A seminar on 2 December was the opportunity for the ALICE, ATLAS and CMS collaborations to present their first results on ion physics in front of a packed auditorium. These results are important and are already having a major impact on the understanding of the physics processes that involve the basic constituents of matter at high energies.

In the ion-ion collisions, the temperature is so high that partons (quarks and gluons), which are usually constrained inside the nucleons, are deconfined to form a highly dense and hot soup known as quark-gluon plasma (QGP). This type of matter existed about 1 millionth of a second after the Big Bang. By studying it, scientists hope to understand the processes that led to the formation of nucleons, which in turn became the nuclei of atoms.

At the recent seminar, the LHC’s dedicated heavy-ion experiment, ALICE, confirmed that QGP behaves like an ideal liquid, a phenomenon earlier observed at the US Brookhaven Laboratory's RHIC facility. This question was indeed one of the main points of this first phase of data analysis, which also

First direct observation of jet quenching.

2010 ion run: completed!

After a very fast switchover from protons to lead ions, the LHC has achieved performances that have allowed the machine to exceed both peak and integrated luminosity by a factor of three. Thanks to this, experiments have been able to produce high-profile results on ion physics almost immediately, confirming that the LHC was able to keep its promises for ions as well as for protons.

(Continued on page 2)
2010 ion run: completed!

(Continued from page 1)

included the analysis of secondary particles produced in the lead-lead collisions. ALICE’s results already rule out many of the existing theoretical models describing the physics of heavy-ions.

ATLAS presented the first direct observation of jet quenching, a phenomenon indirectly seen at RHIC a few years ago. The experiment has shown an imbalance in the energy distribution of two back-to-back jets (see ATLAS picture) in so-called central collisions. Centrality is a parameter indicating how big the overlap of the two ions is when they collide; it is minimal when they hit each other only in the corner and it’s maximum when they overlap completely. ATLAS’s result is the first direct demonstration that when one of the two jets of particles goes through denser regions of QGP, its total energy is distributed in the medium and the jet appears to be almost totally absorbed. The observation of this imbalance and the study of the distribution of the energy are powerful means to study the properties of QGP. Confirmation of the direct observation of jet quenching came from the CMS experiment, which also reported the first observation of the production of Z bosons in heavy ion collisions.

In about one month of running with ions, the LHC experiments also collected evidence of the production of particles such as J/Psi and Upsilon, which again provide excellent tools to study the properties of deconfined matter. In future, they will be important in understanding the detailed behaviour of QGP.

Studies of heavy-ion physics have just started at the LHC and a lot of new results are expected from the data analysis that will be done in the coming weeks and months. So far, all the detectors have performed remarkably well, with data taking efficiency as high as 95%. This has translated into several publications that are just the beginning of the LHC’s heavy-ion adventure.

CERN Bulletin

Foundations for the future

(Continued from page 1)

look to applied science for winners. Basic science takes too long to deliver products to market – so the conventional logic goes – and it’s much better to concentrate on the applied. There’s merit to this logic, but it’s no cure-all for the economy. We need a broadly balanced approach to science that includes basic and applied research, that harnesses the power of the new media to ensure open access to knowledge, and that encourages an interdisciplinary approach. These are all things we do instinctively at CERN.

In my opinion, it is precisely in times like these that governments need to reaffirm their commitment to basic science. Earlier this year, our Member States did just that in approving our Medium-Term Plan. Their decision brought a strong endorsement of the CERN model for basic science: a consensus-based model that is as healthy today as it was at the time of CERN’s foundation in 1954.

Some technologies, I would contend most, do not come about through government foresight programmes picking winners, but rather through unpredictable sets of circumstances. Would a foresight panel have picked the World Wide Web? I doubt it. Looking further back, would foresight panels have chosen to invest in Michael Faraday? It’s also doubtful, since the lead-time for his innovation was much longer than the political cycle, and therein lies the rub. To get from Faraday’s early experiments with electricity and magnetism to commercial electric light took decades. Similarly, to get from Einstein’s paper on the photoelectric effect to transistors took years. The examples go on, and all are winners, but on timescales far longer than the political cycle.

For innovation to succeed, basic research has to keep churning out results for the applied scientists to get their teeth into. When times are good, private sector R&D reaches out towards the blue-sky end of the spectrum. But even then, the most basic sciences rely on government funding. When the economy is bad, it is firmly the public sector’s duty to ensure that the stream of knowledge running from basic to applied science and on to market is unbroken. That means funding basic science, stimulating knowledge transfer, and making sure that winners are produced in the long run, whether foresight panels spot them or not.

What has this got to do with the LHC’s run in 2010? The LHC helps to make science very visible: science is now firmly on the popular agenda, and bright young people are being inspired to follow scientific careers. Continued innovation depends on this, just as it depends on the right balance of pure and applied research. With the LHC so prominent in the public eye, factors like these make our successes today more important than ever.

