



## NEW EXPERIMENT TO GAIN UNPARALLELED INSIGHT INTO ANTIMATTER



CERN's AD Hall: the new home of the BASE double Penning trap set-up.

**At last week's Research Board meeting, the Baryon Antibaryon Symmetry Experiment (BASE) was approved for installation at CERN. The experiment will be diving into the search for matter-antimatter asymmetry, as it aims to take ultra-high precision measurements of the antiproton magnetic moment.**

The BASE collaboration will be setting up shop in the AD Hall this September with its first CERN-based experimental set-up. Using the novel double-Penning trap set-up developed at the University of Mainz, GSI Darmstadt and the Max Planck Institute for Nuclear Physics (Germany), the BASE team will be able to measure the antiproton magnetic moment with hitherto unreachable part-per-billion precision.

"We constructed the first double-Penning trap at our companion facility in Germany, and made the first ever direct observations of single spin flips of a single proton," explains Stefan Ulmer from RIKEN, Japan, the spokesperson

of the BASE collaboration. "We also recently demonstrated the first application of the double Penning trap technique with a single proton. This success means we are now ready to use the technique to measure the proton magnetic moment with ultra-high precision and to apply the technique to the antiproton."

But how does this new trap work? First, let's look at how the antiproton magnetic moment is derived. A direct measurement of the moment requires two different parameters: the Larmor frequency, which characterises the precession of the spin of a particle, and the cyclotron frequency, which describes a charged particle's behaviour under a magnetic field.



### TOGETHER IN THE SAME DIRECTION

**It's sometimes difficult to explain the nature of global collaboration in particle physics: how fierce competition coexists with collaboration, and how, whatever our differences, we all pull in the same direction. But this week gave us two strong examples.**

*(Continued on page 2)*

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*(Continued on page 2)*



# A word from the DG

## TOGETHER IN THE SAME DIRECTION

Firstly, on Wednesday, the **Technical Design Report (TDR) for the International Linear Collider (ILC)** was officially delivered to the International Committee for Future Accelerators, ICFA, the global body that oversees the development of major projects in particle physics.

This event marks the culmination of years of effort through close global collaboration between labs around the world. It has seen tough collective decisions being taken between competing technologies, with all participating labs lining up behind the chosen option. And on Wednesday this week, it saw the linear collider community choosing CERN as one of the three venues for the official handover, despite the fact that CERN was not one of the original core labs developing ILC technology. What better example could you wish for to illustrate the fact that particle physics is one global family?

Of course, the TDR is just a step, albeit an important one, on the road to this possible future machine. What it means is that the ILC is ready to be built, if the physics motivation is there along with the political will. Thanks to the great performance of the LHC, there is now a strong physics case. And in Japan, there have been encouraging noises from both scientific and political circles about hosting the ILC. So, for now, we will have to wait and see. Whatever the case, it will be well into the next decade before an ILC could start to take data. And wherever such a machine might be built, it is certain that it will be built through the same kind of global partnership that led to the delivery of the TDR this week.

This week's other milestone came on Thursday, when the extension of CERN's data centre was inaugurated at the Wigner Centre in Budapest. Not only does this show that a major computer centre for particle physics can

literally be in two places at once, but it serves as a reminder of how particle physics deals with its data analysis. The CERN data centre is the hub of the Worldwide LHC Computing Grid (WLCG), whereby over 150 computer centres around the world have pooled their resources for the common good. WLCG is the physical embodiment, in disk servers, optical fibres and CPUs, of the guiding spirit of particle physics. And the ILC TDR is evidence in black and white that great things can be achieved when the people of the world work together.

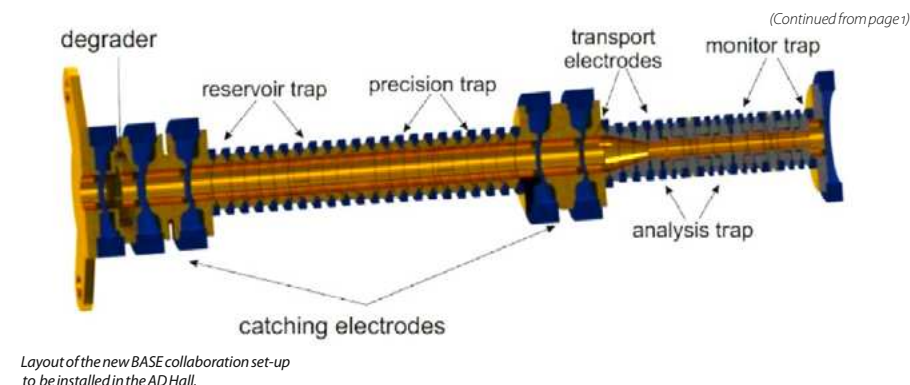
Rolf Heuer

(Continued from page 1)

