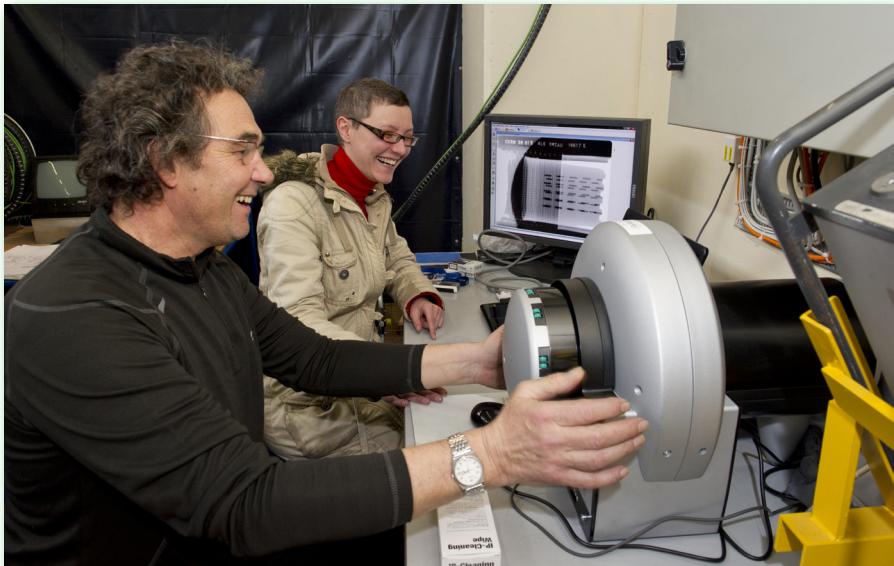




# CERN Bulletin

Nos 11 & 12 – 16 & 23 March 2011

## The LHC goes in for an X-ray



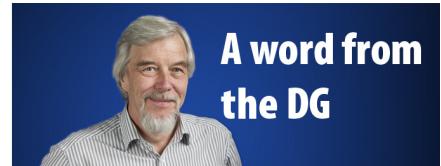
Technicians Jean-Michel Dalin and Aline Piguet, from the EN department, with the scanner used for digital radiography.

In the basement of Building 112 lies a bunker heavily protected against radiation leaks and housing a laboratory that employs high-tech apparatus capable of detecting the slightest fault in materials without destroying or damaging them. "It's the principle of Non-Destructive Testing (NDT). In our laboratory we essentially use two methods, tomography and digital radiography," explains Jean-Michel Dalin, who is a NDT radiography technician in the EN Department's MM Section. It was he who designed the laboratory in collaboration with CERN's radiation protection service, which ensured full compliance with the standards.

**For the past two years, a radiography laboratory has been operating in a "bunker" where it can X-ray materials in complete safety. The primary function of the radiography laboratory, run by Jean-Michel Dalin and Aline Piguet, is to inspect welds and LHC components.**

Tomography is a technique where 180 to 1200 images are taken in rotation around an object. The resulting section images are then used to make a 3D reconstruction of the object on the computer screen and to locate any faults that may lie within. To closely examine components located inside closed connections, in particular, magnet interconnections, Jean-Michel Dalin and his colleague Aline Piguet have specially configured a tomograph built by an outside firm which can be transported into the LHC tunnel. "The idea of using a tomograph to examine the LHC interconnections came from Fritz Caspers of the BE Department and Lloyd Williams of the TE Department. It's very efficient because it enables us to

(Continued on page 2)



A word from the DG



### European projects: a new wave of success

Since the beginning of this year, no fewer than six new EU projects at CERN have been launched. These are just a third of the projects selected by the European Commission for funding during the course of 2010, bringing in some 23 M€ over a period of two to five years. This makes last year our most successful yet in securing EU support, and places CERN among the top 50 out of more than 10,000 participants in the EU's seventh Framework Programme. The success rate of our proposals has been very good ever

(Continued on page 2)

### In this issue

#### News

- The LHC goes in for an X-ray 1
- A word from the DG 1
- LHC Report 3
- The renovation of the Main Building 4
- CERN in 2030 5
- At your service! 6
- LINAC4 takes a tour of Europe 7
- The new heart of the PS is beating strongly 8
- The new AMS control centre 9
- Around the Globe with Buzz Aldrin 10
- CERN takes off at Lift11 11
- CERN cars 12
- Fabiola Gianotti 12
- Ombud's corner 13
- TV News Magazine presentations 14
- Simon van der Meer 1925-2011 15
- Emilio Pagliola 1937 – 2011 16
- Joaquin Iñigo-Golfin 1965-2011 17

#### Official news

- Take note 20
- Training & Development 22
- External meeting 22
- Academic training 22
- Seminars 23

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## A word from the DG

(Continued from page 1)

### European projects: a new wave of success

since the beginning of FP7 in 2007, particularly for projects coordinated by CERN.

There has been a clear evolution of CERN's involvement in EU projects over the last 10 years. In the early days, we tended to target the Marie Curie actions and the e-Infrastructures Programme. The former help us to fulfil our mission to train young people, while the latter supported the development of the European Grid, mainly through the EGEE projects. Later, the Organization became actively involved in the Research Infrastructure programme, which has provided EU support for certain accelerator and detector R&D activities. More recently, we have branched out further into areas as diverse as health technologies, science and society, ICT and open access.

In comparison to the previous Framework Programme, the number and share of EU projects coordinated by CERN has increased. It has become clear that there's a demand for CERN to play a coordinating role in certain areas close to our core missions. This is the case, for example, in the fields of accelerator and detector R&D where CERN coordinates EuCARD and AIDA, each of which involves around 50 partners.

EU projects complement the R&D programmes of the Organization, and allow us to strengthen existing collaborations and develop new ones with institutes, laboratories and industrial companies from all over Europe. It's a measure of how important the participation of EU projects has become to CERN today that around 10% of CERN staff, fellows, associates and students are currently engaged in EU-funded activities. Most of these 250 or so people are young scientists and engineers, who, after the end of the projects, find jobs in other countries, in academia or in industry. This enhances mobility of researchers between countries and sectors, and contributes to the circulation of knowledge in Europe. All in all, the involvement in EU projects has a clear added value for CERN, and for European research.

Rolf Heuer

## An X-ray of the LHC

*(Continued from page 1)*

identify possible problems without having to warm up the LHC or open the interconnections," the two experts confirm.

In their Building 112 laboratory, Jean-Michel and Aline also use digital radiography to inspect various materials and assembly methods and to detect any imperfections. "Since the beginning of the year, we have been using a phosphorous support for this kind of inspection, as it can be reused about 800 times. The images are then read by a special scanner and displayed directly on-screen," Aline explains. Digital radiography is far more environment-friendly than conventional X-ray techniques, which require a non-reusable photographic film (containing

silver) and a dark room and chemicals for development (like normal photographs). Digital radiography is also faster as results can be viewed within three minutes and in high definition. Aline adds: "We use digital radiography in 80% of cases but sometimes we do have to resort back to photographic films, which are thinner and thus give better precision."

