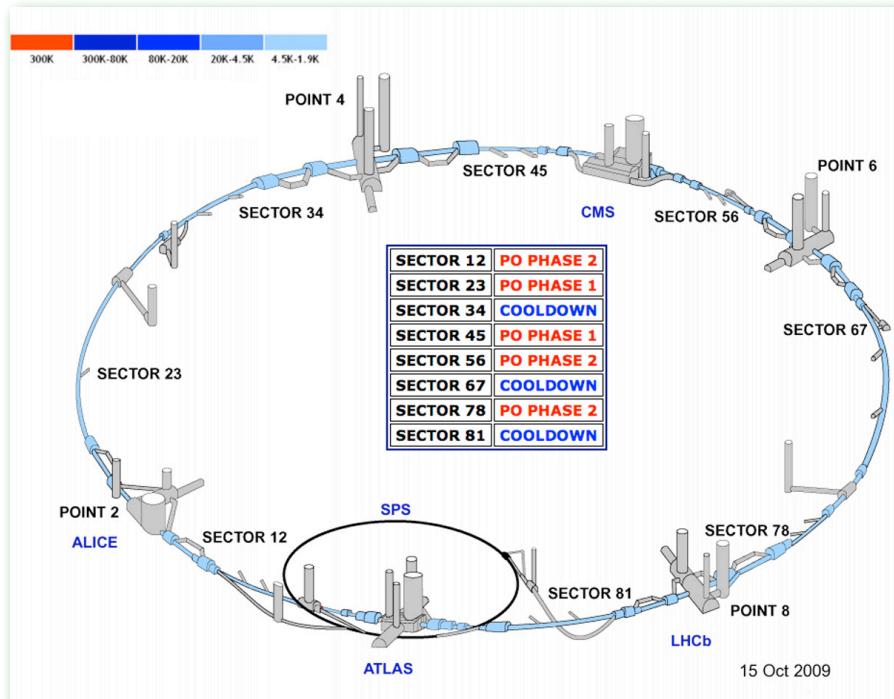




Nos 49 & 50 – 30 November & 7 December 2009

## The way to collisions, step by step



**T**he short version of a recipe for colliding particles would be: produce the particles, bunch them, assemble the bunches into two beams, accelerate them while sending them in opposite directions, so that the particles finally collide. Whilst this might seem straightforward, each step requires thousands of magnets to work perfectly, thousands of control system components to provide the necessary go-ahead, and thousands of electronic components to perform impeccably.

At CERN, beams are prepared in the smaller accelerators and eventually sent to the LHC through the transfer lines. During the week-end of 26-28 September, particles

**While the LHC sectors cool down and reach the cryogenic operating temperature, spirits are warming up as we all eagerly await the first collisions. No reason to hurry, though. Making particles collide involves the complex manoeuvring of thousands of delicate components. The experts will make it happen using a step-by-step approach.**

(protons first and then ions) were sent to the entrance of the LHC, thus showing that the whole injection chain is working well and is ready for injecting particles into the LHC.

At the same time, the LHC is preparing to welcome beams again but, in order to do so, the whole machine has to be at the operating temperature of 1.9 K (about -271 °C), the new Quench Detection System (<http://cdsweb.cern.ch/record/1207352?ln=en>) must be installed and tested in all eight sectors and current must be passed through all the 9000 magnets (without beam). The new system is extremely complex. The first

(Continued on page 6)

### A word from the DG of ITER



ITER Director Kaname Ikeda continues the series of occasional exchanges between CERN and other laboratories world-wide. As part of this exchange, CERN Director-General Rolf Heuer wrote a message in ITER Newsline (<http://www.iter.org/newsline/Pages/103/Default.aspx>)

### Setting new standards

**L**HC is an event that excites everyone who has an interest in the fundamental physics of the Universe.

(Continued on page 6)

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## A word from the DG of ITER



(Continued from page 1)

### Setting new standards

We are living through a time of radical change in particle physics, and the energy scale that the LHC will be able to explore can yield discoveries of new forms of matter, new forces of nature, new dimensions of space and time. This is a wonderful period for CERN as scientists from all over the world prepare to take data that could lead to historic scientific breakthroughs. On behalf of the ITER Organization and its staff I would like to wish you the greatest success.

CERN and ITER have many similarities, and ITER will certainly learn from the years of hard-won experience that has been accrued at CERN. Although our fields of experimentation are not the same, the technologies needed for particle accelerators and large detectors are frequently related to those needed to build a large fusion tokamak. Cryogenics, diagnostics, accelerators, vacuum, magnets, are only a selection of the technologies that ITER and CERN share. Since the signing of

## The way to collisions, step by step

(Continued from page 1)

indication is that it's performing well, but it will take considerable time to test fully and to commission.

According to the schedule, beams will enter the LHC about 5 weeks from now at an energy of 450 GeV, the maximum energy the SPS (the last accelerator in the injection chain) can provide. They will then make their first turn round the LHC. Initially, one bunch of protons will be injected and guided clockwise in one of the twin beam pipes. If this goes well, some hours later a second beam will be injected anticlockwise into the second beam pipe. One to two weeks later, both beams will travel at the same time in the two rings of the machine. Once stable beams have been established, they will be made to collide in the four interaction points. At this moment, the experiments will see the first low-energy collisions and the sprays of particles produced. Although not

very relevant for physics, these data will be important for fine-tuning the detectors.

The operation team will then aim to ramp up in energy, gradually increasing the current in the magnets, and accelerating the beam with the radiofrequency cavities. This will initially be done with each beam in turn and then with the two beams at the same time. As soon as there are two stable beams, the team will aim to collide them at higher energy before the Christmas period.

More than 10 000 magnets distributed over more than 30 km will be involved in the operations to achieve the first high-energy collisions. The whole chain will have to work like a Swiss watch. And, just as in a real watch, the outside doesn't show all the complex mechanisms and components that make it work are not visible on the outside.

CERN Bulletin

the CERN /ITER collaboration agreement in 2008, we have already had many useful exchanges with CERN specialists and I am confident that this collaboration will continue to the benefit of both laboratories.

CERN has established new standards of global collaboration in science with many nations working on the same facility. ITER will follow on this path, taking note from the lessons learnt at CERN, of how collaboration is achieved at a political and academic level but also how to create a multicultural

workforce that succeeds in blending the input of each participant for the benefit of the whole.

I look forward to a long and mutually beneficial collaboration between CERN and ITER and wish you every success with the scientific adventure that is about to start.

