

AWAKE STARTS THE EQUIPMENT INSTALLATION PHASE

AWAKE is the proof-of-principle experiment whose aim is to use protons to generate powerful wakefields to accelerate an electron beam. With accelerator gradients hundreds of times higher than those used in current systems, this technique could revolutionise the field of particle acceleration. Installed in the tunnel previously used by the CNGS facility, AWAKE is completing the service installation phase and will receive the plasma cell in the coming months.



The AWAKE proton line with all the magnets installed. (Image: AWAKE collaboration.)

AWAKE is the world's first proton-driven plasma wakefield acceleration experiment. In AWAKE, a beam of protons from the SPS will be travelling through a plasma cell and this will generate a wakefield that, in turn, will accelerate an electron beam. A laser will ionise the gas in the plasma cell and seed the self-modulation instability that will trigger the wakefield in the plasma.

The project aims to prove that the plasma wakefield can be driven with protons and that acceleration will be extremely powerful, hundreds of times more powerful than that achieved today.

Over about 18 months of hard work, the teams have cleared the old CNGS area – leaving only the infrastructure that will

be reused by AWAKE – and have modified the services to meet AWAKE's needs. "We dismantled 100 metres of the proton beam line, completed the civil-engineering needed to house the new electron and laser beam lines, removed several kilometres of old cables, and installed some 100 kilometres of new cables," says Edda Gschwendtner, CERN AWAKE project leader. "We have installed the 16 magnets for the proton line for AWAKE, built the laser clean room, modified the access and cooling and ventilation... It has been a huge amount of work in a very short time."

Integrating a new experiment into an existing facility is extremely challenging, but now that the area has been cleared and is ready for the future installations, Ans Pardons, AWAKE's



LHC RUN 2 – REACHING THE TOP OF THE LEARNING CURVE

As the LHC Physics conference gets underway in St Petersburg, it's a good time to take stock of where things stand with Run 2.

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A word from the DG

LHC RUN 2 – REACHING THE TOP OF THE LEARNING CURVE

For all those involved with operating the LHC and its experiments in this new energy and intensity regime, 2015 was always going to be a learning curve. And learning we most certainly are. The main objective for this year has always been to set up the machine and experiments for production running at high energy and high intensity in 2016, 17 and 18. That said, the experiments have all been able to collect quality data at 13 TeV, with the first Run 2 papers and conference presentations being written and delivered this summer.

It would be unfair of me, however, to give the impression that it's all been plain sailing. As well as the highs: smooth recommissioning of the machine, physics getting underway, and a successful transition to 25-nanosecond bunch spacing, we've also had our fair share of lows. There have been no show-stoppers, but rather a series of more minor issues that have slowed things down. Sensitivity of the quench-protection system, now

fully understood and due to be rectified in the September technical stop, has cost us time. Synchrotron radiation and electron clouds become more of an issue at the energy we're now running at, so we have to learn how to live with that. And the infamous Unidentified Falling Objects – UFOs – are back, though there is now strong evidence that these decrease with time. All in all, as time goes on, the LHC's performance gets better, and I believe it is shaping up well to deliver good beam for the rest of 2015 and through the production phase of Run 2 starting in 2016.

For the experiments, most things have gone smoothly, but many of you will be aware that the cryogenic system supplying the CMS magnet has been having some difficulty. As a result, a fraction of the data CMS has taken this year is at zero-field. As I write, the system seems to be stable, but it's clear that there are contaminants in the cold box that supplies the magnet with liquid helium, and this will therefore need a thorough clean. Interim measures

are being taken during the technical stop, aimed at finding a way to continue to operate the magnet with an acceptable duty cycle. All being well, CMS will be able to take data satisfactorily with field on until the end of the 2015 physics programme, postponing the cleaning operation until the winter stop in order to be ready for the start of 2016.

To conclude, I'd like to congratulate everyone concerned in getting us to where we are today: on the threshold of the first LHC Physics conference with 13 TeV data on display. Along with the continuing flow of exciting results from Run 1, such as the combined ATLAS-CMS result on Higgs couplings presented today, there's much good physics to digest already from Run 2. And as we approach the top of the learning curve, there's the promise of very much more to come.

Rolf Heuer

(Continued from page 1)

AWAKE STARTS THE EQUIPMENT INSTALLATION PHASE



The 10-metre plasma cell prototype put under test in EH11. (Image: AWAKE collaboration.)

Coordination Package Leader for Integration and Installation, speaks with a smile: "It has been a challenging time for the CERN teams and the collaborating institutes involved in the project, but we can't relax yet! We are now looking forward to installing the various beam and diagnostics components and starting to test them."

One of AWAKE's core components is the 10-metre-long plasma cell that will be arriving in the tunnel in a couple of months. A first prototype has successfully completed commissioning tests in CERN's North Area where the uniformity of the plasma temperature in the cell has been validated. The installation of the plasma cell in the AWAKE tunnel will be followed by the installation of the laser, the vacuum equipment and the diagnostic system for both laser and proton beams. In March 2016, the proton line,

the laser and the experimental equipment will be ready for hardware commissioning, and beam commissioning will start in the summer. "Next year will continue to be very intense for the whole collaboration," confirms Edda. "Indeed, in parallel to starting physics using the proton beam line, we will continue the installation of the electron line with the aim of starting the acceleration tests in 2017."

If everything goes as planned, the AWAKE collaboration hopes to measure the first wakefields in the plasma cell in about one year from now.

Antonella Del Rosso

LHC REPORT: A VERY PRODUCTIVE HIATUS

On Monday, 24 August, the LHC transitioned from nascent 25 ns operation to a two-week hiatus devoted to luminosity calibration (two days), machine development (five days) and a technical stop (five days).



No stopping for Sunday at the CERN Control Centre. (Image courtesy: Rogelio Tomás García)

Accurate calibration of the luminosity is vital input for many of an experiment's measurements. The luminosity is calibrated using separation scans pioneered in 1968 by Simon van der Meer at the ISR. In these scans, carefully prepared beams are stepped across each other, horizontally and vertically, one plane at a time. Accurate measurements of the interaction rates, beam intensity,

beam movement during the scan and other factors allow determination of the absolute luminosity. ATLAS, ALICE, CMS and LHCb all had dedicated time for Van der Meer scans. TOTEM and ALFA also took advantage of the special conditions to take data.