The tomograph was used at the LHC for the first time during the latest technical stop in January and February 2011 and the radiography experts hope to extend its use to other accelerator or experiment components.

Anaïs Vernède



During the January 2011 technical stop, tomography was used on the LHC for the first time.

# LHC Report: Towards stable beams and collisions

**L**ow intensity beams with just a few bunches of particles were used to test the energy

ramp to 3.5 TeV and the squeeze. The results were successful and, as a by-product, the first collisions of 2011 were recorded 2 March.

One of the main activities carried out by the operation teams has been the careful set-up of the collimation system, and the injection and beam dump protection devices. The collimation system provides essential beam cleaning, preventing stray particles from impacting other elements of the machine, particularly the superconducting magnets. In addition to the colli-

**Over the past two weeks, the LHC re-commissioning with beam has continued at a brisk pace. The first collisions of 2011 were produced on 2nd March, with stable beams and collisions for physics planned for the coming days.**

mation system, also the injection and beam dump protection devices perform a vital machine protection role, as they detect any beam that might be mis-directed during rare, but not totally unavoidable, hardware hiccups. In order to ensure this task is performed properly, they have to be carefully positioned with respect to the beam.

Teams were also busy preparing the bunch trains to be injected from the SPS into the LHC. The bunch spacing planned for this year is 75 ns and over the last days, operators have injected batches of 8 bunches

with the nominal spacing. This is the first step towards the planned total of around 900 bunches per beam during the year.

The aim for the coming days is to complete the collimator set-up through the squeeze and in conditions for physics. After verification that everything is as it should be, the way will be open to first collisions and 'stable beams'. Initial runs will be with three widely-spaced bunches per beam as careful checks that everything is set-up properly continue.

*CERN Bulletin*

# The renovation of the Main Building is approaching completion

**N**obody who has recently had to shimmy between the cables, ladders and tool-boxes deposited around the main hall of Building 500 to get to the post office, the bank or Restaurant 1 can be oblivious to the fact that the ground floor of the Main Building has been getting a face-lift.

The renovation work, which started with the first-floor concourse in June 2010, should be finished over the next couple of months. The first-floor renovations, now almost complete, set the tone for the rest of the project. The floor and ceiling, both fitted with special acoustic materials for efficient noise damping, have been completely refurbished and the Building 60 lifts have been replaced. In the Council Chamber concourse, visitors can admire the new gallery of portraits of past Directors-General while relaxing in newly-created "lounge" areas. Myriam Veyrat, who was tasked by the Management with leading the renovation project, explains: "We went for two distinct furniture styles including, at the top of the staircase on the right, the type of furnishings you might find in some universities.

**The renovation work under way in the CERN Main Building should be completed by June. From the floors to the ceilings, everything has been done to give this historic building a new lease of life.**

And indeed we have noticed that this area is very popular with younger people at lunch times. It has a really nice atmosphere!"

The Main Auditorium is also being rejuvenated in the framework of the same project and with work in full swing since December, it is scheduled to open its doors again in June. The seating capacity will be increased from 350 to 400 and the stairways widened to allow people to make their way more easily to new, custom-designed seats. Taking inspiration from the ingenious motorised systems used in cathedrals, the GS team has finally managed to solve the problem of maintaining the lights in the ceiling: "It used to take two people four days and a scaffold to change the auditorium's 60 light bulbs," Myriam recalls. "Each lamp now has a little motor to lower it when the bulb needs changing." In addition, the work-teams will soon be installing at the entrance and at the top of the stairs information panels directly linked to the booking

service, showing each room's location and what meetings are in progress.

On the ground floor, the floor covering is scheduled to be installed at Easter and while it and the ceiling will be of identical design to those on the first floor, the whole atmosphere will more business-like. In the Users Office corridor, internet terminals and benches will give this important thoroughfare a cyber-café feel, with wi-fi wireless broadband providing Internet access to all and sundry. Staff and users will be able to catch up with the latest news on their clubs and associations or on upcoming events at the Globe of Science and Innovation via two practical, interactive terminals equipped with touch-screens. Display cases will be mounted along the glass façade for the various exhibitions hosted by the Staff Association. Largely untouched since the 1960s, the Main Building is about to embark on its second youth!

Anaïs Schaeffer



Taken in the early 60s, this picture illustrates how light maintenance was a challenge for the auditorium in CERN's main building.



## Did you know?

**The names of the Main Building meeting rooms are changing**

In line with the changes taking place in the Main Building, the names of the meeting rooms have been modified as follows:

- room A becomes room D
- room B becomes room C
- room C becomes room B

Furthermore, a letter has been added to the Main Auditorium (A), the Council Chamber (E), and room 60-6-015 (F).

# CERN in 2030

By 2030, CERN will be a greener place, much like a university campus. The arrival of the tramway on 30 April will be an opportunity to forge ahead with the urban plan aimed at rejuvenating the CERN site and redefining how it

is organised. "Nearly sixty years after CERN's first buildings went up, this plan will help transform the site and give it a welcoming, friendly face, a bit like a university campus," explains Thierry Chanard, urban planning specialist at GEA, a firm of architects based in Lausanne. The challenge from the technical viewpoint is that the Meyrin site is today so overrun by cars that green areas are becoming scarce." The arrival of the tramway at CERN's doorstep will create a new link with the rest of the Geneva Canton and experts reckon that the number of cars needing to access the area around the flagpoles or enter the CERN site will be in steep decline.

Proactive measures could also be taken to reduce automobile traffic on the CERN site, for example by offering environment-friendly transportation options such as bicycles or pedestrian walkways, by grouping together specific areas dedicated to cars or by introducing a new, regular shuttle service. "You can't help noticing that many private cars remain stationary for days on end, taking up valuable space. Extending the car-pool scheme would also be an appropriate way of reducing CERN's current fleet of 800 vehicles. In this way you could replace parking areas that have been freed up or are surplus to requirements with landscaped areas," says Thierry Chanard.

By redeveloping its site, CERN will be projecting a whole new image to its staff and users as well as to the outside world, which is particularly important given its highly visible location astride the French-Swiss border. Sadly, apart from the Globe

A competition will soon be launched to select the architect, urban planner or landscape designer to undertake the first phase of redevelopment of the parking area by the flagpoles, between Entrances A and B. This will be the first stage in a wider development project aimed at sprucing up the CERN site and enhancing its image. Work to create a pleasant and harmonious area at the CERN entrance will start in 2013 while preparatory work for other developments inside the CERN site has already begun...

of Science and Innovation, there isn't much to turn the heads of people passing along the road next to CERN. Furthermore, the route de Meyrin constitutes a real physical barrier between the Reception Building (33) and the Globe. "The arrival of the tram will of course increase the flow of visitors but at the same time it will inevitably widen this divide. The new layout plan will help harmonise the areas on both sides of the road and thus increase the Laboratory's overall visibility," Thierry Chanard underlines.