Rolf Heuer
The latest from the LHC: a well-deserved break

A long and successful period of beam operation came to an end as scheduled on Monday 6 December. Since the first beam of 2010 was injected into the LHC on 28 February, a huge amount of progress has been made. After a technical stop of a few weeks coinciding with the end-of-year break, the LHC hardware systems will be restarted in January to be ready for the first beam of 2011 around 21 February.

cm$^{-2}$ s$^{-1}$ and almost 50 pb$^{-1}$ of integrated luminosity delivered to the experiments by late October, attention switched to operation with ions in November.

After a rapid re-commissioning of the machine with ions, the physics run started on 8 November and continued for 4 weeks. The number of bunches was quickly increased to 121 per beam. Most of the run was made with this configuration, until the last weekend when the collider used 137 bunches per beam. During the last week, peak luminosities in excess of $3 \times 10^{25}$ cm$^{-2}$ s$^{-1}$ have been achieved and almost 10 µb$^{-1}$ of integrated luminosity has now been delivered to the experiments.

While the LHC has achieved or exceeded all expectations for 2010, it should not be forgotten that this has only been possible thanks to the reliable performance of the injector chain. This is especially true for the ion beams, which underwent almost constant tuning in order to provide the beam quality required for the LHC. In particular, since the source has to be refilled with lead every 20 days, it then needs to be pumped, reconditioned and retuned to retrieve its performance. A shorted electrode in the source jeopardized the end of the run, but this breakdown was mitigated by a careful adjustment of the parameters, and by the implementation of a double injection into the LEIR machine, so that for the last fill of the year, as during most of the run, the bunch intensity was still 50% higher than foreseen in the design report.
Happy birthday n-TOF!

Ten years after its first beam, n_TOF is just approaching maturity. Revitalized by the recent renovation of its infrastructures that allowed it to gain the unique label of "Class A" in radio-protection standards, n_TOF has a rich and challenging scientific programme. "One year ago, the beam line and the experimental area were completely rebuilt to comply with the Class A radio protection requirements to allow safe use of almost all radionuclides. This allowed us to carry on waste transmutation studies on radioactive elements that are produced, for example, in nuclear power plants," says Enrico Chiaveri, spokesperson of the n_TOF Collaboration, which involves approximately 90 physicists from some 30 institutions worldwide.

These studies are particularly important for the development of the new generation of nuclear reactors and the so-called accelerator-driven systems, which use accelerator-produced neutron beams to trigger nuclear reactions. "The production and transmutation of the radioactive elements by these new reactors requires careful measurement of the capture and fission cross-section for the so-called 'minor actinides,'" says Chiaveri. Thanks to these studies, with a technique known as 'Nuclear Cosmochronometry,' the n_TOF collaboration was able to obtain a new estimate of the age of the Universe. These important results earned a special mention as an example of excellent research by the journal Physical Review C (http://physics.aps.org/synopsis-for/10.1103/PhysRevC.82.015802).

The "Neutron Time Of Flight" facility (n_TOF) has recently turned ten. A simple ceremony marked the date of the anniversary and provides a nice opportunity to retrace the successful history of this unique facility, whose scientific activity spans a range from astrophysics to the study of nuclear-waste transmutation processes.

Neutrons are involved in virtually all nuclear processes, including star formation and evolution. "We have done very accurate measurements on the formation of some heavy elements such as osmium (Os) and rhenium (Re)," says Chiaveri. "Thanks to these studies, with a technique known as 'Nuclear Cosmochronometry,' the n_TOF collaboration was able to obtain a new estimate of the age of the Universe. These important results earned a special mention as an example of

The n_TOF facility has many distinctive features: an extremely high instantaneous neutron flux, equal to 8 x10^5 neutrons per cm², a very precise energy resolution, and a wide neutron spectrum with a very broad energy range from the thermal energies up to the GeV region. All together these characteristics make n_TOF extremely competitive in its fields of research. "Looking to the longer term, the n_TOF facility has great potential to further improve the neutron flux intensity by reducing the flight path to a second experimental area. The preliminary estimations made by the CERN n_TOF support team (EN-STI Group) show that the realistic configuration could allow samples with 10-100 lower mass to be used, opening the path to direct measurements that are not possible at any existing facility," adds Chiaveri. The future looks bright for this 10-year-old youngster!

Francesco Poppi
OpenAIRE, a breath of freedom in publishing

The OpenAIRE (Open Access Infrastructure for Research in Europe) project was launched one year ago to create a gateway for easy access to the research results of EU-funded programmes, in support of the EC initiative on open access that was part of the Seventh Research Framework Programme (FP7). “OpenAIRE demonstrates the EU’s engagement with the open access philosophy, providing an infrastructure which removes the obstacles preventing EU researchers from making their EU-funded research results freely available”, says Tim Smith, head of the IT/UDS group and leader of the Invenio technical team in OpenAIRE.

CERN also actively promotes the Open Access initiative through its participation in SCOAP3 (Sponsoring Consortium for Open Access Publishing in Particle Physics), which aims at converting all high-quality high-energy physics journals to Open Access for authors free of charge. “The CERN Library and the CERN IT Department are working together to promote and facilitate Open Access by driving initiatives and providing tools to make it a reality in our community. OpenAIRE enables a similar philosophy to be applied across the research domains at the European level” comments Tim Smith.

CERN Bulletin

Style matters!