The LHC machine development (MD) period that followed consisted of a wide variety of measurement and development programmes ranging from exploring the limits of smaller beam sizes at the interaction point to collimation using bent crystals. Free from the challenges of high beam intensity, machine availability was high during this remarkably successful MD period. Highlights included the validation of a beta* of 40 cm, which effectively doubles the luminosity potential of the present set-up. Collimation experts and members of the UA9 collaboration were also able to carry out successful tests and

demonstrations of the collimating potential of bent crystals.

The beams were dumped at 6 a.m. sharp on the morning of Monday, 31 August in preparation for the five-day technical stop, which has just finished. The key objectives of this technical stop were modifications to the critical Quench Protection System, the consolidation of the cooling and electrical distribution systems and important maintenance work on the cryogenics system. It involved a huge number of activities. The combined effort, coordinated by a team from EN/MEF, was very successful.

Following the technical stop, the first key step is revalidation of the LHC with beam from a machine-protection standpoint. Some dedicated system optimisation will be followed by the continuation of the intensity ramp-up with 25 ns beam and hopefully several weeks of sustained luminosity delivery with this bunch spacing.

Mike Lamont for the LHC team

A VERY COOL COOLING SYSTEM

The NA62 Gigatracker is a jewel of technology: its sensor, which delivers the time of the crossing particles with a precision of less than 200 picoseconds (better than similar LHC detectors), has a cooling system that might become the precursor to a completely new detector technique.



The 115 metre long vacuum tank of the NA62 experiment.

The NA62 Gigatracker (GTK) is composed of a set of three innovative silicon pixel detectors, whose job is to measure the arrival time and the position of the incoming beam particles. Installed in the heart of the NA62 detector, the silicon sensors are cooled down (to about -20 degrees Celsius) by a microfluidic silicon device. "The cooling system is needed to remove the heat produced by the readout chips the silicon sensor is bonded to," explains Alessandro Mapelli, microsystems engineer working in the Physics department. "For the NA62 Gigatracker we have designed a cooling plate on top of which both the silicon sensor and the readout chip are bonded."

One hundred and fifty microchannels are etched in the ultrathin silicon cooling plate in which a coolant circulates and keeps the

whole system at its operating temperature. Each of the microchannels is just 70 µm deep and the silicon plate is only a few dozen µm thicker. This means that the microchannel cooling system can be implemented in silicon trackers as the additional material the beam particles have to cross is minimised and therefore the influence on the particle track is reduced significantly compared to traditional cooling methods. The stable low temperature helps to reduce the radiation damage to the detector and therefore increases its lifetime in the harsh environment.

In the NA62 GTK, the sensors, readout electronics and cooling plates are all made of silicon. This is why the natural evolution scientists are thinking of is the integration of all the three components in one single device. "This is what we call a 'monolithic device,'" explains Mapelli. "In particle physics experiments, it is very important to reduce the amount of material used in high-precision detectors. A single device incorporating the sensing layer, the electronics, and the services, such as the cooling, would be a very compact and thin system. It would also be less fragile than the current systems because it would require fewer manipulations. Finally, it would



One hundred and fifty microchannels are etched in the ultrathin silicon cooling plate, which is then bonded on the silicon sensor and the readout chip.

be more effective as the distance between the point where the heat is produced – namely the readout chip – and the coolant would be minimised."

Experts in the CERN Physics department are currently working on future developments of this technology for high-energy physics detectors and beyond, as this technique could also be used in high-density computing, medical imaging and, more generally, in fields where images with sub-nanosecond time-measurement precision are used.

Watch the video:



Antonella Del Rosso

THE NEW YOUNG FACE OF THE PENSION FUND

Matthew Eyton-Jones is the new Chief Executive Officer of the CERN Pension Fund. He joined the Organization in July and will meet with CERN pensioners for the first time on 15 September. Here he speaks with the *Bulletin* about himself, his vision and the challenges that lie ahead.

Before coming to CERN, Matthew held pension management and consultancy positions at a number of international organisations, including the John Lewis Partnership, Goldman Sachs, the Bank of America and Mercer Consulting. In his role as Chief Executive Officer (CEO) of the CERN Pension Fund, he is responsible for the day-to-day management of the fund on behalf of and under the supervision of the Governing Board. "In my career, I have been involved in the operation and running of various pension funds around the world," he says. "However, in the case of CERN, I am not only attracted by the pension fund itself. The thing that really triggered my personal interest in taking over this position is the Organization's unique culture, the people who work here, and their amazing scientific and technological achievements."

The CERN Pension Fund manages over 4 billion Swiss francs in assets, both internally and externally. It invests in a number of

different asset classes, including equities, fixed income, private equity, real estate, alternative investments, and money markets. "As with any other pension fund, CERN's fund is a complex eco-system with a lot of stakeholders, market participants and many interlinked activities taking place around the world," says Matthew. "Pension funds play an important role in society, not only providing financial security for individuals and their families, but also acting as an important source of capital in financial markets."

Living in such a complex environment is one of Matthew's hardest challenges. However, he is used to that and he does not forget the importance of the end client. "Pensioners must get a service that works for them," says Matthew. "The day-to-day operational administration has to be efficient, pensioners' questions have to be dealt with correctly and the pensions have to be paid on time. But there is more than just that. We have to make sure that the whole thing is well-run,



Matthew Eyton-Jones joined CERN on 1 July as the new Chief Executive Officer of the CERN Pension Fund.

well-managed and that people, including Council members, the Staff and Pensioner Associations and all the other stakeholders, understand the Fund and how it works."

We might never really understand the Pension Fund as well as Matthew does but there's a reassuring look in his eyes as he says: "I am not a scientist but some of the things CERN has done are impressive and have had a huge positive impact on society. I will work hard to make its pension fund become a benchmark in the world out there." Keep up the good work!

Antonella Del Rosso

RESEARCHERS' NIGHT 2015: EXPLORING SCIENCE IN MOVIES, COMICS, POETRY AND GAMES

On Friday, 25 September, CERN will be celebrating the European Researchers' Night with a series of events and activities at the Balexert shopping centre. From celebrity Q&A sessions to author signings, there's something for everyone!

The fun will kick off prior to the night itself, with a number of pre-events held throughout September. From 8 to 12 September, a mock-up of the LHC tunnel will be installed in the central court of the Balexert shopping centre. Representatives from CERN will be on hand to speak to shoppers, and to encourage them to participate in Researchers' Night.