The international competition for the redevelopment of the area between the Globe of Science and Innovation and the flagpole car park is being launched by the Direction générale d'aménagement du territoire du canton de Genève in collaboration with the GS Department. "This first project will set the urban plan into motion and trigger a number of other measures aimed at revamping CERN's image," concludes Thomas Petterson, Head of the General Infrastructure Services (GS) Department.

## Details about the competition

The competition will be launched at the end of April 2011 and the results will be announced at the end of the year by a jury comprising urban architect Pierre Fedderson and, representing CERN, Director-General Rolf Heuer, Thomas Petterson and Isabelle Mardirossian, Leader of the GS Department's Integrated Services Group. The winner designated by the competition jury will then be entrusted by the Director-General with the first phase of the redevelopment of this area (2013-2014). The other, unsuccessful bids will nonetheless be put on display at the Globe of Science and Innovation towards the end of the year.

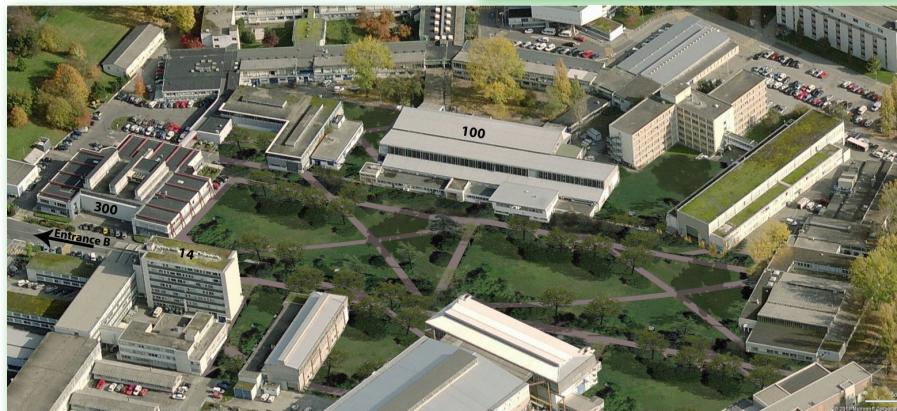
From Wednesday, March 9, a part of the parking area by the flagpoles will be unavailable. While waiting on the outcome of the competition, some adjustments will be made to prepare for the arrival of the tram. CERN and the Canton of Geneva have worked together to establish of a temporary installation (sponsored by the Canton) to improve mobility and the aesthetics of the entrance of the CERN Meyrin road between CERN and the Globe. If you want to know more about this temporary installation, check out the upcoming issues of the Bulletin.

Laëtitia Pedroso



CERN as it is today.

Here's what CERN might look like in 2030.



# At your service!

The new Service Desk is a one-stop shop for information on CERN. Physically located in Building 55 it has a single telephone number (77777) and a web portal (the CERN service portal)

that can be accessed 24/7, providing all the answers to your logistical questions. The IT and GS Departments have been collaborating on this project for nearly a year and a half. Today, all the services offered by the GS and IT Departments are listed in the CERN service portal. "The CERN service portal is simple to use and works just like a key-word search engine. A list of results is displayed and the user selects the result which best fits his enquiry," explains Mats Moller, member of the IT Department and one of the project leaders. Once the user is logged in, all past queries and results are shown on the home page.

Although the portal doesn't yet list all services provided by all Departments, the Desk is manned by six staff whose job is to answer any question (and possibly orient the requester in the right direction) by phone on 77777, by e-mail at service-desk@cern.ch or in person from 7.30 a.m. to 6.30 p.m. (see box). Reinoud Martens, one of the project leaders within the GS Department adds: "Today we're determined to change

**Everyone, at some time or another, has needed to get a new key cut, or to have an office painted or to get their hands on a document without knowing who to ask. People who have been at CERN for many years obviously don't experience this very often, but picking their way through the Laboratory's many services can be a real challenge for users and new arrivals. The Service Desk is now there to help !**

the way users interact with CERN. You will get answers to your questions here without having to know the Laboratory inside-out."

The Service Desk has other advantages, such as setting up a standard process which can be extended to all services. "Whatever the user's enquiry, the resulting procedure will always be the same. Also, careful analysis of the enquiries will enable us to pinpoint the needs of the CERN population and thus respond to them more quickly, using the adaptability of the web portal to our full advantage. The ultimate aim," Reinoud Martens concludes, "is to have a one-stop information shop for all CERN's in-house services."

So this is only the beginning and now that the GS and IT Departments have set the ball rolling, the HR and FP Departments will be joining the project shortly.

*Laëtitia Pedroso*

## Tested for you !

We were curious to see how the Service Desk really works, so we put it through its paces. We had three opportunities to do this: both of our telephones – the landline and the mobile – were on the blink and we no longer had access to job application files on the recruitment website. We contacted the Service Desk via two different routes: for the phone problems we called the 77777 hotline and for the web access problem we sent an e-mail to service-desk@cern.ch. We got a swift reply in both cases. For our mobile phone the Service Desk was able to advise us which service to contact and for the landline, the problem was already being repaired. They didn't have a solution for our web access problem, but after just three weeks in business and given the diversity of enquiries, the results are very promising. And with each day that passes the Service Desk gains in efficiency.



*The service desk team in Building 55.*

# LINAC4 takes a tour of Europe

**B**y the summer of 2012, the P I - M o d e Structures (PIMS) will be constructed and completely installed in the LINAC4 tunnel.

The PIMS cavities are the final accelerating structures needed for LINAC4, and have been designed to accelerate protons from 100 to 160MeV. While the first cavity was built entirely at CERN, construction of the remaining cavities has become a larger, multi-national operation.

In a 1 million euro framework agreement signed on 11 February by the Director-General, the Andrzej Soltan Institute for Nuclear Studies in Swierk (Poland) was given the task of constructing the PIMS cavities. They will work in collaboration with the Forschungszentrum Jülich in Germany to complete the work within the next 18 months. "By spreading production across various institutes, we can share CERN technology with our partner laboratories while also reducing the overall costs and manpower," says Frank Gerigk, the project engineer responsible for the Linac4 accelerating structures.