## NEW EXPERIMENT TO GAIN UNPARALLELED INSIGHT INTO ANTIMATTER

A strong, homogenous magnet is therefore central to any Penning trap. "Spin flips are observed by coupling the magnetic moment of the particle to the measurable axial frequency, using a magnetic inhomogeneity," explains Stefan. "As the magnetic moment of the antiproton is so small, a field inhomogeneity of some 300,000 T/m<sup>2</sup> is required. However, the intense magnetic field reduces the precision of any frequency measurements."

The solution? Divide and conquer. BASE's double Penning trap separates the measurements of the Larmor and the cyclotron frequency from the spin state analysis. Two traps are used for the measurements: the analysis trap, which will check the spin of the particle, and the precision trap, which will flip the spin of the particle while measuring the cyclotron frequency. In the precision trap, the magnetic field is about 100,000 times more homogeneous than in the analysis one. Thus, this separation dramatically improves the accuracy of the frequency measurements and increases the precision of the magnetic moment.



Layout of the new BASE collaboration set-up to be installed in the AD Hall.

In addition to these two traps, the experimental set-up will have two further traps. The monitor trap will check for any variance in the magnetic field caused by external sources, allowing the BASE team to make instant adjustments to the core traps while measurements are under way.

The final trap, the reservoir trap, does exactly what it says on the tin. This trap will store antiprotons for months on end, allowing the BASE collaboration to continue operating even without beam. "As BASE is such a sensitive experiment, it may be affected by magnetic field fluctuations from the AD," says Stefan. "If that is the case, the reservoir trap will allow us to work when the accelerator is offline."

This September, the BASE team will begin installing its experiment in the AD Hall. By November, the team plans to be taking new measurements of the proton magnetic moment using an offline source. "It's an exciting time not only for our collaboration, but also for antimatter physics," concludes Stefan. "As our measurements of antimatter properties grow ever more precise, so too does our understanding of the nature of all matter."

Katarina Anthony

# FROM CERN TO SPACE AND BACK

**At the end of May, 40 years after he worked as a fellow on the Intersecting Storage Rings (ISR), former astronaut Ernst Messerschmid gave a colloquium at CERN. His experience in the Laboratory's international environment was an important factor in the process that led to his becoming one of the first Germans in space.**

Ernst Messerschmid first arrived at CERN as a summer student in 1970, just as preparations were being made for the start-up of the ISR, and he soon returned as a fellow. His diploma thesis and PhD thesis were both based on his work at the ISR. All seemed set for a career in accelerator physics, but in 1977, while deciding on his future, Ernst spotted an advert in the newspaper *Die Zeit*: "Astronauts wanted". "There were five boxes that needed to be ticked," he recalls. "Scientific training, good health, psychological stability, language skills and experience in an international environment. Thanks to my time at CERN I was able to tick them all."

Out of some 7,000 applicants in ESA's first astronaut selection campaign, he was among five in Germany of whom three were later chosen for training and for spaceflight missions. In 1978 he went to work at the German Aerospace Test and Research Institute for Aviation and Space Flight (DFVLR). He finally went into space in 1985, as a payload specialist on the first German Spacelab mission, D1, on board the space shuttle *Challenger*.

Ernst and his colleagues performed more than 70 experiments, which were the first

series, he says, to take full advantage of the "weightless" conditions. They covered a range of topics in physical, engineering and life science disciplines. It was the experiments – rather than the launch and the distance from the Earth – that proved the most stressful. "There were 100 or so professors and some 200 students relying on the data we were collecting," Ernst explains. "We worked 15 to 18 hours a day. There was not much time to look out of the window!"



Ernst Messerschmid in the Spacelab module. Credit: DLR (CC-BY 3.0).

After his space flight, Ernst moved to the University of Stuttgart and went on to become head of the European Astronaut Centre in Cologne from 2000 to 2004. There he was involved in training Christer Fuglesang, another CERN fellow who became an astronaut and has since flown twice on board a space shuttle to the International Space Station.

Ernst continues to teach astronautics and, as in the colloquium at CERN, to spread the word about the value of space flights for knowledge and innovation. "We fly on a mission," he says, "and afterwards, as professors, we become 'missionaries' - ambassadors for science and innovation."