**Kaname Ikeda**  
ITER Director-General



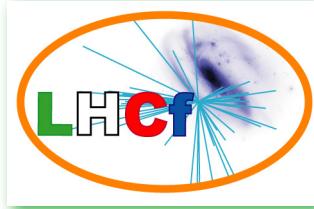
An aerial view of the ITER construction site in Cadarache, France, looking North. At the far end of the platform, the Tokamak pit can be discerned. (© Agence ITER France)

# The Latest from the LHC: The LHC is cold!

On Thursday 8 October, sector 6-7 reached the cryogenic temperature of 1.9 K; it was followed, this week, by the last one, Sector 3-4, thus marking an important step towards the final commissioning of the machine.

**A**s soon as a sector reaches the nominal operating temperature, **magnets are powered**: three sectors are presently being commissioned with 2 kA current in the main circuits (the so-called Phase 2) and three are being powered with lower current. In the coming weeks, the hardware commissioning team will gradually increase the current in all sectors to reach 4 kA and finally 6 kA. This latter value is the one needed to correctly guide particle beams travelling in the machine at the nominal energy of 3.5 TeV.

**Splice resistance measurements** were also carried out in three sectors; there are thousands of splices in each sector and they are all showing normal values. Teams are also continuing to test the different components and layers of the complex Quench Detection System that, in case of need, have the delicate task of detecting a splice malfunction at an early stage and then protecting the machine from the punctual excessive energy released. These tests are confirming the **high performance of the detection system**.



## The Latest from TOTEM

**S**ince April 2009 the installation and commissioning of the TOTEM detectors have been continuing successfully. All of the Roman Pot stations at 220 m on both sides of IP5 are now equipped with silicon detectors. The complete T2 telescope is installed in both CMS forward regions.

Two quarters of the T1 telescope have been assembled and cabled and are running in the test beam. Some optimizations are still in progress and a final test in the SPS beam is scheduled for this month. After an evaluation of the test beam data, one side of the T1 telescope was installed, requiring access to the CMS forward region. The last two T1 quarters are currently being assembled.

The final Data Acquisition System is under test in IP5. The installed detectors are in the commissioning phase. This includes all related detector infrastructure, the Detector Control System (DCS), the various databases, as well as the connections to the LHC and CMS control rooms. Furthermore, the TOTEM control room is now equipped with monitoring systems and DCS controls.

Using Monte-Carlo simulations, the off-line software is now being optimized for data analysis. This includes alignment software, simulations of trigger responses, event displays, database exchanges, understanding of the machine optics, etc. We envisage taking data from the beginning of the beam collisions, and we hope to get physics results soon after the calibration of our detectors.

*TOTEM Collaboration*

## The Latest from LHCf

**A**t the end of September, the LHCf collaboration installed RadMon dosimeters inside the TAN absorbers containing the detectors. Being located on the same level as the LHCf detectors, the dosimeters will provide precise information on the particle dose received. These data will be visible online as they are acquired.

Hitherto, the only dosimeters of this type were located underneath the TAN absorbers, which did not provide precise information on the particle dose received by the detectors.

The LHCf experiment has been ready for a year and the LHCf the collaboration is eagerly awaiting circulation of the first particle beams in the LHC at the end of the autumn.

*LHCf Collaboration*

# CERN Public homepage takes its first step towards web 2.0

With over 7000 websites in the cern.ch domain, CERN's web landscape is a challenging one to manage.

Dan Noyes, who joined CERN a year ago, is the web content manager within the Communication group, which is mandated to develop the public and user websites as well as developing standards and guidelines for the wider CERN web.

The recent changes made to the public homepage were the first small step towards some quite major changes proposed for CERN's websites over the next couple of years. Currently, one of the problems of CERN's websites is that the quantity and the diversity of the information in them make them difficult to manage, if one wants to avoid duplication and to keep information updated and easy to find. This is also aggravated by the lack of a standard design philosophy and consequently of a coherent architecture. "We have to change that; we have to manage the way that information on our websites is structured, and we have to make information easy to find," says Dan.

The recent change to the public homepage was an attempt to provide a clear set of links to key information sources on the CERN

Some of you may have noticed a change of format on the CERN public homepage recently. The Bulletin catches up with Dan Noyes, CERN web content manager, to find out what is happening.

web, along with some more dynamic news elements. "We looked at the web usage statistics and made sure that the links that people commonly use are all plainly displayed, easily accessible, and correspond to the search queries that people perform when they come to our websites. This is very much a first step towards bigger changes, but it is not a significant redesign: what you find behind the links on the front page has not changed, nor has the basic layout of the page – this is to follow further down the line. These proposed changes have been outlined in our group's communication plan, which is currently in the approval process."

To make access to key information easier, there are new links for some key audience types: users, journalists and children. Dedicated websites for these audiences were already accessible from the old homepage but the links were not as prominent. "In the long term we plan to consolidate a lot of our websites into a single one. For example, information posted on the public website is often relevant to users and vice-versa; the same is true for journalists and the public," says Dan.

One thing that might have surprised a lot of people at CERN is the presence of a feature box followed by some tweets. "The feature box on the public homepage is a way of focusing on a single issue and providing links to the various places that can give more information on it. The feature will change at least once a week – the old homepage had a tendency to become a little stale at times," explains Dan.

As for Twitter, the Communication group started using the service some time ago. "We have over 14 000 followers. Bringing our Twitter feed into the public homepage does several things. Firstly, it advertises the fact that we have one; and whether or not people choose to use Twitter they can see what CERN is saying on it: this is not a closed social network, but a lightweight tool to reach many people. Secondly, until we do have a www.cern.ch/news/ that acts as home for all news and current interest content for CERN, Twitter can fill the gap in many respects. It also provides an RSS feed: people can keep up to date with what is happening at CERN easily."

The use of Twitter marks a start for the Communication group of a move towards the adoption of web 2.0 tools. "These tools are especially useful in an environment such as CERN because we need to communicate with huge numbers of people, and at the same time we want to learn what people think about CERN and its research," says James Gillies, head of the Communication group.

Are there changes planned for the users' pages? "Yes," anticipates Dan. "The public and users' websites will be aligned in terms of design and approach and eventually merged into a single site. The first 'alignment' phase will basically be a re-design of the current users' site which will be run in parallel with the existing one and feedback will be sought, before it eventually goes live and replaces the old grey pages we are all so used to. The second phase, where public and users' pages are merged, will require the use of a content management system for our central websites so that we can 'push' chosen information to the relevant audiences."

With public interest in the LHC growing in the lead-up to the LHC re-start, these improvements in usability and navigability to the public homepage are timely, and certainly appreciated.