"PIMS cavities have previously only been used to accelerate electrons, so constructing 12 modules for low-energy proton acceleration is a venture that only cutting-edge research institutes could take," says Tadeusz Kurtyka, from the Office of the Director for Accelerators and Technology. "After they've finished construction, the Soltan Institute will be able to use the CERN technology

**Along the German Autobahnen, a truck carrying 20 tonnes of copper is on its way to Poland. The metal has already made a short tour of Europe, yet the drive across the high-speed highway is only the beginning of its transformation into CERN's next linear accelerator, LINAC4.**

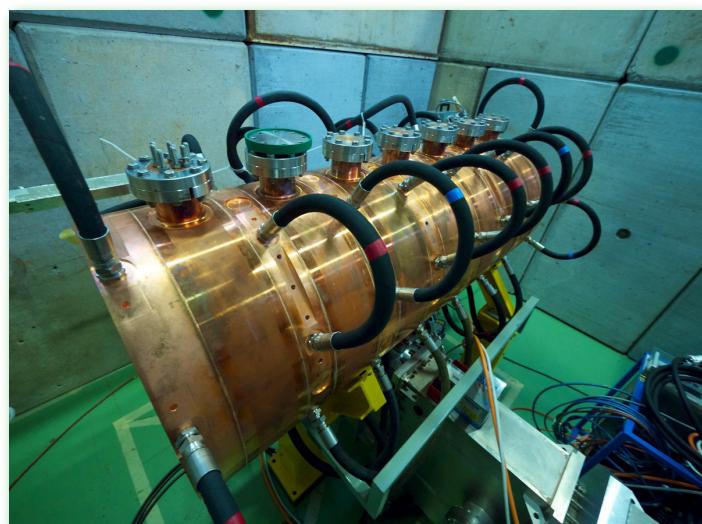
developed for the cavities in their future accelerator projects, developing industrial and medical electron accelerators."

Monitoring the construction of the 12 PIMS cavities will require a degree in geography as well as engineering! It took over 18 months for CERN to amass the 40 tonnes of difficult-to-produce, 3D forged copper from a French supplier required for the cavities. First used to construct the original PIMS

module at CERN, the copper now makes its way to the Soltan Institute in Poland. From there, it will visit the Jülich centre for a sample of their prestigious welding techniques. Finally, the finished cavities will make their way back to CERN, two at a time, for assembly and final tuning.

This summer, the first PIMS cavity will complete its journey at CERN, where it will immediately be tested and prepared for installation. When the final cavity arrives in July 2012, after assembly and tuning, installation will immediately begin inside the LINAC4 tunnel.

Katarina Anthony



The PIMS prototype designed and built at CERN.



Grzegorz Wrochna (left), director of The Andrzej Soltan Institute for Nuclear Studies (IPJ), and Rolf Heuer (right), CERN DG, sign the framework agreement between the two institutes.

# The new heart of the PS is beating strongly

The date 11/02/11 will always be remembered with affection by the engineers in the Electrical Power Converters Group. At 11:11 in the morning (no joke), the first beams powered by the new system began to circulate in the PS.

The cutely-named POPS (POwer for PS) took over from the old rotating machine that had been working since 1968. From now on it will be POPS that supplies the PS main magnets with the electrical pulses needed to accelerate the beams for the LHC and all CERN's other facilities. The system is crucial as the PS is one of the lynchpins of CERN's accelerator complex and any failure in the electrical system would practically paralyse all the experiments. Indeed an incident like that did occur in 2006 and was the reason why the campaign to replace the old machine was stepped up (see Bulletin 21/2010).

The solution developed since then is entirely innovative. The fact is that the PS power supply must be capable of delivering extremely high-power – 60 MW – electrical pulses to the magnets and then of reabsorbing the energy at each accelerator cycle, less than two seconds later ! So the rotating machine was replaced by an enormous system of power converters and capacitors. "In terms of its architecture and the energy levels delivered, this power electronics system is the first of its kind," explains Technology Department Head Frédéric Bordry, who initiated the project before handing over to Jean-Paul Burnet, the current leader of the Electrical Power Converters Group (TE/EPC).

**The PS has resumed operation with a brand new electrical power system called POPS; this enormous system comprising power electronics and capacitors is crucial because if it broke down practically no particles would be able to circulate at CERN. As soon as it started, POPS passed all the tests with flying colours and is now pulsing at full power.**

POPS was inaugurated and tested on ten SPS test magnets in 2010 and was then hooked up to the 101 PS main magnets for testing on 31 January this year. This system was tested with gradually increasing intensities, right up to 6000 amps. It then took a few days to pass the operation of POPS from the specialist controlling it locally to the CERN Control Centre prior to the crucial beam test on 11 February.

Start-up went so well that the commissioning process - which was supposed to take several months - only took a matter of weeks. "We had planned for POPS to run in parallel with the old rotating machine, but that wasn't necessary in the end," observes Rende Steerenberg, Head of the OP-PS Section in the Beams Department (BE/OP-PS), which operates the PS and its brand new power system.

Of course, such achievements don't just happen at the click of a finger. The teams from the TE/EPC Group did a lot of fine-tuning work with the PS operators. "But we were pleasantly surprised by the system's excellent stability," Rende Steerenberg adds. The PS needs to ramp up very quickly and then maintain a very stable magnetic field on the flattop. POPS is ideally suited for this purpose as it can deliver the electrical intensities required to produce magnetic fields exceeding 1.2 Tesla with close to 0.01 millitesla precision. "We couldn't want for more. In addition to these performance levels we have also achieved excellent reproducibility, which is very important for us," explains Rende Steerenberg.

So the whole project is a real success with potential applications for accelerators in other laboratories where very fast and very high power conversions are needed. The final word goes to Frédéric Bordry: "It's immensely satisfying to have achieved this result, especially as many people thought at the start of the project that it would not be possible. I'd like to take my hat off to all the engineers and technicians who collaborated on this unique project."

*Corinne Pralavorio*



*The new PS power system is made up of 6 containers, each with 60 tonnes of capacitors and 8 power converters.*



*Inside one of the PS containers with Jean-Paul Burnet, the current leader of the TE/EPC Group.*

# The new AMS control centre

The Alpha Magnetic Spectrometer (AMS) is due to wing its way towards the International Space Station (ISS) on board the shuttle Endeavour in April. Mainly intended for research on antimatter and dark matter, the data collected by AMS will be sent to Houston in the United States and then directly to CERN's new Building 946.

Construction work for the AMS control centre building on the Route Gentner at CERN's Prévessin site started in November 2010 and must be completed in time to receive the first data from the spectrometer in June. "It normally takes at least 12 months to construct a building like this, but we will have to do it in less than eight months to keep pace with the AMS schedule!" explains Michael Poehler, who is in charge of the work site within GS Department. To meet this challenge, CERN urgently put together a task force of over 50 people, comprising members of the Organization and contract personnel. "We are operating a very rigorous quality control procedure", explains Luigi Scibile, head of the Site Engineering

**Construction work for the future AMS control room began in November 2010 and should be finished this June. The new building, which will have been completed in record time thanks to the professionalism of the project team, will soon be ready to receive the initial data from the AMS experiment.**

Group within GS Department, "and weekly coordination meetings and work site meetings enable us to avoid any risk of slippage."

For this type of project, communication between the different members of the team is absolutely vital!"

So for the time being construction work will continue to forge ahead. The future Building 946 should be delivered on schedule in mid-June.

Anais Schaeffer



Luigi Scibile and Michael Poehler, from the GS department, at the AMS control centre construction site.

# Around the Globe with Buzz Aldrin

Visiting the Globe on 1 March to endorse General Motors' (GM) new ecological programme, Buzz Aldrin took advantage of the occasion to take a whistle-stop tour of the Organisation. "CERN is dealing with things going very fast underground; I'm dealing with things going fast – not that fast though! – up in orbit," he said.