To watch Ernst Messerschmid's colloquium at CERN go to <http://cern.ch/go/sj9k>

Christine Sutton

## FLAMENCO GUITARIST PACO PEÑA TOURS CERN

**CERN continues to attract a wide variety of visitors. On 5 June, it was the turn of renowned flamenco guitarist Paco Peña. With a broad interest in science, Peña was here to celebrate his 60<sup>th</sup> birthday, accompanied by friends David Ashton and Chrissie Twigg, and his wife Karin.**

Paco Peña's most famous compositions include *Misa Flamenca*, a *Flamenco Mass*, and *Requiem for the Earth*. In 1997, he was named *Oficial de la Cruz de la Orden del Mérito Civil* by King Juan Carlos of Spain.

"This is truly amazing!" said Peña after seeing the ATLAS detector. His wife confessed that she had never seen him take so many

pictures. The group asked numerous questions during their visit. It is not always easy to impress world travellers, but the ATLAS detector did the trick.

Pauline Gagnon



Paco Peña during his visit to ATLAS.



# AIDA: CONCERTED CALORIMETER DEVELOPMENT

AIDA – the EU-funded project bringing together more than 80 institutes worldwide – aims at developing new detector solutions for future accelerators. Among the highlights reported at AIDA's recent annual meeting in Frascati was the completion of an impressive calorimeter test beam programme, conducted by the CALICE collaboration over the past two years at CERN's PS and SPS beam lines.



The CALICE tungsten calorimeter prototype under test at CERN. This cubic-metre hadron calorimeter prototype has almost 500,000 individually read-out electronics channels – more than all the calorimeters of ATLAS and CMS put together.

Calorimeter development in AIDA is mainly motivated by experiments at possible future electron-positron colliders, namely ILC or CLIC. The physics requirements of such future machines demand extremely high-performance calorimetry. This is best achieved using a finely segmented system that reconstructs events using the so-called particle-flow approach, which allows precise jet energy reconstruction. This technique thrives with an optimal combination of tracking and calorimeter information and has already been successfully applied in the CMS detector. Reconstructing each particle individually requires very fine cell granularity in three dimensions and has spurred the development of novel detection technologies, such as silicon photo-multipliers (SiPMs) mounted on small scintillator tiles or strips, gaseous detectors (micro-mesh or resistive plate chambers) with two-dimensional readout segmentation, and large-area silicon pad arrays.

\*ASIC: Application Specific Integrated Circuits.

The AIDA project addresses two main topics: how to tackle the integration challenge that comes with the enormous channel density, and the validation of hadronic shower and detector simulations based on the Geant4 tools with test beam data. It supports, for example, the development of a family of highly integrated mixed-circuit ASICs\*, with front-ends adapted to the technologies above but with common back-ends and interfaces. These "systems on chip" include signal processing, self-triggering, digitisation and read-out sequencing. Thanks to power cycling, they can be integrated into the detector without extra cooling. AIDA also offers a versatile absorber structure made of tungsten. This very dense material is favoured for ultra-compact electromagnetic calorimeter designs and is currently being considered for a hadronic calorimeter at CLIC.

With this building-block approach, various combinations of gaseous or scintillator-SiPM-

based read-out technologies have been tested in steel and tungsten absorber structures over a wide range of beam energies, from 2 to 350 GeV. Some of the very detailed results have already been presented at conferences, and were eagerly absorbed by the Geant4 model builders to test and refine their predictions to match the needs of almost any high-energy experiment. The test-beam campaigns - which included a successful test of the power cycling - also provided important technical feedback and demonstrated how the new technologies perform when larger structures are implemented (see photo).

Felix Sefkow

# PENSION FUND AWARD

The CERN Pension Fund won the Investments & Pensions Europe (IPE) 2013 Gold Award in the Medium Real-Estate Investor category. IPE is the leading European publication on the subject of pensions. The awards were judged by a panel of 22 members, which included leading European investment consultants and pension fund executives.

The award recognised the "fresh thinking" behind the CERN Pension Fund's updated real-estate strategy, which has brought it "focus" on "high-quality assets and diversification." The jury also noted the Fund's "streamlined and cost-efficient" management, and noted that CERN is "running a tight ship".

While the awards are given by a European institution, they have a worldwide scope, and winners in other categories included the pension plans of the government of Canada, the Ontario Healthcare System, and the Pennsylvania School System.

