APEX) 3.2	23-JUN-10	25-JUN-10	English	3 days

Electronic design

Altium Designer - Advanced training for experts	17-JUN-10	17-JUN-10	French	1 jour
Altium Designer - migration for occasional PCAD users	14-JUN-10	16-JUN-10	French	3 jours
CAO = Allegro Design Entry HDL Front-to-Back Flow v16.3	28-JUN-10	30-JUN-10	French	3 jours
Certified LabVIEW Associate Developer (CLAD)	04-JUN-10	04-JUN-10	English	1 hour
Certified LabVIEW Developper(CLD)	04-JUN-10	04-JUN-10	English	4 hours
LabVIEW Communication with RADE applications	01-JUL-10	02-JUL-10	English	2 days
LabVIEW Core I with RADE introduction	07-JUN-10	09-JUN-10	English	3 days
LabVIEW Core II	10-JUN-10	11-JUN-10	French	2 jours
LabVIEW Data Acquisition and Signal Conditioning Course	05-JUL-10	07-JUL-10	French	3 jours
Managing Software Engineering in LabVIEW	08-JUL-10	09-JUL-10	English	2 days
Siemens - Simatic Net Network	17-JUN-10	18-JUN-10	French	2 jours
Siemens - STEP7 : level 1	22-JUN-10	25-JUN-10	English	4 days

Mechanical design

ANSYS DesignModeler	25-MAY-10	26-MAY-10	English	2 days
AutoCAD Electrical 2010	16-JUN-10	06-JUL-10	French	5 jours
AutoCAD Mechanical 2010	10-JUN-10	11-JUN-10	French	2 jours
CATIA V5 -- Drafting Advanced	16-JUN-10	21-JUN-10	French	2 jours
CATIA V5 – Surfacique 1	18-JUN-10	25-JUN-10	French	2 jours
CATIA-Smartteam Base1	31-MAY-10	15-JUN-10	French	6 jours
Vacuum for accelerators, intermediate level	14-JUN-10	18-JUN-10	French	10 heures

Office software

CERN EDMS - Introduction	26-MAY-10	26-MAY-10	French	1 jour
CERN EDMS for Engineers	09-JUN-10	09-JUN-10	English	1 day
CERN EDMS for Local Administrators	22-JUN-10	23-JUN-10	French	2 jours
CERN EDMS MTF in practice	02-JUN-10	02-JUN-10	French	0.5 jour
Dreamweaver CS3 - Level 2	27-MAY-10	28-MAY-10	English	2 days
EXCEL 2007 - level 1 : ECDL	31-MAY-10	01-JUN-10	French	2 jours
EXCEL 2007 (Short Course I) -				



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HowTo... Work with formulae, Link cells, worksheets and workbooks EXCEL 2007 (Short Course I) -	22-JUN-10	22-JUN-10	Bilingual	3 hours
HowTo... Work with formulae, Link cells, worksheets and workbooks EXCEL 2007 (Short Course II) - HowTo... Format your worksheet for printing	25-MAY-10	25-MAY-10	Bilingual	3 hours
EXCEL 2007 (Short Course III) - HowTo... Pivot tables	25-MAY-10	25-MAY-10	Bilingual	3 hours
Get the most of Office 2007!	15-JUN-10	15-JUN-10	Bilingual	3 hours
Indico - Meeting Organization	21-JUN-10	21-JUN-10	English	1 hour
Individual Coaching	07-JUN-10	07-JUN-10	French	3 hours
OUTLOOK 2007 (Short Course II) - Calendar, Tasks and Notes	21-JUN-10	21-JUN-10	Bilingual	1 hour
PowerPoint 2007 - Level 1: ECDL	22-JUN-10	22-JUN-10	French	2 days
Profitez bien de Office 2007!	27-MAY-10	28-MAY-10	French	1 heure
Project Planning with MS-Project	23-JUN-10	23-JUN-10	French	2 jours
Sharepoint Designer (Frontpage) - Level 1	17-MAY-10	20-MAY-10	English	1 heure
Sharepoint Designer (Frontpage) - Level 2	24-JUN-10	25-JUN-10	French	2 jours
Travailler avec Windows 7 au CERN	10-JUN-10	11-JUN-10	French	2 jours
WORD 2007 - level 2 : ECDL	03-JUN-10	03-JUN-10	French	1 heure
Working with Windows 7 at CERN	03-JUN-10	04-JUN-10	English	1 hour
	01-JUN-10	01-JUN-10	English	2 jours

Special course

VGStudio MAX	22-JUN-10	24-JUN-10	English	3 days
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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: employees of CERN contractors, with some restrictions). In particular, quoted prices and programmes refer specifically to the CERN community.