Our daily work almost always involves writing - articles, reports and documents of all kinds. And even if CERN’s core activity is hard science, this doesn’t mean our writing style and the language we use are not important. The CERN Library is here to help.

In addition to the Chicago Manual of Style mentioned some weeks ago in the Bulletin, the CERN Library now also has two paper copies of the latest edition of the Oxford Style Manual, which is an important reference work for the preparation of manuscripts for publication and includes guidelines on citations, spelling, punctuation and abbreviations.

Thanks to the Library, you can also access important language-related tools in both CERN’s official languages such as Oxford Reference Online, giving access to a large choice of dictionaries and handbooks, as well as the Oxford English Dictionary. French speakers can enjoy access to Le grand Robert, one of the most important dictionaries for the French language.

All these dictionaries can be consulted online both on and off the CERN site (CERN accounts only).

List of all dictionaries available at CERN:

http://library.web.cern.ch/library/Library/dictionaries_and_encyclopedias.html

CERN Library
CERN has a new cultural policy

The new cultural policy features four main activities: the creation of an honorary advisory board, the launch of an Artist in Residence programme, support for the various cultural events developed at CERN, and a new website which will showcase CERN’s significant cultural activities and provide relevant information for both artists and people working at CERN. “The new cultural policy shows how much CERN values its significant role in culture,” explains Ariane Koek, the Communication Group’s cultural specialist working on this project.

CERN’s policy is extremely progressive, as it brings together art and science at the same level – Great Arts for Great Science – also building knowledge and expertise in the arts into the organisation at the highest level.”

The new Cultural Advisory Board will be made up by internationally recognised figures in the arts, including Serge Dorny, Director-General of the Lyon National Opera, Frank Madlener, Director of IRCAM, and Beatrix Ruf, Director of the Kunsthalle in Zurich and listed in ArtReview’s Top 20 Most Influential people in the Arts. The board will provide expert advice for the DG and CERN staff, judge arts applications using a newly established formal commissioning process, and provide professional guidance for CERN’s larger initiatives – including the Globe Gardens project, currently under development.

The Artists in Residence Programme, Collide@CERN, will bring multi-disciplinary artists to CERN. “This will be CERN’s new experiment: an opportunity for creative collisions between the minds of CERN’s scientists and the imaginations of artists,” says Koek. The cultural policy will also provide support to home-grown initiatives, such as the CinéGlobe film festival, created by CERN’s Open Your Eyes Film Club.

“I am currently fundraising and building partnerships with arts funders and cultural organisations to make any additional arts activity, such as the Artist in Residence scheme, happen, because CERN is funded for its science, not for the arts,” adds Koek.

Katarina Anthony
Research joins forces with industry in the fight against cancer

The Linac for Image-Guided Hadron Therapy (LIGHT) is the innovative linear accelerator designed by ADAM S.A. to revolutionise hadron therapy facilities by simplifying the infrastructure and making them profitable from an industrial point of view, while ensuring better beam quality. “Today proton beams for advanced cancer radiation treatment are produced either by cyclotrons, which need an energy selection system to adjust the beam energy to the value required by the specific treatment, or complex synchrotrons. When Ugo Amaldi told me that, according to studies carried out by the TERA Foundation, proton beams for hadron therapy could be produced by a 16-metre-long linear accelerator, I decided to accept the challenge to bring the project forward and to industrialise this research,” explains Alberto Colussi, director and founder of ADAM S.A., established in December 2007.

Requiring only a few milliseconds to change energy and with its 200 Hz repetition rate, the LIGHT accelerator allows a “multi-painting”-treatment of moving organs.

ADAM S.A. took the original ideas of the TERA Foundation and adapted them to the needs of a modern medical centre. “Given the dimensions and the modularity of the LIGHT system, the new centres will be designed to house equipment which will be much less bulky,” confirms Colussi. In addition, the innovative concept developed by ADAM S.A. includes the absence of rotating gantries, the heavy devices used to direct the beam exactly to the target. “We have replaced the gantry with a mobile bed of novel design that allows operators to adjust the position of the patient to the needs of the treatment. This will reduce the costs compared to a traditional hadron therapy facility, allowing a larger number to be constructed,” adds Colussi.

LIGHT has its roots in fundamental research but it is now ready to be developed on an industrial level and will eventually be opened up to the worldwide market. “Working in collaboration with CERN has been very exciting: here there are no limits to the imagination, while in industry it is always necessary to deal with profit,” says Colussi.

Once all the tests with radiofrequency at CERN have been completed, the first unit of LIGHT will be heading to Rome, where it will undergo performance tests. If all goes well, ADAM S.A. plans to retail the first industrially produced LIGHT modules within two years.

The First Unit of LIGHT is designed for a 30 MeV injected proton beam produced by either a linac or a cyclotron, and its energy gain is 12 MeV. Since the LIGHT concept is a modular one, the output energy of three similar units is 65 MeV, used to treat eye tumours.

The output energy can be increased by adding other units. In a typical 230 MeV installation, corresponding to an 18 m long medical linac, the radiofrequency (RF) power sources are each physically positioned along its length. The accelerating modules are longer as the beam progresses down the linac, because of the increasing beam velocity.