Antonella Del Rosso



Théodore Economou (left), the CERN Pension Fund's Chief Executive Officer, receives the IPE 2013 Gold Award.

# FINALLY, A CRÈCHE AT CERN!

After many years of discussion, the CERN Staff Association's first crèche will open its doors in September to welcome up to 20 babies and toddlers.



A delicate operation: the installation of 11 modules above the Nursery's School canteen. Image: Sigrid Knoops.

The CERN Staff Association's Nursery School, which will soon turn 50, is pleased to announce the establishment of CERN's first crèche. This project, which has come to fruition over the past academic year with the support of the CERN Management, meets an established and growing need among the Laboratory's personnel and users.

As a modular construction, the Nursery School's new second floor was assembled above the existing canteen in a matter of days. Its 11 modules are ultra-modern – they're even equipped with underfloor heating. "Thanks to this extension, we will be able to accept around twenty babies at the start of the academic year," said Sigrid Knoops, a staff delegate and member of the Nursery School Steering Committee. "We can admit them as soon as the mother's maternity leave ends and they will be able to remain at the crèche until they are two years old. Then from two to four years of age, the children will go to the kindergarten, and finally, at the age of four, they will enrol in CERN's pre-school, where they will stay until the age of six."

"In total, we will have places for 160 children," said Philippe Trilhe, a staff delegate and President of the Nursery School Steering Committee. "To guarantee that the new facility is run to a high standard, we are planning to hire four new members of staff, taking our team to a total of 39 employees." Offering a room for preparing baby formula, a breastfeeding corner and all the equipment needed to ensure the well-being of even the youngest infants, CERN's new crèche will be open from Mondays to Fridays, from 8.00 a.m. to 6.00 p.m. Like the kindergarten and the pre-school, its holiday closures will follow Geneva's academic calendar.

The crèche still has some places available! For more information, click [here](#), email [staff.kindergarten@cern.ch](mailto:staff.kindergarten@cern.ch) or call (+41 22 76) 73604

Anais Schaeffer



# CONTENT, CLARITY AND CHARISMA

The winning recipe of FameLab is all in the three Cs that are written on the evaluation chart of the judges. If you are a young researcher and dream of communicating your science to the public in a TV-like setting, challenge yourself with the FameLab golden rules and give an amazing three-minute speech at the next FameLab competition in any of the participating countries.

Last week, the Cheltenham Science Festival hosted the 2013 FameLab final. Participants from 19 countries – the winners of the national heats – gave amazing speeches in front of a large live audience and an even greater online audience following the webcast. And the winner was... Fergus McAuliffe from Ireland!

Fergus' research focuses on the use of willow trees for sustainable wastewater treatment. His fellow contestants were all university and PhD students involved in a variety of scientific fields, from medicine to particle physics and microbiology. Besides their degrees, these young scientists had another thing in common: their passion for communicating science.

Since its birth in 2005, FameLab has grown into one of the world's leading science communication competitions and more than 5000 young scientists and engineers have already taken part. This year's international final brought together the winners from Austria, Bulgaria, Croatia, Cyprus, the Czech Republic, Egypt, Germany, Greece, Hong Kong, Italy, Lithuania, Malta, Poland, Portugal, Romania, Serbia, Spain, Switzerland and the UK. According to the FameLab rules, each contestant had three minutes to present a science, technology, mathematics or engineering-based talk using only the props he or she could carry onto the stage: PowerPoint presentations are not permitted. The contestants were judged by a panel of three judges who evaluated the content, clarity and charisma of their talks.



Fergus McAuliffe during the 2013 FameLab final.

What's unique about FameLab is the fact that content is indeed an important aspect of the performance. At the end of their presentation, contestants are often questioned about the scientific relevance of their talk and about their personal contribution to the research involved. In other words, FameLab is not yet another talent show. Its magic formula truly helps actual scientists reveal their communication skills. The result is an amazing collection of speeches that are inspiring, educational and accurate despite their brevity.

"What are you going to do, Fergus, after winning the 2013 edition of FameLab International?" – asked Quentin Cooper, the presenter of BBC Radio 4's weekly show "The Material World", who was the compere at the final. "I will need to finish my PhD", replied the winner. That's the beauty of FameLab...

Find your national FameLab competition on [famelab.org](http://famelab.org).

CERN participated as a heat venue for FameLab Switzerland in 2012 and 2013. If you wish to receive more information on next year's competition in Switzerland, write to [info@famelab.ch](mailto:info@famelab.ch).