CERN Bulletin

Follow CERN on Twitter:  
<http://twitter.com/cern/>



The screenshot shows the CERN Public homepage. At the top, there is a banner featuring a large image of the Large Hadron Collider (LHC) tunnel. Below the banner, a video player displays a video titled "LHC News : Particles knock at the door to the LHC" dated 12 October 2009. To the right of the video player is a navigation menu with sections for "INFORMATION FOR:", "INFORMATION ABOUT:", "PUBLICATIONS:", "RESOURCES:", and "COME TO CERN:". Each section contains links to specific CERN resources. At the bottom of the page, there is a link to "Follow CERN on Twitter" and a small note about a micro-trottoir event.

# Refurbishment and extension of the terrace of Restaurant No.1

Work to refurbish and extend part of the terrace of Restaurant No.1 started in the first week of October and should last about two months. This is just a small part of the wide-ranging site infrastructure consolidation programme that began in April 2009.

The new terrace, covering a surface area of 1770 m<sup>2</sup> (compared with 1650 m<sup>2</sup> today), is scheduled to be completed by the end of 2010 and will run all the way around the Restaurant No.1 extension. Work on the latter will affect part of Building 501 during the period from April to October 2010.



The new dining room will seat some 275 additional customers (see picture).

Part of the Cedars car-park will remain closed until some time in December to provide site access for trucks transporting construction materials, plant, etc.

CERN Bulletin

## LHC? Of course we've heard of the LHC!

**O**n first questioning, the "man-in-the-street" always pleads ignorance. "Lausanne Hockey Club?" The acronym LHC is not yet imprinted on people's minds. "Erm, Left-Handed thingamajig?" But as soon as we mention the word "CERN", the accelerator pops straight into people's minds. Various referred to as "the circle" or "the ring", it makes you wonder whether people would have been so aware of the LHC if it had been shaped like a square.

Size is another thing people remember: "It's the world's biggest. Up to now..." As for its purpose, well that's another kettle of fish. "Weird stuff!" Everyone seems to know it has something to do with science. And here, it's the students who seem best informed - even those doing literary studies. Many are familiar with the term "particle accelerator" and know there are collisions involved. "It's to find the Higgs boson," one ventures. "It's to make mini-big bangs," sug-

**Well, more or less. After its first outing in Meyrin (see last Bulletin issue), our street poll hits the streets of Divonne-les-Bains and the corridors of the University of Geneva. While many have heard of the LHC, the raison d'être of this "scientific whatsis" often remains a mystery.**

gests another. "To find new laws of physics", "To better understand the creation of the world".

In addition to the information circulated by the media, many of these young people learned about CERN and the LHC thanks to the "Accelerating Science" exhibition held in Geneva for the University's 450th anniversary, the aim of which was to explain CERN's work to the general public. Back in Divonne-les-Bains, a couple expressed interest but was sorry about how little information was available on the LHC's goals. According to them, ignorance about what goes on in the tunnels can risk fuelling the fear the LHC sometimes arouses. This is especially true as words like "antimatter" and "black holes" are currently on everyone's lips without being necessarily understood. "You never

know what might happen, so it's a bit worrying. Nuclear science started out with good intentions but we've seen where it can lead. It can be dangerous."

No-one asked the question: "Could the LHC have military applications?" Even so, ideas about the possible benefits of the LHC remain vague. But people are generally quite positive: "There must be some benefit, given all the money they spend on it." "Perhaps they'll discover a parallel universe," one lady surmised. Back in Geneva, one of the students was regrettably convinced that CERN's research would not change anything in everyday life. But when reminded of examples like the Worldwide Web or medical applications, he did recall having seen these at "Accelerating Science".

So although, on balance, fundamental research is viewed favourably, people are generally not very familiar with its applications. So it's a good thing that, for some, knowledge alone constitutes a benefit.

Antoine Cappelle

# Apprenticeships at CERN: a host of awards

Every year, CERN hosts six technical apprentices for a four-year period: three electronics technicians and three

physics lab technicians. And every year, at the end of their apprenticeships, one or more of them receives an award for being among the best apprentices in Geneva.

On 23 September, two young apprentices were honoured by the *Union industrielle genevoise* (UIG) on passing their exams: Coralie Husi, a physics lab apprentice, and Denis Fernier, an electronics apprentice. On 1st October, during the ceremony at which the federal professional qualifications known as the CFC (*certificats fédéraux de capacité*) were presented, Denis was also awarded the State Council prize for achieving one of the top-ten overall grades in the Canton of Geneva.

The apprentices who come to CERN are aged between 15 and 21 and are from a wide range of different backgrounds. What they have in common is their desire to learn a technical trade or profession. During their four years of training they spend three days a week at CERN and the other two days at college, either the CFPT in Geneva in the case of the electronics technicians or the ESPIC in Lausanne in the case of the physics lab technicians.

During these four-year apprenticeships, they are assigned a series of about ten work placements designed to teach them various aspects of their trade. The shortest

This year again, two CERN apprentices have received awards at the end of their training. CERN's broad range of technical skills means that it can provide training in a wide variety of trades and professions.

placements can last a month, while those at the end of the training can last up to a year. The placements for the electronics technicians cover areas such as design, execution, maintenance, repair and measurements, while those for the laboratory technicians offer the opportunity to work on all kinds of projects: mechanics, cryogenics, metrology, to name but a few. CERN is home to a multitude of skills. "The nature of the placements varies each year in accordance with availability", explains Jean-Marc Bouché, head of apprentice training at CERN.

Thanks to the experience they acquire at CERN, the apprentices are proficient in many areas by the time they graduate. Once they have the CFC in their pockets, they can either start looking for work or go in for further studies. "I always encourage them to continue", says Jean-Marc Bouché. Some of them go on to enrol for engineering studies in Switzerland, as has Denis Fernier this year. "Our apprentices tend to find work in their field fairly easily", says Jean-Marc Bouché. "You can find them everywhere: a few are taken on at CERN, while others find work in universities or research laboratories."

The secret of CERN's successful apprenticeship programme lies in the commitment of the personnel involved. The placement supervisors play a key role in all this, in their efforts to pass on their know-how and



Denis Fernier receives congratulations from Pierre-François Unger, Counsel state of the canton of Geneva in charge of the department of economics and health.

expertise to the young apprentices and in the time they are willing to devote to these activities.

Each year, CERN also offers two three-year administrative apprenticeships in information and documentation. Information on the apprenticeship programme is available on the CERN website at the following address:

[https://hr-recruit.web.cern.ch/  
hr-recruit/appr/default.asp](https://hr-recruit.web.cern.ch/hr-recruit/appr/default.asp)

Antoine Cappelle



Denis Fernier and Coralie Husi (right) at the prize-giving ceremony of the Union Industrielle de Genève.

# CERN Press Office receives award from Euroscience

"It's great to receive this recognition," said Gillies. "Of course, we had great material to work with: the LHC is a fantastic story and one that is going to get even better."

Angels, Demons and black holes also had their roles to play, but behind the media interest there's been a lot of hard work by my team. This is for them."