To accelerate protons by 200 MeV in less than twenty metres, the chosen frequency is 3 GHz, which is standard for electron linacs but has never been used before for protons.

The RF power pulses produced by the klystron are transmitted through a waveguide. The beam energy modulation needed to correctly cover the target tumour depth is obtained electronically by changing the peak RF power applied to the accelerating modules. The pulsed klystron-modulators provide this change of RF power in a few milliseconds.

The First Unit equipment is computer controlled from two desk top computers connected to the control system.

<table>
<thead>
<tr>
<th>Accelerator</th>
<th>Beam always present during treatments</th>
<th>Energy variation by electronic methods</th>
<th>Time needed for varying the energy</th>
<th>LIGHT Parameters</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclotron</td>
<td>YES</td>
<td>NO</td>
<td>80-100 ms (*)</td>
<td>Typical LIGHT output proton beam energy</td>
<td>230 MeV</td>
</tr>
<tr>
<td>Syncrotron</td>
<td>NO</td>
<td>YES</td>
<td>1-2 seconds</td>
<td>Typical LIGHT input beam energy</td>
<td>30 MeV</td>
</tr>
<tr>
<td>Linac</td>
<td>YES</td>
<td>YES</td>
<td>2-3 milliseconds (**)</td>
<td>Typical number of acceleration module assemblies</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(*) With movable absorbers</td>
<td>(** The energy is changed by adjusting the RF power to the modules)</td>
<td></td>
<td>Electronic beam energy variation range up to maximum energy</td>
<td>70%</td>
</tr>
</tbody>
</table>

Francesco Poppi

The First Unit of LIGHT was unveiled on 20 November. The ceremony was attended by Sergio Bertolucci, CERN Director for Research, Rolf Heuer, CERN Director-General, Alberto Colussi, Director of ADAM SA, President Carlo Lamprecht and Domenico Campi, ADAM SA Board Members, and Ugo Amaldi, President of the TERA Foundation.

The Geneva-based Application of Detectors and Accelerators to Medicine (ADAM S.A.) has recently completed the first unit of an innovative linear accelerator for hadron therapy applications. The design of the new unit is based on pioneering studies carried out by the TERA Foundation a few years ago. Assembled at CERN in the framework of a partnership agreement with the company, this first module is now ready to leave Switzerland for Rome, where it will undergo some important performance tests.
LHC on the bus

The good relationship between Geneva International Airport and CERN started several years ago. In 2004 the airport put advertising space in the arrivals area at CERN's disposal free of charge. Now, starting on 15 December, a 40-foot long bus will display a giant sticker advertisement depicting CERN as it takes passengers over the airport tarmac to their planes.

This is no ordinary sticker, and it was no mean task to attach it to the bus. The task of producing and attaching it was entrusted to Geneva-based specialists Mathys SA. With the ski season opening on 15 December, there will be many travellers arriving at the airport, and the bus will be ready to receive them.

When one thinks of CERN, the subjects that naturally come to mind are the LHC, the mysteries of the Universe, and sub-atomic particles. All of these themes have been brought together in the artwork. “The challenge was to come up with a visual scheme that would reflect the concept of the LHC, which is all about accelerating particles to understand our Universe,” explains Fabienne Marcastel, the graphic designer behind this creation. Thus, the viewer will see pictures of the LHC, the Globe exhibition and the particles in one continuous image (see sketch).

In addition to spreading the message about the LHC as a resource for scientific research, the bus will inform visitors about the “Universe of particles” exhibition, located just minutes away from the airport. (That’s assuming there’s no snow, and it’s not during rush hour!)

Laëtitia Pedroso
Reflections on the past and future of CERN

What does the history of CERN teach us? How have the ideas which gave birth to the largest fundamental physics research centre in the world evolved? It is always interesting to stand back and look at the history of one's own organisation in relation to developments in society. On Monday, 13 December, at the University of Geneva's physics faculty, Dominique Pestre will give a lecture and moderate a discussion on these issues.

As director of research at Paris's Ecole des hautes études en sciences sociales (EHESS), Dominique Pestre is one of France's principal science historians. With his physics background, he has many publications to his name on the history of physics, the practice of science in the West and on the interactions between science and society in general. He knows CERN very well as he was co-author of The History of CERN, a detailed account of the Organization's development from its creation to the 1970s.

The well-known science historian, Dominique Pestre, gives his insight into CERN's history and changing trends in the perception of fundamental research.

Why is CERN an interesting subject for a science historian to study?

"CERN is a remarkable success from a scientific and technical but also from an institutional and organizational perspective. The Organization continues to function extremely well in its own particular field of fundamental research. In this respect, it is a fascinating subject for a science historian like me. But CERN is living in a very different climate to the one that made it a success in the 50s and 60s. Next Monday in our discussions we shall be looking back over the changing circumstances in which CERN has evolved."

In what ways has the context in which fundamental physics is conducted changed?