On 24 September, at "Made of shadow and light", an event hosted by the University of Geneva, Nobel laureate in Literature Gao Xingjian, will present poems and drawings created specifically for the event. Sergio Bertolucci, CERN Director of Research and Computing, will provide a scientific perspective on the content. Three POPScience poets - Gwyneth Lewis, Deborah D'Agostino

and Susanne Stephan - will also present their poetry inspired by science and their recent CERN visit.

That same day, Jorge Cham, creator of *PHD Comics*, will be giving a talk in CERN's Main Auditorium. Cham will explore the guilt and the myths associated with procrastination, arguing that it is actually a good thing! Cham will also be signing copies of his books before and after the talk, and will also introduce a CERN screening of *The PHD Movie 2*.

Now to the event itself! Friday, 25 September will be jam-packed, with activities starting at 10 a.m. and wrapping-up at 1 a.m. the next day. Here are a few of the highlights:

- Authors and illustrators will be signing their works and speaking with fans at FNAC: Jorge Cham (*PHD Comics*), Gao Xingjian (Nobel laureate), Jaouen (*Eternum*), Michel Spiro (*Si tu devais me dessiner l'Univers*) and Camille Ladousse (illustrator of CERN's Passport to the Big Bang).
- It's gloves off as *The PHD Movie* and *The Big Bang Theory* compete! Jorge Cham, director of *The PHD Movie*, and David Saltzberg*, CMS physicist and scientific consultant for the TV show *The Big Bang Theory*, will talk about the projects and their impact on the public perception of science.
- Lawrence Krauss*, author of *The Physics of Star Trek* and Kip Thorne*, scientific consultant for the film *Interstellar*, will join CERN scientists Maurizio Pierini, and Lillian Smestad to explore the science of Hollywood blockbusters.

- At the Pathé cinema, ESA astronaut Roberto Vittori*, ISS expert Jules Grandsire and AMS physicist Laurent Derome will explore the science in the movie *Gravity*.
- Throughout the day, in Balexert's *Place de la Fontaine*, CERN scientists will be giving demonstrations about the states of matter using liquid nitrogen. These "Fun with Physics" demonstrations will involve and enthuse the whole family. In addition, there will be a demonstration of augmented reality and poetry readings.
- The evening will conclude with a special

screening of *Particle Fever*, with special guests Mark Levinson* (the film's director), Fabiola Gianotti (CERN Director-General Designate), Martin Aleska (ATLAS physicist) and Mike Lamont (head of LHC operations).

In addition, in association with POPScience, *BD Fil*, the Comics Festival in Lausanne from 10 to 13 September, will be offering 4 invitations to the first people to register on this Doodle (<http://cern.ch/go/n9Fm>). For the full programme of events and activities, visit the POPScience website on: <http://www.pop-science.eu>!

* Via videoconference.

Watch the video:



Katarina Anthony

ROAD SAFETY: TAKE IT SERIOUSLY

Around 50 road accidents happen every year at CERN. Cyclists, drivers and pedestrians must pay attention to their behaviour at all times to ensure that this doesn't become an even more serious problem. Even if the Laboratory's sites are not exactly downtown Shanghai, all road users need to make a little effort. So let's do it!



Life at CERN: let's stick to accumulating scientific data rather than road accidents! (Cartoon by Cian O'Lunaigh)

Despite a dedicated Safety Code in force since 1990, "traffic-calming" measures put in place last year, several reminders in the *Bulletin* and

frequent safety campaigns, the number of accidents, particularly those involving cyclists, has remained high since 2008.

Luckily, no-one has been seriously injured but it is more and more frequent to experience near misses or actual accidents, whether in a car or on a bike. Incivilities, excessive speeding (also for bikes!) and answering the phone while driving are all examples of dangerous behaviour. Obviously, preventive measures such as paying more attention, wearing protective equipment (in the case of

cyclists) and making sure that we are visible to other road users can be very effective and can prevent more serious accidents.

Since 2005, any person involved in or witnessing an accident or a near miss is expected to complete an internal accident report form. These reports are then used by the HSE Unit to compile statistics and analyse the problems so that they can take measures to enhance safety. By reporting a near miss, you are helping to prevent a similar incident and therefore to reduce the accident toll.

Driving, cycling and walking to work must be safe routine activities for everyone. Let's stick to accumulating scientific data rather than road accidents.

Antonella Del Rosso

CERN SERVERS GO TO MEXICO

On Wednesday, 26 August, 384 servers from the CERN Computing Centre were donated to the Faculty of Science in Physics and Mathematics (FCFM) and the Mesoamerican Centre for Theoretical Physics (MCTP) at the University of Chiapas, Mexico.



CERN's Director-General, Rolf Heuer, met the Mexican representatives in an official ceremony in Building 133, where the servers were prepared for shipment. From left to right: Frédéric Hemmer, CERN IT Department Head; Raúl Heredia Acosta, Deputy Permanent Representative of Mexico to the United Nations and International Organizations in Geneva; Jorge Castro-Valle Kuehne, Ambassador of Mexico to the Swiss Confederation and the Principality of Liechtenstein; Rolf Heuer, CERN Director-General; Luis Roberto Flores Castillo, President of the Swiss Chapter of the Global Network of Qualified Mexicans Abroad; Virginia Romero Tellez, Coordinator of Institutional Relations of the Swiss Chapter of the Global Network of Qualified Mexicans Abroad; José Salicio-Diez, CERN's Advisor to the Office for International Relationship for Latin America; Flavio Costa, Coordinator within the CERN IT department of the donation of servers.

The periodic replacement of computer equipment that no longer meets CERN's highly specific requirements is necessary. However, the old equipment can still be used effectively in less demanding environments, including universities and scientific institutes around the world. Since 2012, no less than 1,533 servers and 103 switches have been donated this way to scientific or educational projects.

This time, in addition to the servers, 24 network switches and 26 racks have been donated by CERN to Mexico. Once at their destination, these servers – some of which

are to be used for data processing while others are for data storage – will be used by the Mexican institutes for a variety of scientific and educational projects in the fields of physics, mathematics, energy and environmental sciences. The computing equipment will also be available to the large community of users in Central America, with whom the FCFM and MCTP share scientific activity. Students of different grades in Chiapas and the surrounding region will also benefit from the increased computing capacity of the Mexican institutes thanks to their dedicated distance-learning programmes and outreach activities.