Accompanied by his wife Lois and singer Katie Melua - also invited by GM to perform at the private event - Buzz began his visit with a short introduction to CERN at the Universe of Particles exhibit. He then met with Andrzej Siemko, group leader of the LHC machine protection, at the SM-18 super conducting magnet test facility.

The astronaut's last stop was at the CCC, where the LHC team had something special planned for him. He was welcomed by Mike Lamont, head of the Beam Operations group, before being given a backstage tour of the operation of the accelerators. Then, all eyes were on Aldrin as he dumped the pilot beams circulating in the machine. Applause rang through the control centre, as a typical beam dump became a scientific moment to remember. "Buzz is a symbol of a truly

Buzz Aldrin! The news caused a sensation: his arrival was imminent. The man who, 40 years ago, first step foot on the moon, was to do the same at CERN.

great achievement," says Lamont. "Seeing him, and the photograph of his footprint on the lunar surface, reminded us all just how significant the moon landing was."

As Buzz was leaving, he spoke of the common ground between different types of physics: "We're all seeking to visit beyond our range – the range of our understanding, the physical range of what we can see with telescopes, or the range of where we can send spacecraft. We are always trying to explore a little bit further and many times the most baffling is the very, very micro."

See the video at:

<http://cdsweb.cern.ch/record/1335153>

Katarina Anthony and Anaïs Schaeffer



Buzz Aldrin dumps the pilot beams from the LHC.



Did you know?

## Buzz in Brief

Buzz Aldrin was born in Montclair, New Jersey on 20 January 1930. He was educated at the US Military Academy at West Point, graduating with a B.S. in mechanical engineering. He then joined the Air Force where he flew 66 combat missions in Korea. Buzz went on to earn a Doctorate of Science in Aeronautics at MIT, where he wrote his thesis on Manned Orbital Rendezvous. In 1963, Buzz was selected by NASA to be part of the third group of astronauts. He devised docking and rendezvous techniques for spacecraft in Earth and lunar orbit, which were critical to the success of the Gemini and Apollo programs and are still used today. Buzz also pioneered the underwater training techniques used to simulate spacewalking.

In 1966, on the Gemini 12 orbital mission, Buzz performed the world's first successful spacewalk, overcoming prior difficulties experienced in all American and Russian extra-vehicular activity. Then, on 20 July 1969, Buzz and Neil Armstrong made their historic Apollo 11 moonwalk, becoming the first two humans to set foot on another world. They spent 21 hours on the lunar surface and returned with 21kg of moon rocks.

Since retiring from NASA and the Air Force, Buzz has remained at the forefront of efforts to continue human space exploration. For more information, visit his official website:

<http://buzzaldrin.com/>

# CERN takes off at Lift11

Lift11 was an opportunity for CERN to reach today's innovators and developers. "The event was filled with people eager to learn new ideas, who were not afraid to ask questions," says Tara Shears, physicist from the LHCb Collaboration who presented an update on the status of the LHC. "People were amazed by what goes on inside CERN, by our science, our facilities – even by the way we carry out our day-to-day work. It is a branch of fundamental research that really seems to inspire everyone." A small Lift11 group had the chance to take a tour of CERN, and the visit quickly became a 'waiting list only' event.

The technophiles who couldn't get a seat on the CERN tour were able to attend a workshop hosted by the Organization. Back in January, the Bulletin held a competition inviting CERNois to develop a workshop

CERN was especially featured at the Lift11 conference, held in Geneva early this month. Tara Shears delivered a keynote speech at the event, while Paul Oortman Gerlings (DGS-SEE) and Erik van der Bij (BE-CO) – winners of the Bulletin's Lift11 competition – organised the CERN workshop.

plan that would engage both science and society. While basic scientific research is at the heart of the Organization, the winning workshop demonstrated how CERN has simultaneously been able to develop innovative technology. "The workshop was an opportunity to show how CERN can be a source of innovation and technology for entrepreneurs," says workshop organiser Paul Oortman Gerlings, whose day job at CERN is safety advisor for the Safety Engineering and Environment Group.

At the workshop, inventor Albert IJspeert presented his CERN-made centring device, originally developed to centre and clamp magnets in the LHC. The workshop participants were asked to brainstorm about the

industrial possibilities of the device. "They had some great ideas about how to apply Albert's technology to real world problems," says Erik van der Bij, fellow workshop organiser who works as a project manager of hardware for control systems at CERN.

The CERNois returning from the Lift11 conference have brought with them an enthusiasm for innovation and are looking forward to returning next year. "CERN's involvement in the conference has proven to be an excellent way to involve and engage the tech-savvy crowd," says Shears.

Katarina Anthony



Tara Shears updates the Lift11 audience on the status of the LHC.



Paul Oortman Gerlings takes questions at CERN's Lift11 workshop.

# Fabiola Gianotti is one of The Guardian's "most inspirational women"



Fabiola Gianotti, spokesperson for the ATLAS experiment, was named one of the world's 100 most inspirational women by The Guardian newspaper. The list was drawn up in celebration of the International Women's Day on 8 March.

CERN Bulletin

## CERN cars drive by the Geneva Motor Show



One of CERN's new gas-fuelled cars was a special guest at the press days of the Geneva motor show this year. The car enjoyed a prominent position on the Gazmobil stand, right next to the latest Maseratis and Ferraris. Journalists previewing the motor show could discover CERN's support for green technologies and also find out more about the lab - home to the fastest racetrack on the planet, with protons in the LHC running at 99.999991% of the speed of light.

CERN Bulletin



## Ombuds' Corner Le coin de l'Ombuds

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

### Work conflict or harassment?

**B**ill\*, thanks to his technical competence, has been nominated leader of a group in charge of various projects. During his learning phase, he benefited from the experience of his collaborators and had a good working relationship with all of them. However, after few months, his relationship with Mike\*, a senior member of the group in charge of some specific developments, turned sour. As the situation did not improve after many weeks, Mike decided to file an informal complaint of harassment with the Ombuds against his group leader, as he was convinced that Bill was bullying him.

Mike explained that Bill was interfering more and more with his responsibilities in the project, by interacting with his collaborators directly, giving them orders, and even superseding him in meetings by arbitrarily taking over. Mike found himself cut out of important information that he needed in order to conduct his project efficiently. He was then forced to ask Bill for the missing information, and Bill took advantage of the situation to impose his own views on the project. During these meetings, Bill would consistently reference the fact that he was Mike's group leader. So, with time, Mike became convinced that Bill wanted to put him aside from the project, for reasons that were

unknown to him. In addition, his MARS was approaching and Mike was really afraid that Bill would unfairly criticise him, claiming that Mike was not fully aware of what was happening in his project.

Mike insisted that the Ombuds should not contact Bill, as he was scared that such a move would worsen the situation and make his work even more difficult. Mike had spoken with Bill many times, but to no avail. Nevertheless, they still had a reasonable relationship so Mike had no intention of starting a formal procedure against Bill, although he might consider it if the situation did not improve or if it worsened.