"In the aftermath of the Second World War, an extraordinary aura was conferred on physicists by the development of nuclear weapons. They also had great influence during the subsequent Cold War period. At the time, the prevailing idea in science was reductionism. It was thought that fundamental physics underpinned everything: if you understood the elementary structure of matter, you understood all the higher orders. This view changed in the 1970s, as a result of the thesis propounded by Nobel Prize for Physics Winner, Philip Warren Anderson, in his article « More is different ». In this article he developed the thesis that specific physics properties emerge at each higher order level. Thus no reduction to the fundamental scale is possible. Ideas on the relationship between fundamental research and applied research have also evolved: We now know that the link is not linear. These changes of perspective are of primordial importance for CERN."

Paradoxically, growing public interest in CERN has been noted over recent years. What do you think the reasons for this are?

"Perhaps there is a renewal of interest in fundamental research that is disconnected from mercantile requirements. Society's increasing preoccupation with materialism has generated a reaction in the form of movements opposed to mercantilism. Physics research at CERN is precisely disinterested in that it has no other goal than itself. It can therefore be seen as a beacon of altruism and transcendence. This is an interesting debate which we can pursue during the discussion."

All the details of the conference are available at:


Corinne Pralavorio
Muons reveal the interior of volcanoes

Like X-ray scans of the human body, muon radiography allows researchers to obtain an image of the internal structures of the upper levels of volcanoes. Although such an image cannot help to predict 'when' an eruption might occur, it can, if combined with other observations, help to foresee 'how' it could develop and serves as a powerful tool for the study of geological structures.

Muons come from the interaction of cosmic rays with the Earth's atmosphere. They are able to traverse layers of rock as thick as one kilometre or more. During their trip, they are partially absorbed by the material they go through, very much like X-rays are partially absorbed by bones or other internal structures in our body. At the end of the chain, instead of the classic X-ray plate, is the so-called 'muon telescope', a special detector placed on the slopes of the volcano. "This technique was pioneered in Japan by Hiroyuki Tanaka from the University of Tokyo and his collaborators, who first used it to look inside the Asama volcano. They have now joined our collaboration", says Paolo Strolin, spokesperson of the MU-RAY project and a member of the Italian National Institute for Nuclear Physics (INFN) and the University of Naples Federico II.

From a technical point of view, performing muon tomography of Vesuvius is a great challenge, much beyond what has been done so far. "The morphology of the mountain is complex, partly due to the fact that it has grown in the caldera of a larger volcano, of which what is left is now called Monte Somma," explains Paolo Strolin. Muons have to go through about two kilometres of rock to reach the detector on the opposite side of the volcano, and only muons of very high energy are able to do so. "For a first investigation, we are using the detector already used in Japan, although that volcano was much less thick than Vesuvius," explains Strolin.

The thicker the layer of rock, the larger the detector area must be, otherwise it would take too long to take the data. "We are working on a prototype of a new detector," says Paolo Strolin. "The new system will be modular to globally cover surfaces of the order of tens of square metres. The detectors will have good angular resolution and an improved signal-to-background ratio". The R&D project on the new generation 'muon telescopes' is supported by INFN, the Italian National Institute of Geophysics and Volcanology (INGV), the Italian Government and the University of Naples Federico II.

The MU-RAY project has the very challenging aim of providing a "muon X-ray" of the Vesuvius volcano (Italy) using a detector that records the muons hitting it after traversing the rock structures of the volcano. This technique was used for the first time in 1971 by the Nobel Prize-winner Louis Alvarez, who was searching for unknown burial chambers in the Chephren pyramid.

The Digital Scientist to be launched in the New Year

SGTW has been successfully contributing to the international grid community and steadily growing in popularity and appeal, as shown by a readership drawn from nearly 200 countries that increased by 89% in under two and a half years. Now, the goal is to expand the coverage of the publication to include high-end technologies such as supercomputing, volunteer computing, distributed computing, networks and cloud computing, as well as grid computing. This change in the publication brings with it a new name: The Digital Scientist.

If you’ve been on a stroll through Restaurant No. 1 or walked through the corridors of Building 600, a colourful poster - with spotlights, a QR code and the words “Coming soon...” - might have caught your attention. This has been brought to you by the team at iSGTW (International Science Grid This Week), the CERN-based grid computing newsletter, and signifies that the publication is being transformed... into The Digital Scientist.

The launch of The Digital Scientist comes along with a “major” redesign and a brand-new website, boasting features carefully chosen to enhance the reader’s experience, as part of a complete relaunch in January 2011. The new publication will show how high-end computing resources go beyond the world of physical sciences, encompassing much of modern science, research and the public sphere.

The Digital Scientist will also introduce new interactive features, such as a facility for readers to comment on and rate stories, to share them with social media and other websites, and to take part in polls and surveys. In addition, readers will be able to create or host an existing blog and submit story ideas directly to the editors. The Digital Scientist will also provide the most relevant links to other computing news on the web.

Few, if any, websites provide a single source to learn about all forms of high-end computing. At The Digital Scientist, readers will find a one-stop-shop for all their computing news.