Antonella Del Rosso

# TWO NEW "CERNLAND EXPERT" LAUREATES

Two classes (46 ten-year-old pupils) from the Primary School of Binago (Como, Italy) participated in the project of the master's thesis by Valentina Rigamonti, a student from the University of Milan. The project was about CERNland, CERN's website for kids. "CERNland Expert" diplomas and DVDs of the website were the must-have prizes of this original competition. Valentina tells us more about her work.

My thesis project, carried out in collaboration with CERN's Communication group, was designed to study the impact of communicating science to children using CERNland educational games.

Over the course of three meetings the enthusiastic pupils had the opportunity to play with CERNland and participate in various activities to learn first-hand what a scientist is and how science works.

At the first meeting, kids drew a scientist, alone or in his/her working environment. After that, the children were invited to play with CERNland and to follow a short presentation about CERN and its experiments. The children were subsequently asked to do a second drawing and to give explanations and details about their work.

In this way, I was able to gather 87 colourful drawings! Some were more imaginative and others more realistic. Each of them portrays a very interesting image of the scientist. Very importantly, while playing with CERNland, the children showed their enthusiasm for the games as well as giving some constructive feedback, which has already been used by the CERNland team to improve the website navigation.

In order to thank the children and the school, a small competition was organised: the children were able to see all the drawings of their contemporaries and voted for the two best drawings (each class was only able to vote for a drawing done by another class). The winners of the "CERNland drawing competition" are: Aminta Invitto (4<sup>a</sup>A) and Zoe Uboldi (4<sup>a</sup>B).

The two proud winners received a "CERNland Expert" diploma especially designed for them. All the children received a copy of the CERNland DVD with the new navigation system and even a new game as a gift!

I would like to thank all of them for participating in my project with such great enthusiasm and commitment.

Valentina Rigamonti

The CERN Communication Group joins Valentina Rigamonti in thanking the pupils and the school for their collaboration in the project.



Winners of the "CERNland drawing competition": Zoe Uboldi (left) and Aminta Invitto.

PRISON OR “PRISM”?  
YOUR DATA IN CUSTODY

“Send your data into the cloud and make it... vaporize” was the title of one of our Bulletin articles in 2011. We were not precise enough. We should have entitled it “Send your data into the cloud and make it... available to a national security agency”.

What has long been feared has just been confirmed by whistle blower Edward Snowden: with ties into Microsoft, Google, Facebook, Apple, Skype, AOL and Yahoo, the NSA (U.S. National Security Agency) “Prism” surveillance programme has been monitoring e-mails, chats, videos, photos, stored or transmitted data and video conferences primarily made by foreigners using those services. So our data is trapped there now... and analysed.

But it is not only trapped with the NSA. If you’ve synchronized your files, music and photos with Apple’s iCloud, Microsoft’s SkyDrive, or with Dropbox; received phone calls or messages via Skype\*; managed your e-mails with Gmail or Hotmail; or installed third-party apps on your smart phone; be assured that your data has already been analysed. This is the primary business model of Google, Facebook or Dropbox: they take apart your private data in order to profile you and your interests, identify your consumer preferences, and strip your digital being into a statistical pattern of zeros and ones. *Scientia potentia est* (“knowledge is power”) – but only for those companies.

So let us encourage you once more to review the implications of using cloud services for work purposes and in your private life. Data privacy is our own responsibility – particularly when dealing with data in the possession of the Organization. Make sure that you do not leak sensitive documents or personal files to those services. This includes data provided to convenience applications such as URL-shortening services (i.e. [TinyURL.com](#)) or online questionnaire tools (i.e. [SurveyMonkey](#)). Avoid installing programs on your PC that synchronize with cloud storage (like the “Dropbox” plugin), and do not use peer-to-

peer applications that export the contents of certain local folders onto the Internet. “Don’t let your mail leak”, especially when automatically forwarding e-mails from your CERN address to an external mail provider like Hotmail or Gmail.

Instead, remember that CERN provides similar services too (admittedly, not always with the same level of convenience, but therefore much better controlled). Your CERN mailbox is also available from the Internet, as are your files stored on DFS or AFS. [CERN GO](#) and Sharepoint services provide URL-shortening tools and tools to create questionnaires, respectively. Remote log-in is possible through the LXPLUS cluster or the CERN Windows terminal service. So why not use a service you can trust and which complies with CERN’s rules (such as the [CERN Security Baselines](#) and the upcoming [CERN Data Protection Policy](#))?