The question is: how could the Ombuds help this situation, which obviously could not continue? Is it a case of work conflict or of harassment?

That the personal relationship had so far been preserved was a promising start. The Ombuds facilitated a discussion towards finding a solution that gives a clearer definition of the responsibilities inside the group. Mike agreed to put his harassment complaint on hold temporarily and decided to consider the issue as a work conflict. Mike volunteered to ask for a managerial meeting between the Department Head, Bill and himself, where they could discuss openly the difficulties with the organization of the

group so that a solution could be found under the arbitration of the Department Head. Mike also agreed that if they had any further problems with their communication, he would suggest that the Ombuds help them seek a mutual understanding.

### Conclusion

At CERN, abuse of authority is considered a moral harassment. However, in some cases the line between strong leadership and abuse of authority is not as easy to define. Without speaking with Bill, the Ombuds has no way to understand the situation in a neutral and impartial way and consequently would have to presume harassment. Another way of approaching the case was then considered: forget the harassment complaint for the moment and focus on the organisational aspects.

If the personal relationship between the parties had already been destroyed, such a possibility could not have been considered. Problems of harassment should be discussed with the Ombuds as early as possible!

### Contact the Ombuds early!

<http://cern.ch/ombuds>

Vincent Vuillemin

\* Names and story are purely fictitious.

# Simon van der Meer 1925-2011

Simon van der Meer was a true giant of modern particle physics, though a gentle one. His contributions to accelerator science remain vital for the operation of accelerators such as the LHC today. Simon was an electrical engineer who grew up in The Hague, moving on to Delft University to study electrical engineering. After a short stint with Philips, he came to CERN in 1956, just two years after the lab opened, and remained with us until his retirement in 1990.

Simon was an incredibly inventive man. When confronted with a problem, he would sink into deep reflection, rarely emerging until he had a solution. One of us, Steve Myers, remembers him as a man who did not suffer fools gladly, and who was extremely taciturn. Simon would never use two words where one would suffice. But that one word would invariably be the right one.

Simon is best known for his contribution to the SPS collider project, for which he was awarded the Nobel Prize, jointly with Carlo Rubbia, in 1984. Stochastic cooling, the innovation that made the SPS collider possible was typical of a Simon van der Meer invention: deceptively simple at first sight, but to anyone who truly understands accelerators it was nothing less than a stroke of genius.

Stochastic cooling is a technique used to keep intense beams of like-charge particles together. Essentially it involves measuring the size and momentum distribution of the beam particles at one point on the accelerator ring, and sending the information needed to corral the beam across the



middle of the ring so that it arrives early enough to be used to apply the necessary corrections.

This may have been Simon's greatest contribution to modern physics, and it was justly rewarded with the Nobel Prize, but in the early days, Simon took some convincing that this idea was so important. To our knowledge, Simon first mentioned the possibility of stochastic cooling at an ISR group leaders' meeting in 1968. Wolfgang Schnell, who was group leader of the RF and beam instrumentation group, had a devil of a time convincing Simon to write up his ideas, but eventually he did and so began his journey to Stockholm.

The next step on the road was ICE, the Initial Cooling Experiment, designed to put stochastic cooling to the test. The idea worked

beautifully, and ICE proved a key element in persuading the CERN Council to go ahead with the SPS collider project. It was then a natural choice that Simon should be one of the leaders of the Antiproton Accumulator project, which used stochastic cooling to accumulate enough antiprotons for the collider. That too was an unqualified success, and the rest, of course, is history.

Simon came to CERN as a specialist in power converters, and he was responsible for building those used for the world's first hadron collider, the ISR, and later for the SPS. He also developed a device known as the magnetic horn, versions of which today allow laboratories on three continents to direct focused beams of neutral particles – neutrinos – through the earth for hundreds of kilometres to underground particle detectors. And another part of his legacy is the technique he developed for measuring beams that bears his name. Without "van der Meer scans", the precision of the calibration of the luminosity in the LHC would be much lower. At CERN today, it's fair to say that Simon's contributions continue to play a significant role in projects from the LHC to the CERN neutrinos to Gran Sasso project, and the Antiproton Decelerator – whose 2010 results were honoured with the distinction of breakthrough of the year by Physics World magazine. Simon was a brilliant all round technologist and scientist, well respected at CERN and around the world. A true giant of our field.

*Rolf Heuer et Steve Myers*

# Emilio Pagiola 1937 – 2011



## Remerciements

Madame Maria Pagiola et sa famille remercie vivement tous les amis et collègues de Emilio Pagiola, qui ont pris part à leur deuil.

CERN physicist Emilio Pagiola passed away on February 22, following a long illness.

Having started as a theorist in Padua, Emilio's career as an experimental physicist started in early 1966 at CERN, in the Track Chamber Division. Here he made outstanding contributions to CERN physics, by participating to several bubble chamber experiments and providing sophisticated software tools for their analysis.

Later, he became a respected computer expert, a "technology junkie", as Gillies & Cailliau describe him in their book "How the Web was born". His contributions were countless. Thus, he was the first to bring to CERN the NeXT computer, a crucial tool in the development of the World Wide Web.

Emilio was an individualist, sometimes impatient with bureaucratic constraints.

His many friends around the world have always valued his unconventional intelligence, his energy and his vast culture, ranging from science to history, from politics to finance. His passion for music was legendary.

When came the sad time of the illness, Emilio continued to come to CERN, to meet his friends and offer them, as always, new ideas and new points of view: *toujours égal à lui même!*

With him CERN loses one of those people who made it a centre of excellence.

We will miss him sorely.

Our thoughts at this time are with his wife Maria, his sons Stefano, Federico, and their families, knowing that their loss is irreparable.

*His colleagues and friends*

# Joaquin Inigo-Golfin 1965-2011

**I**t is with immense sadness that we learned that Joaquin INIGO-GOLFIN passed away last week; until the very end we hoped that he would win the battle he so heroically fought. Joaquin was a very special person who left no one indifferent. His professional skills, warmth and openness were matched with a sense of humor that made him a friend and colleague "à part".

Joaquin joined CERN in August 1992 to work in the Cooling and Ventilation Group where he spent almost all his professional career covering many disciplines and responsibilities: operations, installation and design. He was also responsible for the introduction of new technologies to CV, such as Computer Aided Design, and for the evaluation and adoption of Computational Fluid Dynamics, particularly for the analysis of complex thermal systems.

The remarkable results Joaquin achieved through his work and strong technical competence made him the natural candidate to lead the design section responsible for all the LHC cooling & ventilation studies. He was not only responsible for the LHC design activities, but also played an instrumental role in the definition of the technical requirements for the restructuring of the SPS cooling systems.

In 1998 Joaquin was appointed as the ST technician responsible for the coordination of the different divisional activities during the construction and integration phases of the ATLAS Experiment. Thanks to his affable and communicative personality he excelled in this role, evoking excellent team spirit in his group and making many friends in the process.