The Digital Scientist Team

Image courtesy of Andre-Pierre Olivier from e-ScienceTalk.
New calendar features winning photos from Photowalk 2010

The winning photos from Photowalk 2010 will feature in a 2011/2012 calendar, which will be on sale in the Reception from 15 December. You can already download it free of charge at:

http://www.interactions.org/cms/?pid=1030288

Katarina Anthony

The zebras come to CERN

Popular Franco-Swiss host Jean-Marc Richard brought Les Zèbres to the Laboratory with a live broadcast. The idea was to let the children themselves host the broadcast. Accompanied by their physics teachers, pupils from junior secondary schools in Golette, Colombières and Drize were given the opportunity to spend half a day at CERN. Each day, one class came to find out about a particular aspect of the Laboratory and then conduct a live broadcast with Jean-Marc Richard from 12:10 to 12:30. The young people, aged 13 to 15, had a chance to explore the Universe of Particles exhibition, visit CERN’s Control Centre, get involved in demonstrations at the cryogenics laboratory and visit the ATLAS visitors’ centre.

A “zebra forum” was set up for young listeners to share their views about the place of science in society and its usefulness. You can visit the forum at:

http://www.leszebres.ciao.ch/?all=1&id=14012

To listen to the broadcasts, go to:

http://www.rsr.ch/#/la-1ere/programmes/les-zebres/?date=23-11-2010

Laëtitia Pedroso
New arrivals

On Thursday 9 December 2010, at the second part of the Induction Programme, members of the CERN Management welcomed recently-recruited staff members and fellows (photographed here with Jean-Marc Saint-Viteux, Deputy Head of HR Department, and Vincent Vuillemin, CERN Ombuds).

HR Department

2011 MARS – REFRESHER PRESENTATION
GENERAL PRINCIPLES OF THE MERIT, APPRAISAL AND RECOGNITION SCHEME

Staff members are invited to attend one of the following three information sessions that will outline the general principles of the 2011 annual Merit, Appraisal and Recognition Scheme (MARS).

- Monday 10 January at 16:00-17:00
  BE Auditorium Prévessin (864-1-D-02) – French
- Tuesday 11 January at 15:00-16:00
  Council Chamber (503-1-001) – English
- Thursday 13 January at 15:00-16:00
  Kjell Johnsen Auditorium (30-7-018) – French

General information on the MARS exercise may also be found on the Human Resources website:
https://hr-eguide.web.cern.ch/hr-eguide/mars/mars.asp

Human Resources Department
Tel. 70674 / 72728

END-OF-YEAR CLOSURE 2010/2011

As announced in Weekly Bulletin No. 2-3/2010, the Laboratory will be closed from Wednesday 22 December 2010 to Tuesday 4 January 2011 inclusive.

This period consists of:
- 4 days’ official holiday, i.e. 24, 25 and 31 December 2010 and 1st January 2011;
- 6 days’ special paid leave in accordance with Article R 4.38 of the Staff Regulations, i.e. 22, 27, 28, 29 December 2010, and 3, 4 January 2011;
- 2 days, 23 and 30 December 2010 to compensate for 25 December 2010 and 1st January 2011 (Article R 4.39 of the Staff Regulations);
- 2 Sundays, i.e. 26 December 2010 and 2 January 2011.

The first working day in the New Year will be Wednesday 5 January 2011.

Further information is available from Department Secretariats, specifically concerning the conditions applicable to members of the personnel who are required to work during this period.

HR Department
Tel. 73903
CONFERENCE FOR CERN PENSIONERS

Wednesday, 19 January 2011,
2.30 to 4.30 p.m.
Council Chamber,
Main Building 503-1-001

RESEARCH PROJECT
“Optimum brain ageing”

- “Intelligence and longevity”
  Dr François HERRMANN,
  University Hospitals of Geneva (HUG)
- First results of the questionnaire: Promotion of Optimum Brain Ageing
  Dr François HERRMANN,
  University Hospitals of Geneva (HUG)
- Discussion with the participants.

In French
Admission free

THE CERN ELECTRONICS POOL MOVES TO BUILDING 13

After 32 years in Building 4 R-050, the CERN Electronics Pool will re-open in Building 13 R009 on

Monday 13 December at 10:00.

As of his date, you will be able to come and choose the instruments you want: oscilloscopes and other measurement instruments, low and high voltage power supplies, modular instrumentation, etc.

Please do not hesitate to consult the catalogue and give us any input you may have.

The CERN Electronics Pool operates on a self-service basis (with a CERN budget code) and is available for any help you may need.

PH Department
INFORMATION FROM THE CENTRAL STORES

All items sold in the CERN shop (Bldg. 33) are now available in the central stores (Bldg. 73) and can be purchased on-line via EDH “Material Request” or at the “Emergency Desk” of the stores on the ground floor of Bldg. 73.

These items can be found in the CERN catalogue under the “SCEM” codes beginning with 92.

CAR STICKERS FOR 2011

The 2011 car stickers are now available.

- Holders of blue car stickers will receive their 2011 car stickers by internal mail as of 15 December.
- Holders of red car stickers are kindly requested to come to the Registration Service (Building 55, 1st floor) to renew their 2011 stickers. This service is open from Monday to Friday from 7:30 am to 5:30 pm non-stop. Documents for the vehicles concerned must be presented.