In the process leading up to this donation, the interaction between CERN and the Mexican institutions was coordinated by the Swiss Chapter of the Global Network of Qualified Mexicans Abroad; this organisation actively seeks to create links between Mexican and Swiss scientists, students and institutes as one of its pillars. In Chiapas, the Rotary Club of Oriente de Tuxtla has provided support in monitoring the donation process, including the installation and operation of the acquired equipment.

Stefania Pandolfi

Computer Security

YOUR CAR, MY CONTROL

We have discussed the Internet of Things (IoT) and its security implications already in past issues of the *CERN Bulletin*, for example in “Today’s paranoia, tomorrow’s reality”. Unfortunately, tomorrow has come. At this year’s Black Hat conference researchers presented their findings on how easily your car can be hacked and controlled remotely. Sigh.

While these researchers have just shown that they can wirelessly hijack a Jeep Cherokee, others have performed similar studies with SmartCars, Fords, a Tesla, a Corvette, BMWs, Chryslers and Mercedes! With the increasing computerisation of cars, the engine management system, air conditioning, anti-lock braking system, electronic stability programme, etc. are linked to the infotainment, navigation and communication systems, opening the door for these vehicles to be hacked remotely. The now prevalent Bluetooth connection with smartphones is one entry vector to attack your car remotely. A second is the built-in GSM modem, which is even part of a new legal requirement in EU states for cars to be fitted with the ability to make automatic

emergency calls (eCalls). The aforementioned researchers found a vulnerability in the Fiat/Jeep “Uconnect” GSM feature that allowed them to connect to a Jeep Cherokee remotely, manipulate its firmware, and, finally, take full control of the radio, the air con, and even the accelerator! Definitely not something you want to experience on the motorway... The other findings concerning Fords, Teslas, and Corvettes are no less worrying...

So, computer security problems that were prevalent in PCs in the 1990s and led to industrial control systems in the 2000s (see our article “Hacking control systems, switching lights off!”) are now entering our daily life (“Our life in symbiosis”)! And while patching CERN’s LHC control systems is already a big

and complicated effort, how is your security at home? For your car? For your fridge? For your home entertainment system?

P.S. If you own a Jeep Cherokee, a patch for this flaw is available on: <http://cern.ch/go/bjL9>. European models are said **not** to be affected.

For further information, questions or help, check: <https://security.web.cern.ch> or contact us at Computer.Security@cern.ch.

Do you want to learn more about computer security incidents and issues at CERN? Follow our Monthly Report: <https://cern.ch/security/reports/fr/monthly-reports.shtml>.

Stefan Lueders, Computer Security Team

Ombud’s Corner

STUCK IN CONFLICT – WHY ME FIRST?

When a long-standing conflict appears to permeate every action, and even the rest of the team seem resigned to there being no hope of a solution, there is still always a way out, even if only one of the people concerned decides to do something about it...

John and Paul have been working in the same unit for many years. For a long time, however, following a very serious conflict they had earlier in their career, they have not been talking to each other and there is no direct interaction between the two. Somehow the old disagreement is blocking them from

being able to do as good a job as they would like. When asked about the unpleasant situation, John and Paul separately acknowledge that they are locked in a destructive relationship and recognise the fact that it is affecting their working lives. However, neither John nor Paul wants to

make the first move. “No, it’s not my fault, why should I take that step?” they say.

Undeniably, an ongoing conflict like this can have a very negative effect on both the work and the career of the people concerned because, in refusing to talk to each other, they put themselves (and their colleagues) in a position that may jeopardise their work and hamper their working relationships. Even if they realise that something needs to be done to change the situation, by remaining locked

in their own separate realities, each blaming the other and being too proud to take the first step towards reconciliation, they will be unable to find a way out. The only way out of this kind of an impasse, however, is by deciding to let bygones be bygones, acknowledging the behaviours on both sides that need to change and agreeing to move forward towards a different work pattern.

For this to happen, at least one of them needs to have the courage to step back and examine the situation, identify what they themselves can do differently so as to bring about a different reaction from the other and unblock the unhealthy situation. As long as each waits for the other person to take action, nothing will change, and all current and future projects

will continue to be poisoned by the past. A step forward on the part of one, however, will inevitably bring about a change in the other and help to gradually break down the antagonism that has built up over the years.

Changing the situation needs to become a necessity. If this is perceived to be the case, the question will no longer be “Who takes the first step?” but, rather, “What am I willing to do for this to change?”

Taking such a step is by no means easily done, however, as it implies putting aside feelings that were undoubtedly legitimate in the past, and asking oneself questions such as: “What is it that I really want today? What am I prepared to do to achieve it?” And crucially also, “What am I prepared to give up in order to get there?”

It means stepping out of one’s comfort zone and inviting the other to do the same, thus creating a very different zone of comfort focused on shared interests.

At this stage, mediation, or a discussion in the presence of a third person, such as a supervisor or the Ombud, might be an additional option to support them in their endeavour and help to unblock the situation by providing them with the framework within which to overcome their age-old differences and move forward towards the starting point of a new relationship.

All previous Ombud’s Corners can be accessed in the Ombud’s blog.

Sudeshna Datta-Cockerill

MAURIZIO LO VETERE (1965 - 2015)

The high-energy physics community mourns the sudden loss of Maurizio Lo Vetere, CMS and TOTEM member, who was the victim of a bike accident.



On 8 August, 2015, during a mountain bike ride in the upland of his hometown of Genoa, Italy, 50-year-old Maurizio Lo Vetere fell down a scarp. By the time first-aiders arrived on the scene, it was too late.

Maurizio was an Associate Professor of the University of Genoa and team leader of the Genoa group in CMS. He began his career in high-energy physics at CERN, working first as an undergraduate, and subsequently as a

PhD student on experiment PS202 (JETSET) at LEAR.

During his PhD years, he also contributed to experiment PS210, which produced and observed antihydrogen atoms for the first time. In the following years, he moved to experiment E835 at Fermilab, which was dedicated to the study of charmonium spectroscopy.

In 1996, he joined the BaBar collaboration at SLAC, where, for a decade, he made significant contributions, in particular to the construction and operation of the muon system. It was in 2005 that he made his return to CERN when he joined the TOTEM Collaboration, serving as deputy spokesperson for two years. More recently, in 2012, he joined CMS with his group.

Meanwhile, he had also started his teaching career in 1999 at the University of Genoa,

where he was appreciated as a teacher for several undergraduate and PhD courses spanning a broad range of subjects. He became an Associate Professor in 2014.