The CERN Communication group also works with communication professionals in all the CERN Member States and major physics labs around the world through the European Particle Physics Communication Network, and the InterAction collaboration. "Without them," says Gillies, "the impact would have been much smaller."

This is the first edition of the AlphaGalileo Research Public Relations Award. It is worth

The CERN Communication group has received an award for its efforts in communicating the LHC first beam to the media and the public. James Gillies, head of the Communication group was presented the AlphaGalileo Research Public Relations Award on Wednesday, 14 October during the Euroscience Media Award Ceremony in Hannover.

5000 Euros and includes a 'golden' Galileo. The Communication group will be using the award to give a young communication professional the chance to join the team as an intern throughout the LHC restart period.

CERN is inviting media to come to the lab for the period of the first high-energy collisions. "This marks a new challenge for us", says Gillies. "Again, we want to give journalists the opportunity to experience the reality of cutting edge research first-hand, but we also need to manage media expectations and hold their interest from the first collisions through to the physics results, which are of course what CERN is here for."

*CERN Bulletin*

## euroscience media awards 2009

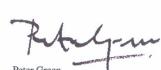
AlphaGalileo  
AlphaGalileo Foundation  
Research Public Relations Award

Winner

*Large Hadron Collider – First beam*

Press Office  
European Organisation for Nuclear Research  
Organisation Européenne pour la Recherche  
Nucleaire

  
Eric Banda  
President  
Euroscience

  
Peter Green  
Managing Director  
AlphaGalileo Foundation

The awards are supported by Euroscience-Stiftung, Johnson & Johnson Pharmaceutical Research and Development – Europe, AlphaGalileo Foundation and the European Union Association of Science Journalists Associations (EUSA)

Presented on 14 October 2009, at the Hochschule für Musik und Theater, Hannover, Germany.

## ITU World Youth Forum visits CERN

**O**n Tuesday 6 October, the group visited several sites including the Microcosm exhibition and the ATLAS cavern to get a glimpse of what CERN does and the exciting science that is studied here.

Since 2001 and every three years, the ITU World Forum brings together young men and women, aged 18-23, to learn about new technologies and the world around them. This year's group included participants from one hundred and twenty-five different countries. This was the first time that the event involved a visit to CERN.

When asked why CERN was a destination, Pascal Biner, organizer of the visit for ITU, explained that CERN was a necessary stop given the Forum's base in Geneva this year. "For Geneva, [CERN] is really important. It's really representative of Geneva... it's like the *jet d'eau*." Pascal also explained

**About 250 students selected by the International Telecommunication Union (ITU) to participate in the 2009 Youth Forum made CERN a primary destination for this year's World Youth Forum event.**

that though the visit was brief, he hoped that it would be a starting point for its visitors to "go forward and find out more about CERN for themselves."



The 250 students participating in the 2009 Youth Forum attend a presentation in the Globe of Science and Innovation.

For their part, the participants appeared to enjoy the visit. One young man explained that his favorite part was the reconstruction of the accelerator in the Microcosm exhibition. Regarding his experience at CERN overall he observed, "It's good, it's like a museum only it's not... it's better than a museum."

Daisy Yuhas

# The LHC and the computing grid at the heart of ITU Telecom World 2009

Visitors flocked to CERN's stand, which proved to be one of the show's most popular, keen to find out about the LHC restart and the communication technologies mobilised for this extraordinary endeavour. The CERN stand was located in the section supported by the Cantons of Vaud and Geneva called "Lake Geneva Region", covering over 700 m<sup>2</sup> on two levels and promoting the region's excellence by highlighting thirty innovative companies and organisations based there.

A console similar to the one in the CERN Control Centre was presented. Equipped with seven screens and a multipoint video conferencing unit run from CERN, the console was directly connected to the CERN Intranet via an extension of the optical fibre supplied by the Geneva municipal services (SIG), providing a 10 gigabyte per second connection speed. The computing grid's

ITU Telecom World 2009 took place at Geneva's Palexpo, just down the road from CERN, from 5 to 9 October. This high-profile, internationally-renowned show organised by the ITU, the UN agency responsible for telecommunications, attracts visitors from both the public and private sectors sharing a common interest in information technologies and communication. 18,000 people passed through its gates in 2009.

new visual display tool, developed by a team of engineers from the IT Department's "Grid Support" Group, captured the public's imagination. By coupling the Google Earth interface to the "Dashboard" (system overseeing the various computing activities of the LHC experiments), this tool provides a visualisation of the data flow and the jobs submitted via the Grid over the past ten minutes.

Members of the various experiments, accelerator personnel and people from the IT Department took turns on the stand to answer the many questions raised by the videos, diagrams and monitoring interfaces presented. CERN's 'Multipoint Control Unit'

video conferencing system and two terminals provided by Tandberg allowed ten partner centres spread across the world to take part and interact in real time with the visitors, exemplifying the international nature of the collaboration on the LHC. Over the course of the week, three lectures were held in the "Lake Geneva Region" auditorium, presenting CERN in more detail, along with the LHC and the collaborative tools developed at CERN, such as Indico. The lectures were streamed live on a CERN webcast and the recordings are now available on the website of CERN's partner for the event, Swiss start-up firm Klewel (<http://www.klewel.ch>).

Melissa Le Jeune



# Denis Guedj at CERN

French author Denis Guedj, who is also a mathematician and Professor of History of Science at Paris VIII University, visited CERN on 7 and 8 October. During a presentation in the CERN Library he discussed his 15 published books and likened the process of novel writing to working on a scientific

experiment: it begins with a limited amount of data, and then questions arise, problems are solved and further research reveals truths.

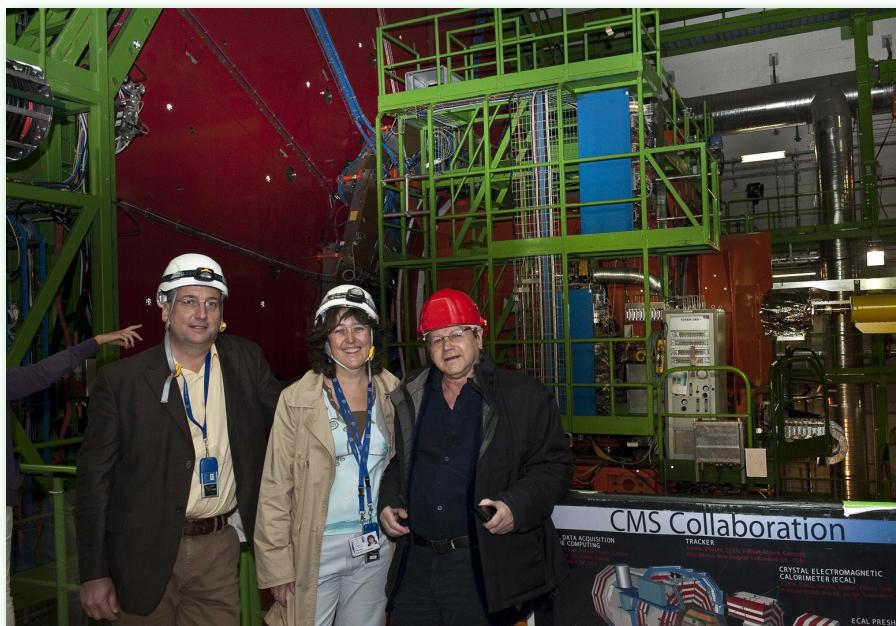
Denis Guedj works hard to ensure that his novels contain 'true fiction'. His most recent visit to CERN will help him to write