Organizers: Michael BENEDIKT/BE-OP/73380, Marie-Laure LECOQ/HR-DI/74924
ENSEIGNEMENT TECHNIQUE
TECHNICAL TRAINING
technical.training@cern.ch
Take note

ACCU MEETING

DRAFT Agenda
for the meeting to be held
on Wednesday 8 December 2010
at 9:15 a.m. in room 60-6-002

1. Chairperson's remarks
2. Adoption of the agenda
3. Minutes of the previous meeting
4. Matters arising
5. News from the CERN Management
6. Report on services from GS department
7. The CERN Ombuds
8. The new account management system
9. Crèche progress + Restaurants
10. Reports from ACCU representatives on other committees
11. Users’ Office news
12. Any Other Business
13. Agenda for the next meeting

Anyone wishing to raise any points under item 12 is invited to send them to the Chairperson in writing or by e-mail to

Michael.Hauschild@cern.ch

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

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 M. Hauschild/PH as Secretary. Human Resources Department is represented by J. Purvis, the General Infrastructure Services Department by M. Tiirakari, the Occupational Health Safety and Environmental protection Unit by E. Cennini, 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 (73564 or Michael.Hauschild@cern.ch).

http://cern.ch/ph-dep-ACCU/
**PUBLICAION OF THE BULLETIN IN 2011**

The table below lists the 2011 publication dates for the paper version of the Bulletin and the corresponding deadlines for the submission of announcements. Please note that all announcements must be submitted by 12.00 midday on Tuesdays at the latest.

<table>
<thead>
<tr>
<th>Bulletin No. Week number</th>
<th>Submission of announcements (before 12.00 midday)</th>
<th>Bulletin Web version</th>
<th>Bulletin Printed version</th>
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<tr>
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<td>Tuesday 11 January</td>
<td>Fridays 14 and 21 January</td>
<td>Wednesday 19 January</td>
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<tr>
<td>5-6</td>
<td>Tuesday 25 January</td>
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<td>7-8</td>
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<td>9-10</td>
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<td>Wednesday 16 March</td>
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<td>13-14</td>
<td>Tuesday 22 March</td>
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<td>Wednesday 30 March</td>
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<tr>
<td>15-16</td>
<td>Tuesday 5 April</td>
<td>Fridays 8 and 15 April</td>
<td>Wednesday 13 April</td>
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<tr>
<td>17-18</td>
<td>Tuesday 19 April</td>
<td>Fridays 21 and 29 April</td>
<td>Wednesday 27 April</td>
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<td>19-20</td>
<td>Tuesday 3 May</td>
<td>Fridays 6 and 13 May</td>
<td>Wednesday 11 May</td>
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<td>21-22-23 (Ascension)</td>
<td>Tuesday 17 May</td>
<td>Fridays 20 and 27 May</td>
<td>Wednesday 25 May</td>
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<tr>
<td>24-25</td>
<td>Tuesday 7 June</td>
<td>Fridays 10 and 17 June</td>
<td>Wednesday 15 June</td>
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<td>26-27</td>
<td>Tuesday 21 June</td>
<td>Fridays 24 June and 1 July</td>
<td>Wednesday 29 June</td>
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<tr>
<td>28-29</td>
<td>Tuesday 5 July</td>
<td>Fridays 8 and 15 July</td>
<td>Wednesday 13 July</td>
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<td>30-31</td>
<td>Tuesday 19 July</td>
<td>Fridays 22 and 29 July</td>
<td>Wednesday 27 July</td>
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<td>32-33-34</td>
<td>Tuesday 2 August</td>
<td>Friday 5 August</td>
<td>Wednesday 3 August</td>
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<td>35-36</td>
<td>Tuesday 23 August</td>
<td>Fridays 26 and 2 September</td>
<td>Wednesday 31 August</td>
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<td>37-38</td>
<td>Tuesday 6 September</td>
<td>Wednesday 7 and Friday 16 September</td>
<td>Wednesday 14 September</td>
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<td>39-40</td>
<td>Tuesday 20 September</td>
<td>Fridays 23 and 30 September</td>
<td>Wednesday 28 September</td>
</tr>
<tr>
<td>41-42</td>
<td>Tuesday 4 October</td>
<td>Fridays 7 and 14 October</td>
<td>Wednesday 12 October</td>
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<td>43-44</td>
<td>Tuesday 18 October</td>
<td>Fridays 21 and 28 October</td>
<td>Wednesday 26 October</td>
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<td>45-46</td>
<td>Tuesday 1 November</td>
<td>Fridays 4 and 11 November</td>
<td>Wednesday 9 November</td>
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<td>47-48</td>
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<td>Fridays 18 and 25 November</td>
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<td>49-50</td>
<td>Tuesday 29 November</td>
<td>Fridays 2 and 9 December</td>
<td>Wednesday 7 December</td>
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<td>51-52/1-2</td>
<td>Tuesday 13 December</td>
<td>Friday 16 December</td>
<td>Wednesday 20 December</td>
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If you wish to publish a news article or an item in the General Information or Official News sections, please contact [Bulletin-Editors@cern.ch](mailto:Bulletin-Editors@cern.ch)

If you wish to publish an announcement in the Staff Association section, please contact [Staff.Bulletin@cern.ch](mailto:Staff.Bulletin@cern.ch)

*Publications Section, DG-CO group*
The Federal Ministry of Education and Research (BMBF), together with CERN, will hold the Industrial Exhibition "11th Germany at CERN". Some 30 German companies will present their latest products/technologies related to the field of particle physics and their services to the scientists and buyers of CERN, establish contacts and find out about future purchasing opportunities.