Rarely can one find such a large base of knowledge related to experimental particle physics as Maurizio’s. His competencies ranged from theoretical foundations to detection techniques and data analysis, and also included vast expertise in technical aspects such as electronic design and software development. His pleasant manner and high-spirited attitude always helped to maintain an enjoyable atmosphere at work.

Away from work, Maurizio was an enthusiast of the outdoor sports that eventually betrayed him. His passionate presence will be sorely missed by his much beloved family – his wife Paola and children Marta and Matteo – and his many friends and colleagues at his University, INFN, and the high-energy physics community as a whole.

His friends and colleagues

Official news

15 SEPTEMBER: ANNUAL INFORMATION MEETING OF THE PENSION FUND

All members and beneficiaries of the Pension Fund are invited to attend the Annual Information Meeting.

*****Please note the room change ***
CERN Main Auditorium**

**Tuesday, 15 September 2015
9:30 a.m. - 11:30 a.m.**

Following a presentation by the Chief Executive Officer of the Fund there will be a Questions and Answers session. Members and Beneficiaries are welcome to send questions in advance of the meeting by post to:

Mr Matthew Eyton-Jones
“Annual Information Meeting”
CEO - CERN Pension Fund

Office 5-5-012, Postbox C23800
CH- 1211 Geneva 23 - Switzerland

Copies of the 2014 Pension Fund Financial Statements are already available as a printable PDF on the Pension Fund website (<http://pensionfund.cern.ch/en/financial-management/financial-statements>) and will also be distributed at the annual meeting.

Coffee and croissants will be served prior to the meeting as of 9:00 a.m.

CERN Pension Fund

EDUCATION FEES – NEW FORMS

The application forms for the payment of education fees have been updated and are now available in the Admin e-guide (under the “Useful Documents” heading):

- Payment of education fees (including language course fees) – AC12A (form to be used by staff members recruited before 1 January 2007, with the exception of former “local staff”).
- Payment of education fees – AC12B (form to be used by staff members recruited on or after 1 January 2007, by fellows, scientific associates and guest professors and by former “local staff” whose contracts started before 1 January 2007).

The Education Fees service will continue to accept the old forms until the end of the current academic year, i.e. until 31 August 2015.

Members of the personnel are reminded that any false declaration or failure to declare information with a view to deceiving others or achieving a gain that would result in a financial loss for CERN or in damage to its reputation constitutes fraud and may lead to disciplinary action, in accordance with Article SVI 2.01 of the Staff Rules.

For more information (benefits, procedure, reference documents, etc.), please consult the pages of the Admin e-guide relating to the payment of education fees, as well as the corresponding FAQ section, which has also been updated.

Human Resources department
schoolfees.service@cern.ch

DOCUMENTS ISSUED BY THE FRENCH MINISTRY OF FOREIGN AFFAIRS AND INTERNATIONAL DEVELOPMENT

New provisions and reminder

In the interests of simplifying administrative procedures and formalities, the French Ministry of Foreign Affairs and International Development (hereinafter referred to as “the MAE”) and CERN have decided that members of the CERN personnel domiciled in France, whether of French nationality or long-term residents¹, will no longer be issued with an AR- or FR-type “*attestation de fonctions*”.

The MAE also wishes to remind members of the personnel of the following rules concerning the documents that it issues and to point out that compliance with these rules is essential for the proper operation of all international organisations established in France.

This notification replaces the one that appeared in issue 19/2006 of the *Bulletin* (ref.

CERN/DSU-DO/RH/13173/Rev.2).

1. Types of document and use

a) Special CD-, FI- and AT-type residence permits

These permits serve as residence permits for members of the personnel and their family members who are not of French nationality and do not have the status of long-term resident¹.

They certify that their holders enjoy the privileges and immunities provided for by the Status Agreement between CERN and France (immunity from legal process in the discharge of their duties, entitlement to drive a vehicle registered in a special series, etc.; it should be noted that members of the personnel holding a full-time contract of less than six months duration with CERN do not enjoy any such privileges).

Furthermore, holders of a special residence permit are not required to obtain a visa for tourist trips (including conferences) to countries applying the Schengen Convention (currently: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Norway, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and Switzerland).

b) AR-, FR-, CR- and EF-type “attestations de fonctions”

All members of the CERN personnel, whatever their status, enjoy the immunities provided for by the Status Agreement between CERN and France (in particular, immunity from legal process in the discharge of their duties).

CERN and the MAE have decided that AR- or FR-type *attestations de fonctions* need no longer be issued to French nationals residing in France and non-French long-term residents in France, provided that CERN sends to the MAE each month a list of the members of the personnel falling into those categories, ensuring that the immunities provided for by the Status Agreement are applied to them.

EF- and CR-type *attestations de fonctions* will continue to be issued as previously. As a reminder, while these documents are proof of the holder’s status as a member of the CERN personnel, they have no validity as residence permits since they are issued both to members of the personnel residing in France, whether French nationals or long-term residents (CR-type), and to those residing in Switzerland (EF-type).

N.B.: holders of an EF-type *attestation de fonctions* are not required to obtain a French visa for temporary travel in France for professional reasons. This dispensation is not valid for travel in the other countries applying the Schengen Convention.

2. Persons issued with a special residence permit

The following persons are required to be in possession of a valid document:

a) **members of the personnel**, from the date on which they take up their appointment, who have a full-time contract with CERN for a period of more than three months, unless they hold a temporary long-stay visa (“*visa de long séjour temporaire*”, VLST).

b) **the family members** of a member of the personnel falling into the category defined under paragraph 2.a) above, from the date of their arrival in France, namely:

- spouses, whether by marriage or by a *Pacte Civil de Solidarité* (PACS) or its legal equivalent;

- single children up to 21 years of age if they live with their parents and can provide proof of dependency on the permit holder and a valid certificate of enrolment at an educational establishment;

- dependent parents (parents and parents-in-law living with the member of the personnel).

N.B.: nationals of a member state of the European Economic Area (hereinafter referred to as the “EEA”) or Switzerland are no longer required to apply for a French residence permit. However, they may, within three months of arriving in France, apply for a special residence permit, in particular in order to be entitled to drive a vehicle registered in a special series.