a new book set at the LHC in which he will combine his scientific interest in what happens when a proton and proton collide with a human story about what happens to a male and female physicist who meet in the LHC tunnel.

"Visiting the CMS cavern was like stepping into the world of my novel," he said at the end of the tour. "Questions arise when writing and I want to include the real truths about the LHC." The book 'Collision' will be published in early 2010.

Guedj will soon return to CERN for the performance of his play on Monday 16 November, 'One Zero Show', in the Globe during CERN Science Week. The Bulletin will report on it in forthcoming issues.

Rebecca Learm



Denis Guedj (right), pictured with Etienne Auffray Hillemanns of the CMS collaboration and Hartmut Hillemanns of the DG-KTT group.



## The LHC taken with philosophy

Grayling's interview with Virdee is part of a series of events at Wellcome Trust Collection in London: five of the biggest names in the world of science will discuss the social impact of their discoveries. These events will be broadcast to over 40 million people worldwide in December 2009 by the BBC World Service in the framework of the Exchanges at the Frontier series.

Grayling has been following the LHC via the media but his tour of the CMS experiment increased his philosophical awareness of the international cooperation that has enabled it to be built as well as the impact it will have on society's understanding of the nature of humanity. "CERN is the greatest adventure that science has ever had, partly because it is the greatest example of international cooperation to crack the secrets of Nature and partly because, both in theory and experimental capability, it has brought us

**"Whether or not scientists at the LHC will find the Higgs boson, they will learn something about the secrets of Nature that will greatly advance human understanding". These are the words of Anthony Grayling, Professor of Philosophy at Birkbeck College, University of London, and presenter of the forthcoming BBC series "Exchanges at the Frontier". He visited CERN to prepare for his next interview with Jim Virdee, CMS Spokesperson.**

to the very brink of knowing some things that will transform our view of the world," says Grayling who believes the LHC is an adventure of humanity that will inspire and attract people to science.

"What I've learnt today is about some of the technological developments, some of the advantages to computing science and engineering and some of the possible advantages for medical science, which are already of such significance that they pay back the investment that has gone into the building of CERN many times over. The knock-on benefits to the whole of science and medicine, to society at large and to the education of people in science has already made this a justified enterprise", he enthuses.

The forthcoming discussion between the two professors of philosophy and physics will be an opportunity for individuals to hear about CERN, the LHC, the international cooperation that has made it possible, how it was designed and built, what can be expected from it and the spinoffs it will have for society. Grayling wants people to see that this is something they should be paying attention to, celebrating, applauding and sharing with others.

Rebecca Learm

Watch the video interview at:

<http://cdsweb.cern.ch/record/1212117>

# The future of neutrino physics

The European Strategy for Future Neutrino Physics workshop is the second of a series of workshops organized by CERN to coordinate efforts and define strategies for the future of physics research in Europe. The first workshop was organized in May; it outlined the best projects that have excellent scientific goals and for which CERN's facilities are unique. Currently, these projects are being discussed within the community and in the CERN scientific committees.

The same bottom-up approach was taken for the organisation of this second workshop that focussed on neutrino physics. More than 250 people participated and 44 posters were presented in a separate session. Unlike in the first workshop, the focus was not on specific proposal presentations. Rather, after a short overview of the current situation, the discussion focussed on the possible roads that this field may take in future: suitable beams, detector techniques, and the basic strategy for selecting the future proposals.

On 1-3 October, CERN held the first workshop to discuss the strategy that Europe should follow in the field of neutrino physics. Many members of the neutrino physics community from all over the world participated in the workshop, demonstrating the vitality and interest of this research field.

"It is clear that in about 2-3 years from now, the community will have to make decisions about what direction to take for the future of neutrino physics", explains Ewa Rondio, one of the organisers of the workshop. "The current situation is too diversified and one of the goals of the workshop was to strengthen the process of establishing a roadmap for a coherent approach to the different issues involved: from how to reach the point of decision, to what should be done to best prepare for it in terms of testing the beams and evaluate their suitability, and decide on the most promising R&D activities."

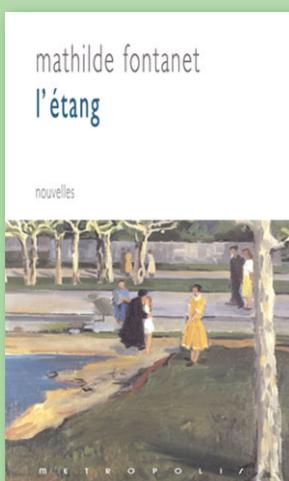
Scientists from Japan and the US also took part in the workshop. "The future strategy of Europe in neutrino physics cannot be established without taking into account what is decided in other parts of the world. This has to be a world-wide coordinated effort", says Ewa.

Clearly, results of these initial discussions will become visible only after the present neutrino experiments and the whole physics landscape (from detector techniques to cosmology to new results coming from the LHC) have shown which is the best way to go. However, "the first very positive outcome of the workshop is that now people know more about other people's projects and it may help in networking and preparing common proposals for R&D projects", anticipates Ewa. All the contributions (talks and posters) and the discussions that took place at the workshop will be included, early next year, in a yellow report.

CERN is engaged in this path to stimulate early discussions within the different communities existing in the physics landscape. The next workshops will focus on "Physics and Health in Europe" (2-4 February 2010) and astroparticle physics and cosmology (dates to be fixed).

CERN Bulletin

## Literature in Focus L'étang - Mathilde Fontanet



"The Pond" (L'étang), one of the eleven short stories that lends its name to the collection, is the tale of a forty-something woman who, alone and scared on a twenty-four-hour trip to the wilds of Yorkshire, makes a disturbing discovery along a meandering woodland pathway.

The characters who haunt these pages - from the chronically shy young librarian or the divided twins, to the obsequious neighbour, the amnesiac aunt or the people encountered on a bus or at the hospital - are neither heroes nor heroines; they're just people living ordinary lives, unremarkable destinies.