In 2004 Joaquin was promoted to lead the Cooling & Ventilation group, in this role he guided his colleagues through all the challenges, difficulties and triumphs encountered during the different phases of the LHC project.

Joaquin always impressed the people who came into contact with him through his hard work ethos, often working to extremely short deadlines and always to



We deeply regret to announce the death of Mr Joaquin INIGO-GOLFIN on 23 February 2011. Mr INIGO-GOLFIN, who was born on 18 May 1965, was a member of the EN Department and had worked at CERN since 01.08.1992.

The Director-General has sent his family a message of condolence on behalf of the CERN personnel.

*Social Affairs  
Human Resources Department*

very high standards. When dealing with the most sensitive issues Joaquin conscientiously took on all of the work himself to ensure that his colleagues were not heavily burdened with additional stresses. Joaquin had a razor sharp mind; he could immediately cut to the core of a problem and could articulate to others his innovative ideas, but was also open to discussion and ideas from others. He was able to defend his position on solid technical grounds and he often came up with solutions satisfying all people concerned.

Joaquin was a natural mentor, providing help and inspiration through his encyclopedic knowledge and actively encouraging the development of the people who had a chance to work with him. Joaquin's door was always open to provide support and a friendly conversation. His charisma, quick wit, and charm motivated all his colleagues to give their best and made him a natural leader.

As a father and as a friend to many, Joaquin distinguished himself with his character, his humour, and his wide cultural interests, ranging from arts to history; with ancient books being one of his greatest passions.

Even during his last months, when his condition was deteriorating, he always kept up a positive spirit together with courage and determination, his biggest wish being to return to CERN, a place that he deeply loved.

He will always have a special place in our hearts.

Our thoughts and deepest sympathy go to his family and to those who have been very close to him.

*His friends and colleagues*



## Official news



## Take note

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.

### FORTHCOMING INDEFINITE CONTRACT REVIEW PROCEDURE

The vacancy notices for posts opened with a view to the award of an indefinite contract will be published in early April 2011.

In the meantime, the list of posts to be opened this spring is available at the following address:

<https://hr-recruit.web.cern.ch/hr-recruit/staff/Spring2011.pdf>

A second exercise will take place in autumn 2011 and, as of 2012, the indefinite contract award procedure will only be held once a year, in autumn.

For more information please consult:

<https://hr-recruit.web.cern.ch/hr-recruit/staff/IndefiniteContracts.asp>

*Human Resources Department*

### USERS' OFFICE – REMOVAL

Dear Users,

Please note that we will move back to our offices in **Bldg. 61 on Wednesday 23 March.**

Thank you,

*Users' Office*

*PH Department*

### TO ALL MEMBERS OF THE PERSONNEL

#### Summer work for children of members of the personnel

During the period from 13 June to 16 September 2011 inclusive, there will be a limited number of jobs for summer work at CERN (normally unskilled work of a routine nature), which will be made available to children of members of the personnel (i.e. anyone holding an employment or association contract with the Organization). Candidates must be aged between 18 and 24 inclusive on the first day of the contract, and must have insurance coverage for both illness and accident. The duration of all contracts will be 4 weeks and the allowance will be 1717 CHF for this period. Candidates should apply via the HR Department's electronic recruitment system (E-rt):

[https://ert.cern.ch/browse\\_intranet/wd\\_pds?p\\_web\\_site\\_id=1&p\\_web\\_page\\_id=8886&p\\_no\\_apply=&p\\_show=N](https://ert.cern.ch/browse_intranet/wd_pds?p_web_site_id=1&p_web_page_id=8886&p_no_apply=&p_show=N)

Completed application forms must be returned by 11 April 2011 at the latest. The results of the selection will be available by the end of May 2011.

For further information, please contact:

**Virginie.Galvin@cern.ch**

*HR Department  
Tel. 72855*

### EXHIBITION: LIFE AND ACHIEVEMENTS OF MARIA SKŁODOWSKA-CURIE

The exhibition "Life and Achievements of Maria Skłodowska-Curie" will be held at CERN (Pas Perduis Corridor, 1st floor, building 61) from 8 to 24 March.

It is organised under the auspices of the Ambassador R. Henczel, Permanent Representative of the Republic of Poland to the UN Office at Geneva to celebrate the 100th anniversary of the Nobel Prize in Chemistry given to Maria Skłodowska-Curie. The exhibition is also one of the events celebrating the 20th anniversary of Poland joining CERN as a Member State.

Maria Skłodowska-Curie, Nobel Prize winner both in physics and chemistry, is one of the greatest scientists of Polish origin. The exhibition, consisting of 20 posters, presents her not only as a brilliant scientist, but also an exceptional woman of great heart, character and organizational talents, sensitive to contemporary problems. The authors are Mrs M. Sobieszczak-Marciniak, the director of the Maria Skłodowska-Curie Museum in Warsaw and Mrs H. Krajewska, the director of the archives of the Polish Academy of Sciences.

The Polish delegation to the CERN Council and the whole Polish community at CERN would like to invite the CERN personnel and the CERN users to visit this interesting exhibition. It was opened by the CERN Director General and the Undersecretary of State in the Polish Ministry of Science and High Education on March 8.





Take note



Save lives  
Give your blood

***On Thursday 17 March 2011  
From 9.00 to 17.00***

## BLOOD DONATION

CERN  
RESTAURANT 2

Organized by the Cantonal Hospital of Geneva

**Number of donations during the last blood donations:**

- 104 donors in July 2010
- 119 donors in November 2010

**Let's do better in 2011 !!!**  
**Give 30 minutes of your time**  
**to save lives...**





Take note



## Lunchtime Film

***TV News Magazine presentations:  
Sternstunde Philosophie by  
Schweizer Fernsehen (2010)***

In this episode of Sternstunde Philosophie, CERN physicist Felicitas Pauss talks with Nathalie Wappler. The new particle accelerator, the Large Hadron Collider, which is located at the European research centre, CERN, near Geneva, collided two proton beams in March (2010), with an energy surpassing all other particle accelerators in the world. This machine will recreate the conditions in these collisions just a few seconds after the Big Bang.

***Sternstunde Philosophie will be presented on  
Friday, 25 March from 13:00 to 14:00  
in the Council Chamber  
Language: German***

Carolyn Lee



## Training & Development

### CCM - UNDERSTANDING AND WORKING WITH COMPETENCIES

Find out what competencies are, make them come to life by sharing your experience with colleagues, and understand what they represent in our work environment. All staff members are encouraged to attend.