3. Visa

a) Special residence permit

To qualify for a special residence permit issued by the MAE, persons who are not nationals of Switzerland or an EEA member state must present the following documents within three months of arriving at CERN:

i. either a D-type (long-stay) French visa marked “*carte PROMAE à solliciter à l’arrivée*”, even if they are not subject to the requirement to obtain an entry and short-stay visa in France³;

ii. or, if they are the spouse, dependent child or dependent parent of a national of Switzerland or an EEA member state (excluding France), a photocopy of a valid residence permit issued by a European Union (EU⁴) member state marked “EU family member”.

N.B.: the family members of a French national who are not themselves nationals of Switzerland or an EEA member state must present a D-type visa⁵ under ordinary law in order to obtain a residence permit issued by the prefecture.

b) EF-type “attestation de fonctions”

Members of the personnel who are not nationals of Switzerland or an EEA member state, for whom an application for an EF-type *attestation de fonctions* must be made, must hold a Swiss D-type visa or a Swiss legitimation card.

4. Initial application

The initial application for a document issued by the MAE must be made via the Users Office (in the case of users, cooperation associates and visiting scientists) or the Cards Office (in the case of all other members of the personnel) as soon as the member of personnel concerned arrives at CERN. In the event of failure to do so, the French authorities cannot issue the documents to which those concerned may claim entitlement.

Furthermore, those who fail to apply for a document run the risk of infringing French regulations with regard to residence permits as all persons of full legal age are required to obtain a residence permit:

- if they are not nationals of an EEA member state or Switzerland, and

- if they reside in France for more than 90 days or, in the case of intermittent periods of residence, are physically present in France for more than 90 days in any six-month period.

5. Renewal

Applications for the renewal of a document issued by the MAE must be submitted via the Users Office (in the case of users, cooperation associates and visiting scientists) or the Cards Office (in the case of all other members of the personnel), no later than one month prior to the document’s expiry date. As a general rule, these offices send a reminder via e-mail to the persons concerned.

Those whose legitimation document has expired are in violation of the regulations, which could create difficulties for them, in particular when crossing international borders.

6. Change of name, change of country of residence and promotion

In the following cases, an application for a new special residence permit and *attestation de fonctions* must be submitted via the Users Office (in the case of users, cooperation associates and visiting scientists) or the Cards Office (in the case of all other members of the personnel) as promptly as possible:

a) change of civil status (name, nationality, etc.);

b) removal from France to Switzerland or vice-versa;

c) a promotion to a salary band requiring a different type of legitimation document to be issued:

- personnel classified in bands Aa to Ae, Ba to Bc, Ca, Cb and Da: AT-type document,

- personnel classified in bands Be, Cc, Db to De, Ea to Ee, Fa and Fb: FI-type document,

- personnel classified in bands Fc and Ga to Gc: CD- or CR-type document.

7. Surrender

a) Requirement

It is imperative that all documents issued by the MAE are surrendered to the ministry via the Users Office (in the case of users, cooperation associates and visiting scientists) or the Cards Office (in the case of all other members of the personnel):

- at the end of the contract with CERN, or
- if the contract no longer covers full-time activities or activities lasting more than three months.

Moreover, a child’s special residence permit must be surrendered when the child concerned reaches 21 years of age. Children wishing to continue to reside in France beyond that point must submit a request for a residence permit to their local prefecture no later than two months prior to their 21st birthday.

b) Professional activity

Family members authorized to take up gainful employment in France henceforth keep their special residence permit.

N.B. : Applications to take up gainful employment by family members holding a French special card are handled on a case-by-case basis. They must be addressed to the MAE via CERN, by *note verbale* accompanied by an offer of employment, mentioning the expected remuneration (which must be in accordance with the French minimum wage regulations, regardless of the hours worked – information in French only at <http://cern.ch/go/Rh7P>) and a copy of the request submitted to the competent authorities.

c) Certificate of surrender

If so requested via the Users Office (in the case of users, cooperation associates and visiting scientists) or the Cards Office (in the case of all other members of the personnel), the MAE may – exceptionally and subject to the presentation of proof of having applied for a residence permit from the prefecture, whose issue is decided by the Interior Ministry – issue a certificate of surrender of the special residence permit.

8. Duplicates

In the event of loss, theft or deterioration of a document issued by the MAE, the holder must apply for a duplicate via the Users Office (in the case of users, cooperation associates and visiting scientists) or the Cards Office (in the case of all other members of the personnel), after having reported the loss or theft as required (please see the procedure in the CERN Admin e-guide, <http://cern.ch/go/W8Vr>). The MAE will issue a duplicate only once.

In the event of non-compliance with the aforementioned rules and in accordance with international law, the MAE reserves the right to take appropriate measures, in particular to refuse to issue a special residence permit or an *attestation de fonctions*.

Consequently, members of the personnel are urged to co-operate with the services responsible for the above-mentioned formalities (departmental secretariats, the Cards Office, the Users Office, etc.) to ensure that all formalities are completed in accordance with the regulations.

Relations with the Host States service
<http://www.cern.ch/relations/relations.secretariat@cern.ch>
Tel. 72848/75152

¹Any persons not of French nationality who have been residing in France for more than three months on the date on which the MAE is notified of their recruitment are considered by the MAE to be long-term residents.

²<http://cern.ch/go/W8Cm> (in French only)

³<http://cern.ch/go/Vpz8> (in French only)

⁴<http://cern.ch/go/8Gft>

⁵<http://cern.ch/go/x8BS> (in French)

109TH ACCU MEETING

Agenda for the meeting to be held on Tuesday, 8 September 2015 at 9.15 a.m. in Room Georges Charpak (Room F, 60-6-015)

1. Chairperson’s remarks
2. Adoption of the agenda
3. Minutes of the previous meeting
4. Report on services from GS department
5. Report on services from IT department
6. News from the CERN Management
7. 60 years of the Staff Association
8. The CERN Ombuds
9. Opportunities to visit CERN
10. Users’ Office News
11. Matters arising
12. Any other business
13. ACCU Meetings 2016 (proposal)
14. Agenda for the next meeting

Anyone wishing to raise any points under “Any other business” is invited to send them to the Chairperson in writing or by e-mail to **ACCU.Secretary@cern.ch**.