These brief encounters, these snapshots of ordinary life, these snippets of existence made up of hesitant dialogue, insignificant gestures and feelings of love, whether acknowledged or not, are retold by Mathilde Fontanet with consummate artistry and restrained emotion. Ordinary they may be, but they leave an indelible impression on us.

Wednesday 21 October, 4.00 p.m.  
Library (Building 52 1-052)  
Tea and coffee will be served.

Tullio Bassaglia



# Official news

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

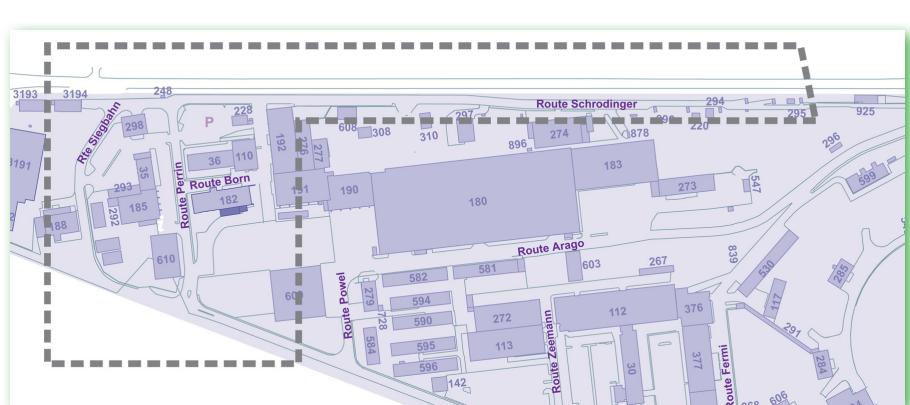
## REMINDER - EXTENSION/ SUPPRESSION OF ALLOWANCE FOR DEPENDENT CHILDREN AGED 20 to 25

Members of the personnel with dependent children aged 20 to 25 (or reaching 20 during the 2009/2010 school year), for whom a dependent child's allowance is currently paid, are invited to provide the Education Fees service with a:

### SCHOOL CERTIFICATE

Unless we receive, **by October 31, 2009 at the latest**, a school certificate or similar written proof (contract of work placement, sandwich course or apprenticeship) covering your child / children for the 2009/2010 school year, we will be obliged to stop payment of the dependent child's allowance as well as membership of the health insurance scheme at the appropriate date, retroactively if necessary.

*Education Fees service (33-1-017)  
HR Department - Tel. 72862*



## WORKS NOTICE

We would like to inform you that renovation work on the road lighting equipment will take place on the Meyrin site between 19 October and 18 December 2009.

During this period, traffic will be disrupted on the Schrödinger, Perrin and Siegbahn roads, ie from Building 274 to Building 188.

We request that you comply with the road signs and thank you for your understanding.

GS-SEM Group

## VACCINATION AGAINST SEASONAL INFLUENZA

As every year, the Medical Service is taking part in the campaign to promote vaccination against seasonal influenza.

Vaccination against seasonal influenza is especially recommended for **people suffering from chronic lung, cardio-vascular or kidney conditions or diabetes, for those recovering from a serious illness or surgical operation and for everyone over the age of 65**.

The influenza virus is transmitted by air and contact with contaminated surfaces, hence the importance of washing hands regularly with soap and / or disinfection using a hydro-alcoholic solution.

From the onset of symptoms (**fever > 38°, chills, cough, muscle aches and / or joint pain, fatigue**) you are strongly recommended to stay at home to avoid spreading the virus.

In the present context of the influenza A (H1N1) pandemic, it is important to dissociate these two illnesses and emphasise that the two viruses and the vaccines used to combat them are quite different and that protection against one will not provide protection against the other.

People working on the CERN site who wish to be vaccinated against seasonal flu may go to the CERN infirmary (Bldg 57, ground floor), bringing with them their dose of vaccine.

The Medical Service will make out a prescription on the day of the jab for the reimbursement claim through UNIQA.

The Medical Service will not administer vaccines to family members or pensioners, who should contact their usual doctor.

## CERN HOUSING SERVICE – NEW WEBSITE

You can now consult the new CERN Housing Service website which includes information relating to the CERN hostel booking rules, special negotiated rates for hotels in the local area, rental offers from the local private sector, etc.:

<https://espace.cern.ch/hostel-service/default.aspx>

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

GS-SEM Group  
Infrastructure and General Services Department



## Take note

### PREPARATION FOR RETIREMENT SEMINAR

The Human Resources Department is organizing a **preparation for retirement seminar**, which will take place on the afternoons of **11, 13, 25 and 27 November 2009**. Similar seminars in the past have always proved highly successful.

Retirement marks the end of a person's working life and the start of a new chapter. This period of transition is experienced differently from one individual to another. In all cases, being well informed and prepared greatly facilitates the change in lifestyle.

#### We would like to draw your attention to the following information:

**Staff concerned:** All staff members aged 58 and above have been sent a personal invitation to attend. Spouses are welcome.

Staff members under the age of 58 who are interested in attending the seminar may also apply. Their applications will be accepted subject to the availability of places.

**Registration:** In view of the number of people concerned and the limited capacity of the Main Auditorium, you are requested to register in advance via Indico at the following address:

<http://indico.cern.ch/conferenceDisplay.py?confId=50273>

You may register for all the sessions or only the subjects of interest to you.

One afternoon each will be devoted to retirement in the two Host States, Switzerland and France respectively. These two sessions are particularly designed for those:

- who are living in one of these countries, and
- who intend to take up residence there on retirement,
- who have worked and acquired pension rights there.

**Presentations:** The speakers will be experts from both within and outside the Organization. Each speaker will make a presentation, underlining the key points for future pensioners to note and/or take into account. They will then take questions. Most of the presentations will be in French. However, you are welcome to put your questions in English. Members of the CERN-ESO Pensioners Association (GACEPA) will attend each session and may possibly supplement the presenta-

tions with comments based on their own experience. The details of the (provisional) programme can be found at :

<http://indico.cern.ch/conferenceDisplay.py?confId=50273>

**Questions:** You may submit your questions **in advance** when you register via Indico. They will be transmitted to the speaker concerned to allow him to reply. Naturally, it will not be possible to discuss details of individual cases, for which the various internal and external services are available to you.

**Documentation:** The overhead presentations, the complete video recording and a summary of the question-and-answer sessions will be available on Indico at the same site as the programme.

Please also note that the brochure "When you leave CERN" is available on the Human Resources Department website at the following address:

<https://cern.ch/hr-services/int/doc/depart.pdf>

If you envisage retiring in the coming two or three years, I strongly encourage you to register for this seminar.