On 25 January, Dr. B. Vierkorn-Rudolph of the Federal Ministry of Education and Research and CERN Director-General, Prof. R. D. Heuer, will open the exhibition, followed by a tour of the stands.

The main subjects are: electrical engineering, electronics, informatics, mechanical engineering, vacuum & low temperature technologies, instrumentation and safety.

CERN staff wishing to obtain information concerning the programme, the exhibitors and their profiles or to get in contact with exhibitors are requested to contact their department secretariat or use the link:

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

During the evening reception at the "Globe of Innovation", exhibitors and invited CERN employees will have the opportunity to celebrate the event.

The catalogue of exhibitors and their profile will be available prior to the beginning of the event.

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**INDUSTRIAL EXHIBITION “11TH GERMANY AT CERN”**

**Administration Building**
(Bldg. 60/61)

**Tuesday 25 January:** 11 a.m. - 5.30 p.m.

**Wednesday 26 January:** 9 a.m. - 5 p.m.

**List of exhibitors**

5. CST AG, Darmstadt, www.cst.com – simulation technology
15. MIKROMAT Werkzeugmaschinen GmbH & Co.KG, www.mikromat-wzm.de – tooling machines
16. NTG - Neue Technologien GmbH & Co.KG, www.ntg.de – nano-technics, special machines
17. powerbridge Computer Vertriebs GmbH, www.powerbridge.de, computer, informatics
29. WAGO Contact SA, www.wago.ch – electro & contact-technics

**EXHIBITION ORGANIZER**

Federal Ministry of Education and Research, Germany
Heinemannstrasse 2, D - 53175 Bonn
Ms. Gisela Schmitz-DuMont
Tel.: +49-228-9957-3438
Fax +49-228-9957-8-....
Gisela.Schmitz-DuMont@bmbf.bund.de
www.bmbf.de

ILO allemand / German ILO at CERN
Mr Wolfgang K. Erdt
Tel.: +41-22-7674147
Mobil +41-78-8970367
wolfgang.erdt@cern.ch
www.cern.ch

mac messe- und ausstellungscenter Service GmbH
An den Nahewiesen, D - 55450 Langenlonsheim
Mr Harald Trimborn
Tel.: +49-6704-919-245
Fax: +49-6704-919-77-245
harald.trimborn@mac.de
www.mac.de

Information: Karine Robert/GS-SEM-LS / 74407
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**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Dates</th>
<th>Language</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITIL Foundations (version 3) EXAMINATION</td>
<td>13-DEC-10 / 13-DEC-10</td>
<td>English</td>
<td>1 hour</td>
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**Electronic design**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Dates</th>
<th>Language</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>Cours de base Automation du bâtiment</td>
<td>15-DEC-10 / 17-DEC-10</td>
<td>French</td>
<td>3 jours</td>
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**Office software**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Dates</th>
<th>Language</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharepoint Collaboration Workspace</td>
<td>13-DEC-10 / 14-DEC-10</td>
<td>English</td>
<td>2 days</td>
</tr>
</tbody>
</table>

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.

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**Seminars**

**MONDAY 13 DECEMBER**

**TH JOURNAL CLUB ON STRING THEORY**  
14:00 - TH Auditorium, Bldg. 4  
TBA  
R. BRUSTEIN / BEN-GURION UNIVERSITY & CERN  
JOHN ADAMS LECTURE  
14:30 - Council Chamber, Bldg. 503  
Accelerator Breakthroughs, Achievements and Lessons from the Tevatron Collider  
V. SHILTSEV / FNAL

**TUESDAY 14 DECEMBER**

**A&T SEMINAR**  
11:00 - BE Auditorium Meyrin, Bldg. 6-2-024  
What happened to your protons?  
M. FERRO-LUZZI / CERN  

**TH STRING THEORY SEMINAR**  
14:00 - TH Auditorium, Bldg. 4  
Holography of Bubbles in AdS  
E. RABINOVICI

**WEDNESDAY 15 DECEMBER**

**TH COSMO COFFEE**  
11:00 - TH Auditorium, Bldg. 4  
Have we detected the integrated Sachs-Wolfe effect?  
M. FROMMERT / GENEVA UNIVERSITY

**THURSDAY 16 DECEMBER**

**TH THEORETICAL SEMINAR**  
14:00 - TH Auditorium, Bldg. 4  
High-energy scattering at strong coupling from AdS/CFT  
E. IANCU / IPHT SACLAY & CERN PH-TH

**TH BSM FORUM**  
14:00 - TH Auditorium, Bldg. 4  
Top polarisation as a probe of BSM physics  
R. GODBOLE / CENTRE FOR THEORETICAL STUDIES (CTS)