Michael Hauschild (Secretary)

ACCU is a forum for discussion between the CERN Management and representatives of the CERN users in order to review the practical means taken by CERN to support the work of Users of the Laboratory. The User Representatives to ACCU are:

- **Austria** M. Jeitler (manfred.jeitler@cern.ch)
- **Belgium** M. Tytgat (michael.tytgat@cern.ch)
- **Bulgaria** N.N.
- **Czech Republic** S. Nemecek (Stanislav.Nemecek@cern.ch)
- **Denmark** J.B. Hansen (Jorgen.Beck.Hansen@cern.ch)
- **Finland** K. Lassila-Perini (Katri.Lassila-Perini@cern.ch)

- **France** F. Ferri (**Federico.Ferri@cern.ch**) and A. Rozanov (**Alexandre.Rozanov@cern.ch**)
- **Germany** A. Meyer (**andreas.meyer@cern.ch**) and I. Fleck (**fleck@hep.physik.uni-siegen.de**)
- **Greece** D. Sampsonidis (**Dimitrios.Sampsonidis@cern.ch**)
- **Hungary** V. Veszprémi (**Viktor.Veszpremi@cern.ch**)
- **Israel** E. Etzion (**Erez.Etzion@cern.ch**)
- **Italy** C. Biino (**Cristina.Biino@cern.ch**) and C. Troncon (**Clara.Troncon@cern.ch**)
- **Netherlands** G. Bobbink (**Gerjan.Bobbink@cern.ch**)
- **Norway** K. Røed (**Ketil.Roed@cern.ch**)
- **Poland** K. Bunkowski (**Karol.Bunkowski@cern.ch**)
- **Portugal** F. Barão (**Fernando.Barao@cern.ch**)
- **Romania** G. Stoicea (**Gabriel.Stoicea@cern.ch**)
- **Serbia** D. Lazic (**Dragoslav.Lazic@cern.ch, Chair**)

- **Slovak Republic** A. Dubnicková (**Anna.Dubnickova@cern.ch**)
- **Spain** S. Goy (**Silvia.Goy@cern.ch**)
- **Sweden** E. Lytken (**Else.Lytken@cern.ch**)
- **Switzerland** M. Dittmar (**Michael.Dittmar@cern.ch**)
- **Turkey** B. Demirkoz (**Bilge.Demirkoz@cern.ch**)
- **United Kingdom** M. Campanelli (**Mario.Campanelli@cern.ch**) and H. Hayward (**helen.hayward@cern.ch**)
- **Non-Member States** E. Torrence (**Eric.Torrence@cern.ch**), B. Demirkoz (**Bilge.Demirkoz@cern.ch**), M. Sharan (**manoj.kumar.sharan@cern.ch**) and N. Zimine (**Nikolai.Zimine@cern.ch**)
- **CERN** E. Auffray (**Etiennette.Auffray@cern.ch**) and M. Ferro-Luzzi (**Massimiliano.Ferro-Luzzi@cern.ch**)

The CERN Management is represented by Rolf Heuer (Director-General), Sergio Bertolucci (Director for Research and Computing),

Sigurd Lettow (Director for Administration and General Infrastructure). The Physics department is represented by Catherine Decosse, Cecile Granier and Doris Chromek-Burckhart (Head of the Users' Office), the Human Resources department by Ingrid Haug, the General Infrastructure Services department by Reinoud Martens, the Information Technology department by Mats Moller, the Occupational Health Safety and Environmental Protection unit by Ralf Trant, and the CERN Staff Association by Michel Goossens.
Secretary: Michael Hauschild.

Other CERN staff members attend as necessary for specific agenda items. Anyone interested in further information about ACCU is welcome to contact the appropriate representative, the Chairperson or the Secretary (73564 or **ACCU.Secretary@cern.ch**).

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

Take note

ARE YOU A MOVIE LOVER? DO YOU ENJOY SPEAKING OTHER LANGUAGES?

On the occasion of the European Day of Languages, the Language Tandem Programme is collaborating with the CERN CinéClub to offer you the possibility of watching a series of movies that share the common theme of communication.

Learning a language is like diving into another Universe. Movies can take us visually into other Universes.

Just like watching a movie, learning a new language takes us on an adventure, a discovery of something new. It can bring us new ways of looking at life; it can broaden our horizons.

The aim of this collaboration between the CinéClub and the Language Tandem Programme is to take you on this journey of discovery and we hope you will join us.

The series of movies, which started on 2 September, ends with an aperitif on 30 September where we can all get together.

Please see the list of movies here:

- **9 September:** *Italian for beginners* (in Danish and Italian, with English subtitles)
- **16 September:** *Spanglish* (in English and Spanish, with French subtitles)
- **23 September:** *The Interpreter* (in English, with French subtitles)
- **30 September:** *Apéro & Lost in Translation* (in English, with French subtitles)

The screenings all start at 8 p.m. in the Council

Chamber (503-1-001).

We hope you will enjoy the theme of this series of movies and would love to meet you on 30 September for an aperitif. The aperitif will start at 7 p.m. and we kindly ask you to inform us if you plan to attend by completing the Doodle on: <http://cern.ch/go/NwK9>.

Kerstin Fuhrmeister, on behalf of the Language Tandem Programme

ROOF RENOVATION OF BUILDINGS 128 AND 129

The roof renovation of buildings 128 and 129 is scheduled to take place from 17 August to 15 October 2015.

During this period, access to the "raw material" workshop will be limited and controlled due to asbestos removal. Collecting your orders directly from the building will be difficult, or even impossible, and urgent requests will be difficult to carry out.

We therefore ask you to create your requests via EDH, so that delivery may be carried out as soon as possible.

Thank you for your understanding.

GS Department

WORK ON THE BUILDING 4 CAR PARK AND CLOSURE OF ENTRANCE A

From 6 July to 31 October 2015, the GS department will be carrying out renovation

work on the car park next to Buildings 4 and 5. This work is aimed at improving safety on and around the car park for all users, particularly children attending the nursery school, pedestrians and cyclists.

The work on the car park will be conducted in two stages so that half of the parking spaces will always be available, in order to limit the impact on users as much as possible (the closed-off areas will be clearly indicated). When the work is completed, the car park will have been completely renovated, with new surfacing and road markings, high-quality lighting and more parking spaces (+5%).

During the work, part of the car park will be inaccessible, which is likely to make it more difficult to find a parking space. We therefore invite you to park in the Globe car park during this period.

The renovation work will also affect Entrance A (Route Bell), which will be fitted with a fully automated road gate, similar to the one at Entrance C. For increased convenience and safety, two turnstiles for access by pedestrians and cyclists will also be installed. Entrance A will also be closed from 6 July but should be operational again by the end of September.

We thank you for your understanding and apologise for any inconvenience.