For sessions in March and April, register at:

<https://aislogin.cern.ch:443/aislogin/Login?REFER=https://aismisc.cern.ch/aismisc/f%3Fp%3D119:1>

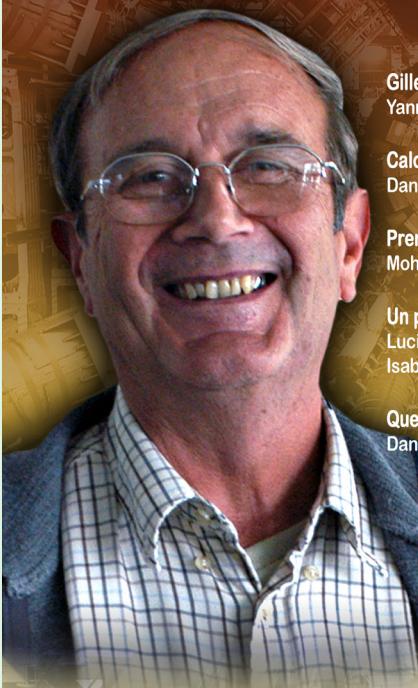


### External meeting

## JOURNÉE GILLES SAUVAGE

JEUDI 28 AVRIL 2011 À 14H00  
LAPP, ANNECY-LE-VIEUX  
AUDITORIUM MARCEL VIVARGENT

<http://lapp.in2p3.fr/GillesSauvage>



#### Gilles Sauvage au LAPP - Introduction

Yannis Karyotakis, LAPP Annecy

#### Calorimétrie et Gilles Sauvage : entre LEP et LHC

Daniel Fournier, LAL Orsay

#### Premiers résultats de physique avec ATLAS

Mohamed Aharrouche, Johannes Gutenberg Univ. Mainz

#### Un portrait

Lucia Di Ciaccio, Université de Savoie & LAPP Annecy  
Isabelle Wingerter-Seez, LAPP Annecy

#### Quel futur pour la physique des particules ?

Daniel Treille, CERN

#### Comité d'organisation

Claudine Bombar  
Lucia Di Ciaccio  
Yannis Karyotakis  
Isabelle Wingerter-Seez



## Academic training

### CERN ACADEMIC TRAINING PROGRAMME 2011

#### LECTURE SERIES

14, 15 & 16 March 2011

#### Selected Topics in the Physics of Heavy Ion Collisions

11:00-12:00 -

Bldg. 222-R-001 - Filtration Plant

In these lectures, I discuss some classes of measurements accessible in heavy ion collisions at the LHC. How can these observables be measured, to what extent can they be calculated, and what do they tell us about the dense mesoscopic system created during the collision? In the first lecture, I shall focus in particular on measurements that constrain the spatio-temporal picture of the collisions and that measure centrality, orientations and extensions. In the subsequent lectures, I then discuss on how classes of measurements allow one to characterize collective phenomena, and to what extent these measurements can constrain the properties of matter produced in heavy ion collisions.

Organiser: Maureen Prola-Tessaur/PH-EDU



# Seminars

## MONDAY 14 MARCH

### ACADEMIC TRAINING LECTURE

### REGULAR PROGRAMME

11:00 - Bldg. 222-R-001 - Filtration Plant

### Selected Topics in the Physics of Heavy Ion Collisions (1/3)

U. WIEDEMANN / CERN

### TH JOURNAL CLUB ON STRING THEORY

14:00 - TH Auditorium, Bldg. 4

**TBA**

U. WIEDEMANN / CERN

## TUESDAY 15 MARCH

### ACADEMIC TRAINING LECTURE

### REGULAR PROGRAMME

11:00 - Bldg. 222-R-001 - Filtration Plant

### Selected Topics in the Physics of Heavy Ion Collisions (2/3)

U. WIEDEMANN / CERN

### TECHNICAL PRESENTATION

13:30 - Bldg. 61-1-009

### ACTEL – PM Electronics

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

### A geometric view on the Wilsonian renormalization group

M. RANGAMANI / DURHAM

### CERN JOINT EP/PP & EP/PP/LPCC SEMINAR

16:30 - Bldg. 222-R-001 - Filtration Plant

### Results on SUSY and Higgs searches at CMS

## WEDNESDAY 16 MARCH

### ACADEMIC TRAINING LECTURE

### REGULAR PROGRAMME

11:00 - Bldg. 222-R-001 - Filtration Plant

### Selected Topics in the Physics of Heavy Ion Collisions (3/3)

U. WIEDEMANN / CERN

### TH COSMO COFFEE

11:00 - TH Auditorium, Bldg. 4

### Dark matter and dark energy unification

A. ARBEY / CRAL, LYON

## WEDNESDAY 16 MARCH

### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

**TBA** - J. R. ELLIS / CERN PH-TH

### A&T SEMINAR

15:30 - Kjell Johnsen Auditorium, Bldg. 30-7-018

### High Field Superconductors beyond Nb<sub>3</sub>Sn

D.LARBALESTIER / APPLIED SUPERCONDUCTIVITY CENTER, NATIONAL HIGH MAGNETIC FIELD LABORATORY, FLORIDA STATE UNIVERSITY, TALLAHASSEE

### COMPUTING SEMINAR

16:00 - IT Auditorium, Bldg. 31-3-004

### Software Security and the BSIMM (Building Security in Maturity Model)

G. MCGRAW / DIGITAL INC.

### JOINT EP/PP/LPCC SEMINARS

16:30 - Filtration Plant, bldg. 222

### Results on SUSY and Higgs searches at CMS

PLEASE NOT THE UNUSUAL PLACE AND TIME!!!!

A. TAPPER

## THURSDAY 17 MARCH

### COMPUTING SEMINAR

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

### Social Computing

B. A. HUBERMAN / HP LABS

## FRIDAY 18 MARCH

### DETECTOR SEMINAR

08:00 - Salle Curie, Bldg. 40-S2-C01

### Results from CALICE fine-grained calorimetry

A. I. LUCACI TIMOCHE

### PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

### How well can we hope to know B->Xs gamma?

G. PAZ / UNIVERSITY OF CHICAGO

## MONDAY 21 MARCH

### TH JOURNAL CLUB ON STRING THEORY

14:00 - TH Auditorium, Bldg. 4

**TBA** - TBA

## TUESDAY 22 MARCH

### JOINT EP/PP/LPCC SEMINAR

11:00 - Bldg. 60-6-015

### Search for the rare decays

Bs->mu+mu- and Bd->mu+mu- with the LHCb experiment

J. ALBRECHT / CERN

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

**TBA** - V. NIARCHOS

## WEDNESDAY 23 MARCH

### LHCC MEETING

09:00 - Bldg. 222-R-001 - Filtration Plant

### 105th LHCC Meeting AGENDA OPEN Session - E. ELSEN

### TH COSMO COFFEE

11:00 - TH Auditorium, Bldg. 4

**TBA** - M. WYMAN / CHICAGO UNIV.

### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

**TBA** - A. VIKMAN

### ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

### Nuclear excitons and control of gamma-ray emission

A. PALFFY / MAX-PLANCK-INSTITUT FUR KERNPHYSIK

## THURSDAY 24 MARCH

### HR SEMINAR

08:30 - Salle Dirac, Bldg. 40-S2-D01

### Induction Programme - 2nd Part

C. GRANIER, M. SGOURAKI

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

### Flux compactifications and closed string non-commutativity (Note Unusual Day!) - D. LUST

## FRIDAY 25 MARCH

### PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

**TBA** - S. PARKE / FNAL