Anne-Sylvie Catherin  
Head of the Human Resources Department



## External meeting

### GENEVA UNIVERSITY

#### École de physique - Département de physique nucléaire et corposculaire

24, quai Ernest-Ansermet  
1211 GENÈVE 4  
Tél: (022) 379 62 73 - Fax: (022) 379 69 92

**Monday 2 November 2009**

COLLOQUIUM

at 17:00 – Stückelberg Auditorium

**Laser induced electron tunnel ionization : instantaneous or invalid concept?»**

Prof. Ursula Keller / Physics Department,  
ETH Zurich

It is typically assumed that electrons can escape from atoms through tunneling when exposed to strong laser fields, but the timing of the process has been controversial, and far too rapid to probe in detail. We have used attosecond angular streaking [1] to place an upper limit of 34 attoseconds and an intensity-averaged upper limit of 12 attoseconds on the tunneling delay time in strong field ionization of a helium atom in the non-adiabatic tunneling regime [2]. This is the fastest process that has ever been measured. To achieve this we exploit the exact timing of a close to circular polarized intense laser field in the two-cycle regime. Our experimental results give a strong indication that there is no real tunneling delay time, which is also confirmed with numerical simulations using the time-dependent Schrödinger equation. We hope that our results will shed some light on the ongoing theoretical discussion and stimulate additional discussions on strong field ionization and tunneling time. Tunneling theories are the standard approach to intense-field ionization and have successfully described high harmonic generation (HHG), quantum path interference in QPI and laser-induced electron tunneling and diffraction. On the other hand, as suggested by Reiss, tunneling may not be the appropriate picture to describe strong field ionization. In a velocity gauge treatment, no tunneling would be involved in the ionization process.

*A drink with the speaker will be offered at the end of the colloquium.*

*Organizer : Prof. Markus Büttiker*



## CERN TECHNICAL TRAINING: AVAILABLE PLACES IN FORTHCOMING COURSES

The following course sessions are scheduled in the framework of the 2009 CERN Technical Training Programme and places are still available. You can find the full updated Technical Training course programme in our web catalogue (<http://cta.cern.ch/cta2/f?p=110:9>).

### SOFTWARE AND SYSTEM TECHNOLOGIES

Business Objects Basic	5-Nov-09	6-Nov-09	2	French
C++ Part 1 - Hands-On Introduction	26-Oct-09	28-Oct-09	3	English
C++ Part 2: Object-Oriented and Generic Programming	3-Nov-09	6-Nov-09	4	English
CERN openlab Multi-threading and Parallelism Workshop	11-Nov-09	12-Nov-09	2	English
Developing secure software	07-DEC-09	07-DEC-09	0.5	English
Emacs - way beyond Text Editing	29-Oct-09	29-Oct-09	1	English
Intermediate Linux System Administration	19-Nov-09	24-Nov-09	4	English
JAVA - Level 2	16-Nov-09	19-Nov-09	4	English
JAVA 2 Enterprise Edition - Part 1: Web Applications	22-Oct-09	23-Oct-09	2	English
JCOP - Finite State Machines in the JCOP Framework	10-Nov-09	12-Nov-09	3	English
JCOP - Joint PVSS-JCOP Framework	23-Nov-09	27-Nov-09	4.5	English
Oracle Database SQL Tuning	07-DEC-09	09-DEC-09	3	English
Oracle Databases: Advanced PL/SQL Programming	2-Nov-09	4-Nov-09	3	English
PERL 5 - Advanced Aspects	10-DEC-09	10-DEC-09	1	English
Project Development using Python	01-DEC-09	04-DEC-09	4	English
Secure coding for Java	24-Nov-09	24-Nov-09	1	English
Secure coding for Perl	26-Nov-09	26-Nov-09	1	English
Secure coding for PHP	25-Nov-09	25-Nov-09	1	English
Secure coding for Python	26-Nov-09	26-Nov-09	1	English
Secure coding for Web Applications and Web Services	23-Nov-09	23-Nov-09	1	English
Web Applications with Oracle Application Express (APEX) 3.2	16-Nov-09	18-Nov-09	3	English

### ELECTRONIC DESIGN

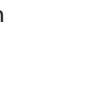
Advanced VHDL for FPGA Design	30-Nov-09	04-DEC-09	5	English
LabVIEW - Working efficiently with LabVIEW 8	5-Nov-09	5-Nov-09	1	English
LabVIEW Basic I with RADE introduction	30-Nov-09	02-DEC-09	3	English
LabVIEW Basics 2	03-DEC-09	04-DEC-09	2	English
LabVIEW FPGA cRIO	2-Nov-09	4-Nov-09	3	French
LabVIEW Intermediate 1	26-Oct-09	28-Oct-09	3	French
LabVIEW Intermediate II with RADE applications	29-Oct-09	30-Oct-09	2	French
Siemens - STEP7 : level 1	27-Oct-09	30-Oct-09	4	French

### MECHANICAL DESIGN

CATIA V5 -- Drafting Advanced	6-Nov-09	13-Nov-09	2	French
CATIA V5 – Surfacique 1	04-DEC-09	16-DEC-09	2	French
CATIA-Smartteam Base 2	25-Nov-09	11-DEC-09	7	French
CATIA-Smartteam Base1	4-Nov-09	19-Nov-09	6	French
SmarTeam - CATIA data manager at CERN	20-Oct-09	6-Nov-09	3	English
SmarTeam - CATIA data manager at CERN	10-Nov-09	26-Nov-09	3	French

### OFFICE SOFTWARE

A hands-on overview of EVO	9-Nov-09	9-Nov-09	0.5	English
CERN EDMS for Engineers	11-Nov-09	11-Nov-09	1	English
CERN EDMS for Local Administrators	25-Nov-09	26-Nov-09	2	English
Dreamweaver CS3 - Level 2	04-DEC-09	04-DEC-09	1	French
Dreamweaver CS3 - Niveau 1	26-Oct-09	27-Oct-09	2	French





# Technical training

Marie-Laure LECOQ 74924  
ENSEIGNEMENT TECHNIQUE  
TECHNICAL TRAINING  
[technical.training@cern.ch](mailto:technical.training@cern.ch)