GS Department

DIVERSITY IN ACTION WORKSHOP | 18 SEPTEMBER | BUSINESS CENTRE TECHNOPARC

After two years, five successful editions and plenty of positive feedback, we are happy to announce the sixth edition of our Diversity in Action workshop.

Seize the opportunity and participate in this half-day interactive workshop designed to explore the meaning and importance of diversity at CERN. Using participative multimedia methods, this workshop will provide participants with insights into the different dimensions of diversity, help to develop greater sensitivity to differences, and explore ways to recognise and overcome biases and thereby strengthen our tradition of inclusiveness at CERN.

"For me it was a great opportunity to talk about diversity issues with other people at CERN who I would never have met otherwise," says Alex Brown, who participated in the third edition of the workshop. "The discussions I was involved in inspired connections that are still active."

Diversity in Action workshop – sixth edition in English

**Friday, 18 September 2015
8.30 a.m. to 12.30 p.m.
Facilitated by Alan Richter
Business Centre Technoparc – Saint-Genis-Pouilly**

Registration and more information on the workshop:
<http://cern.ch/diversity/in-action>

CERN Diversity Programme

ACADEMIC TRAINING LECTURES | THE OUTLOOK FOR ENERGY SUPPLY AND DEMAND | 14 - 16 SEPTEMBER

Please note that the next series of Academic Training Lectures will take place on the 14, 15 and 16 September. The lectures will be given by by Chris Llewellyn Smith (Director of Energy Research, University of Oxford, President of SESAME Council).

The Outlook for Energy Supply and Demand (1/3)

on Monday, 14 September
from 11.00 a.m. to 12.00 p.m.
<https://indico.cern.ch/event/388334/>

Can Future Energy Needs be Met Sustainably? (2/3)

on Tuesday, 15 September
from 4.30 p.m. to 5.30 p.m.
(CERN Colloquium)

<https://indico.cern.ch/event/388335/>

The Outlook for Energy Supply and Demand (3/3)

on Wednesday, 16 September
from 11.00 a.m. to 12.00 p.m.

<https://indico.cern.ch/event/388336/>

at CERN, Main Auditorium,
in Building 500-1-001.

Description: These lectures will review the challenges facing energy policy, the outlook for different sources of primary energy (fossil and renewable), how energy is used, and prospects for improved energy efficiency. A colloquium 'Can Future Energy Needs be Met Sustainably?', which I will be giving on Tuesday, 15 September at 4.30 p.m., is part of this course. The lectures will provide more details and address topics that will only be mentioned in passing in the colloquium.

ACCELERATING INNOVATION ... IN MEDICINE

Peter Weightman
Professor of Physics at the University of Liverpool with a track record of developing novel instruments

Cancer research on the Daresbury ALICE accelerator

The ALICE accelerator at Daresbury is a superconducting energy recovery linear accelerator (ERL) that has characteristics that provide unique capabilities for the study of cancer. Firstly it drives an electron free electron laser (FEL) that is equipped with a scanning near field optical microscope (SNOM) that makes it possible to determine the chemical structure of tissue with a spatial resolution of 0.1 µm. Secondly, using an X-ray source where the electron bunches circulate at 10¹¹ times, the electron bunches in ALICE produce very small, fine focused X-ray sources that can be used to study the structure of tissue at a resolution of 0.1 µm. These capabilities of ALICE are currently being exploited in studies of cancer, neurodegeneration and provide cancer to a multidisciplinary research programme. This lecture will explain the role of the ALICE accelerator in the SCAR research programme.

28 September 2015
Coffee at 16.00, Seminar at 16.30

CERN Main auditorium

Entrance free - Limited number of seats - Please register on <https://indico.cern.ch/event/437526/>
Conference en anglais - Traduction disponible en français



CONFERENCE

Space and Research: Which future for the coming generations

Friday **18th** of September 2015
18.15-20.00 | Uni Mail | Auditorium MR 080

Speakers European ASTRONAUT **Luca PARMITANO**
CERN Professor **Guido TONELLI**
Emeritus Professor **Amalia ERCOLI FINZI**

Free Entrance According to Room Capacity.
For information: fc-italie@unige.ch
Booking on: genevaconferences.weebly.com/reservation.html

Training

PLACES AVAILABLE - TECHNICAL TRAINING (UP TO THE END OF 2015)

Some upcoming courses (until December) are currently missing participants, required for the courses to take place.

For more details about a course and to register, please go to the Training Catalogue.

PLACES AVAILABLE - TECHNICAL MANAGEMENT COURSES (UP TO THE END OF 2015)

Some courses in the field of technical management scheduled up to the end of 2015 and which have places available.

For more details about a course and to register, please go to the Training Catalogue. If you need a course that is not in the catalogue, please contact your supervisor, your Departmental Training Officer or the HR-LD group at **Communication.Training@cern.ch**.

Seminars

SUNDAY SEPTEMBER 13, 2015

09:00 CERN School of Computing

MONDAY SEPTEMBER 14, 2015

11:00 Academic Training Lecture Regular Programme The Outlook for Energy Supply and Demand (1/3) **Main Auditorium**

16:00 A&T Seminar High Performance HTS Tapes for High Field Magnet Applications IT **Amphitheatre**

TUESDAY SEPTEMBER 15, 2015

07:30 CFP Zewail City Mini-School First (2nd part) CFP Zewail City Mini-school on 'experimental tools in particle physics' CFP, **Zewail City of Science and Technology**

09:00 Technical Seminar 20ème Forum Utilisateurs CATIA au CERN Kjell Johnsen **Auditorium**

11:00 LHC Seminar CMS results

16:30 Academic Training Lecture Regular

Programme Can Future Energy Needs be Met Sustainably? (2/3)

16:30 CERN Colloquium Can Future Energy Needs be Met Sustainably?
Main Auditorium

WEDNESDAY SEPTEMBER 16, 2015

11:00 Academic Training Lecture Regular Programme The Outlook for Energy Supply and Demand (3/3)

Main Auditorium

14:30 ISOLDE Seminar TBA

MONDAY SEPTEMBER 21, 2015

11:00 LHC Seminar Constraints on Higgs boson couplings from a combination of ATLAS and CMS measurements

TUESDAY SEPTEMBER 22, 2015

11:00 LHC Seminar Observation of J/ψ resonances consistent with pentaquark states in $\Lambda_b \rightarrow J/\psi p K^-$ decays at LHCb
Main Auditorium