WINDOWS 7 IS SUPPORTED AT CERN

The new version of the Windows operating system - Windows 7 - is now officially supported at CERN. Windows 7 32-bit is now the default operating system for the new computers at CERN.

What's new in Windows 7

Users of Windows XP will find many new features and options. Users of Windows Vista will feel very familiar with one major difference: higher performance and better responsiveness of the operating system. Other enhancements include: refined Aero desktop that makes it easier to navigate between your different application windows; new snapping windows that allows user to resize a window simply by dragging it to the edge of the screen and "pin" that allows grouping and arranging often accessed applications on the taskbar.

Windows 7 introduces the new concept of libraries – containers for user files that have links to different local or network folders. By default, users can see four libraries: Documents, Music, Pictures and Videos. These libraries point to the corresponding user folders on the DFS . Users can include

additional folders in these libraries as well as create complete new libraries for different user content.

From the point of view of the CERN Windows infrastructure, everything remains the same, so users will feel very much at home. The applications are still managed with CMF and users' home folders continue to be stored on DFS (Distributed File System – system for saving files on network file servers). Also, the same printing infrastructure is available and the same way of distributing monthly patches will be applied.

Complete printable documentation for NICE Windows 7 is now also available! (Printable NICE Windows 7 Documentation at:

[https://cern.ch/winservices/
Help/?fdid=5](https://cern.ch/winservices/Help/?fdid=5)

Training offer

In order to allow a smooth transition to Windows 7, training tutorials featuring Windows 7 and Office 2007 have been prepared by Windows Desktop Services team in cooperation with CERN Technical Training. These sessions will take place in June. They

will be given in English and French and they are now available in the HR training catalogue. The tutorials are free of charge but registration is required. We encourage users to sign up and attend these sessions so that they can get the most of the new functionalities of Windows 7 and Office 2007.

The following training tutorials are scheduled:

- "Working with Windows 7 at CERN", June 1st, 2010 at 15:30 - 16:30, (English)
- "Travailler avec Windows 7 au CERN", June 3rd, 2010 at 10:30 - 11:30, (Français)
- "Get the most of Office 2007!", June 21st, 2010 at 15:30 - 16:30, (English)
- "Profitez bien de Office 2007!", June 23rd, 2010 at 15:30 - 16:30, (Français)

More information about the IT3T - IT Technical Training Tutorials 2010 can be found at:

[https://cern.ch/winservices/
Help/?kbid=170115](https://cern.ch/winservices/Help/?kbid=170115)

IT Department





Seminars

TUESDAY 25 MAY

ACADEMIC TRAINING LECTURE

REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

Baryon Asymmetry of the Universe (1/2)

H. MURAYAMA / UNIVERSITY OF CALIFORNIA, BERKELEY

TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

TBA

KENTARO HORI / IPMU

WEDNESDAY 26 MAY

ACADEMIC TRAINING LECTURE

REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

Baryon Asymmetry of the Universe (2/2)

H. MURAYAMA / UNIVERSITY OF CALIFORNIA, BERKELEY

TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

Algebraic Singularity Methods for Mass Measurements with Missing Energy

IAN-WOO KIM / UNIVERSITY OF WISCONSIN, MADISON

THURSDAY 27 MAY

TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

TBA (NOTE SPECIAL DAY)

M. DUFF / IMPERIAL COLLEGE, LONDON

CERN COLLOQUIUM

16:30 - Main Auditorium, Bldg. 500

Fundamental tests in Cavity Quantum Electrodynamics

S. HAROCHE / LABORATOIRE KASTLER BROSSEL DE L'ENS
AND COLLÈGE DE FRANCE, PARIS

MONDAY 31 MAY

TH WORKSHOP

14:00 - Main Auditorium, Bldg. 500

Planck 2010

I. ANTONIADIS, C. GROJEAN / CERN-TH

TH JOURNAL CLUB ON STRING THEORY

14:00 - Bldg. 1-1-025

Date Blocked due to Planck 2010

WEDNESDAY 2 JUNE

TH COSMO COFFEE

11:00 - Bldg. 1-1-025

TBA

G. DVALI / CERN

THURSDAY 3 JUNE

TH PHENCLUB

11:00 - Bldg. 1-1-025

TBA

M. CZAKON / AACHEN

TECHNICAL PRESENTATION

11:00 - Room A, Bldg. 61-1-017

PLA.NET

J. MOORE / SEED MEDIA GROUP

A&T SEMINAR

14:15 - Kjell Johnson Auditorium, Bldg. 30 (Meyrin)

Laser Acceleration and Fundamental Physics

T. TAJIMA / UNIVERSITY MUNICH, GERMANY