EXCEL 2007 - Level 2: ECDL	16-Nov-09	17-Nov-09	2	French
EXCEL 2007 (Short Course I) - HowTo... Work with formulae	9-Nov-09	9-Nov-09	0.5	Bilingual
EXCEL 2007 (Short Course II) - HowTo... Format your worksheet for printing	9-Nov-09	9-Nov-09	0.5	Bilingual
EXCEL 2007 (Short Course III) - HowTo... Pivot tables	10-Nov-09	10-Nov-09	0.5	Bilingual
EXCEL 2007 (Short Course IV) - HowTo... Link cells, worksheets and workbooks	10-Nov-09	10-Nov-09	0.5	Bilingual
Indico - Conference Organization	20-Nov-09	20-Nov-09	0.5	English
Indico - Meeting Organization	20-Nov-09	20-Nov-09	0.5	English
Novelties Office 2007	27-Nov-09	27-Nov-09	1	Bilingual
Novelties Office 2007: POWERPOINT 2007	13-Nov-09	13-Nov-09	1	Bilingual
OUTLOOK 2007 (Short Course I) - E-mail	5-Nov-09	5-Nov-09	0.5	Bilingual
OUTLOOK 2007 (Short Course II) - Calendar, Tasks and Notes	5-Nov-09	5-Nov-09	0.5	Bilingual
OUTLOOK 2007 (Short Course III) - Meetings and Delegation	6-Nov-09	6-Nov-09	0.5	Bilingual
Project Planning with MS-Project	9-Nov-09	13-Nov-09	2	French
Sharepoint Designer (Frontpage) - Level 1	07-DEC-09	08-DEC-09	2	English
Sharepoint Designer (Frontpage) - Level 2	19-Oct-09	20-Oct-09	2	French
Videoconferencing and collaborative tools	9-Nov-09	9-Nov-09	0.5	French
WORD 2007 - level 2 : ECDL	19-Nov-09	20-Nov-09	0.5	French
WORD 2007 (Short Course II) - HowTo... Mail merge (with Outlook)	12-Nov-09	12-Nov-09	0.5	Bilingual
WORD 2007 (Short Course III) - Working with long document: styles and tables of contents	12-Nov-09	12-Nov-09	0.5	Bilingual

## SPECIAL COURSE

Egroups training	20-Oct-09	20-Oct-09	0.5	English
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If you are interested in attending any of the above course sessions, please talk to your supervisor and/or your DTO, and apply electronically via EDH from the course description pages that can be found at: <http://cta.cern.ch/cta2/f?p=110:9> under 'Technical Training' with the detailed course program. Registration for all courses is always open – sessions for the less-requested courses are organized on a demand-basis only. CERN Technical Training courses are open only to members of the CERN personnel (staff members and fellows; associates, students, users, project associates; apprentices: employees of CERN contractors, with some restrictions). In particular, quoted prices and programmes refer specifically to the CERN community.

Marie-Laure LECOQ 74924  
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[technical.training@cern.ch](mailto:technical.training@cern.ch)





# Seminars

## MONDAY 19 OCTOBER

### CERN HEAVY ION FORUM

10:30 - Bldg. 40-S2-D01

### Physics of high-multiplicity pp events

K. WERNER / SUBATECH

C. PAJARES / UNIV. SANTIAGO DE COMPOSTELA

### TH JOURNAL CLUB ON STRING THEORY

14:00 - Bldg. 1-1-025

**TBA**

A. URANGA / CERN

## TUESDAY 20 OCTOBER

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

### Quantum mirror symmetry, D-instantons and twistors

S. ALEXANDROV / UNIV. OF MARSEILLE

### CERN HEAVY ION FORUM

14:00 - Bldg. 40-S2-C01

### Heavy Quarkonium Production in proton proton collisions at RHIC and LHC

J.-P. LANSBERG / BNL

## WEDNESDAY 21 OCTOBER

### TH COSMO COFFEE

11:00 - Bldg. 1-1-025

### Extracting the three- and four-graviton vertices from binary pulsars and coalescing binaries

S. FOCCA / GENEVA UNIVERSITY

### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

### Gravity: an emergent perspective

T. PADMANABHAN / IUCAA

## THURSDAY 22 OCTOBER

### TH PHENCLUB

11:00 - Bldg. 1-1-025

### Devin Walker

D. WALKER

## FRIDAY 23 OCTOBER

### TH INFORMAL LATTICE MEETING

11:00 - TH Auditorium, Bldg. 4

### Orientifold planar equivalence: center symmetry and string states

A. PATELLA / SCHOOL OF PHYSICAL SCIENCES, SWANSEA UNIVERSITY

### PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

### QED theory of Quantum Hall and Josephson effects

A. PENIN / UNIVERSITY OF ALBERTA

### GENEVA UNIVERSITY SEMINARS

14:15 - AAuditoire Stueckelberg, Université de Genève

### Mechanical oscillations in the quantum regime

A. PENIN / UNIVERSITY OF ALBERTA

Y. BLANTER / KVALI INSTITUTE OF NANOSCIENCE, DELFT UNIVERSITY

## MONDAY 26 OCTOBER

### TH JOURNAL CLUB ON STRING THEORY

14:00 - Bldg. 1-1-025

**TBA**

J. CASALDERREY-SOLANA / CERN

### CERN COMPUTING COLLOQUIUM

14:00 - Main Auditorium, Bldg. 500

### The Citizen Cyberscience Lectures

M. IBRAHIM / CELTEL INTERNATIONAL, A. BINGHAM / INNOCENTIVE

## TUESDAY 27 OCTOBER

### CERN JOINT EP/PP SEMINARS

11:00 - Main Auditorium, Bldg. 500

### Determination of Vcb and Vub and the b-quark mass from inclusive B

K. TACKMANN

### TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

**TBA**

P. SUROWKA / WASHINGTON U. & JAGIELLONIAN U.

## WEDNESDAY 28 OCTOBER

### TH COSMO COFFEE

11:00 - Bldg. 1-1-025

### Reserved for Theory Meeting

### ACADEMIC TRAINING LECTURE

### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

### Mathematical Pricing and Risk of Financial Derivatives (1/3)

B. LYNN / PH DEPARTMENT

### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

**TBA** - CUMRUN VAFA / HARVARD UNIVERSITY

### COMPUTING SEMINAR

16:00 - IT Auditorium, Bldg. 31

### Science data processing in the Cloud: first experience in Gaia

P. PARSONS / THE SERVER LABS

## THURSDAY 29 OCTOBER

### TH BSM FORUM

14:00 - Bldg. 1-1-025

**TBA** - A. STRUMIA / PISA

### ACADEMIC TRAINING LECTURE

### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

### Mathematical Pricing and Risk of Financial Derivatives (2/3)

B. LYNN / PH DEPARTMENT

## FRIDAY 30 OCTOBER

### ACADEMIC TRAINING LECTURE

### REGULAR PROGRAMME

11:00 - Main Auditorium, Bldg. 500

### Mathematical Pricing and Risk of Financial Derivatives (3/3)

B. LYNN / PH DEPARTMENT

### PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - Bldg. 1-1-025

**TBA** - A. DJOUADI / UNIVERSITÉ PARIS XI - ORSAY