Finally, be aware that browsing the Internet is not an anonymous activity. Depending on which browser you use, it already exposes lots of information: the local language, time zone, screen size, installed plugins, available system fonts, etc. As these settings can vary significantly, it means that the probability of you and I having exactly the same settings is very low. Ergo, this information can be used to pinpoint your browser and uniquely identify you when browsing the web... If you don’t believe it, check out [PanoptiClick](#) and note that some browser plug-ins (i.e. “[Stealthier](#)”) or security settings (i.e. “In Private” browsing) might change the odds in your favour. Also note that, if you are logged in with your Google or Facebook account, they can profile your activity even outside their domains. This is mainly due to the wide use of Google Ads/Analytics and Facebook’s “Like”-button: the embedded code directly feeds back into

your Google and Facebook profile... For a bit more privacy here, log out whenever you don’t need to be logged in and consider installing something like the “[Ghostery](#)” plug-in in your browser.

For further information, please contact the Computer Security Team ([computersecurityteam@cern.ch](mailto:computersecurityteam@cern.ch)) or check our website. ([cern.ch/computer.security](http://cern.ch/computer.security))

*\*Microsoft, the new owner of Skype, was recently caught when users “sending HTTPS URLs over the instant messaging service, those URLs receive an unannounced visit from Microsoft HQ in Redmond”. Microsoft claimed that this is to filter out spam and phishing websites, but this argument has not convinced security experts.*

Computer Security Team



Next Indefinite Contract review exercise

Dear Colleagues,

We are pleased to inform you that the 2013 LD2IC exercise (selection process for the conversion of limited-duration contracts to indefinite contracts) was officially launched last week.

The vacancy notices for posts opened with a view to the award of **indefinite contracts** will be published on 9 August 2013 for a period of four weeks (**until 8 September 2013**).

The CERN Contract Review Boards (candidate interviews) will be held between the end of September and mid-November.

The LD to IC procedure, Frequently Asked Questions and a calendar for the exercise are now available in the Admin e-guide.

In addition, general information sessions on the procedure will be organised for candidates on the following dates:

DATE	TIME
TUESDAY 23 July	14 : 00 - 15 : 00
TUESDAY 13 August	14 : 00 - 15 : 00
TUESDAY 15 August	14 : 00 - 15 : 00
TUESDAY 20 August	14 : 00 - 15 : 00
THURSDAY 29 August	14 : 00 - 15 : 00
TUESDAY 3 September (if necessary)	14 : 00 - 15 : 00

Information on the location of these sessions will be provided in due course on the CERN announcements page.

HR Department



MONDAY 24 JUNE

**TBA**  
by Charles M. Melby-Thompson (Kavli IPMU, Japan)  
**from 14:00 to 15:00**  
at CERN (4-2-011 - TH common room)

TUESDAY 25 JUNE

**INDUCTION PROGRAMME - 2nd Part - UNDER PREPARATION**  
**From 08:30 to 18:00**  
at CERN (80-1-001 - Globe 1st floor)

**Searches for lepton flavour violation at LHCb**  
by Fatima Soomro (Istituto Nazionale Fisica Nucleare (IT))  
**From 11:00 to 12:00**  
at CERN (503-1-001 - Council Chamber)

**ATLAS pixel detector and radiation damage**  
by Tayfun Ince (Max-Planck-Institut fuer Physik (Werner-Heisenberg-Institut) (D))  
**From 21:00 to 23:59**  
at TR

WEDNESDAY 26 JUNE

**Random models of inflation from 14:00 to 15:00**  
at CERN (4-3-006 - TH Conference Room)  
by Prof. Andrew Liddle (Royal Observatory Edinburgh)

THURSDAY 27 JUNE

**15eme Forum Utilisateurs CATIA au CERN from 09:00 to 18:00** at CERN (30-7-018 - Kjell Johnsen Auditorium)

**ZeroMQ: Messaging Made Simple**  
by Pieter Hintjens (iMatix)  
**from 10:30 to 11:30** at CERN (503-1-001 - Council Chamber)

TUESDAY 02 JULY

**Next Hupp Meeting from 21:00 to 23:59** at TR

WEDNESDAY 03 JULY

**Welcome Presentation Introduction + CERN computing services and security + Workshop presentation**  
by Dr. Hoecker A. (CERN), Dr. Lueders, S. (CERN), Mr. Schwemmer R. (CERN)  
**from 09:00 to 10:00**

**Particle World (1/2)**  
by Dr. Shears, Tara (University of Liverpool)  
**from 10:15 to 11:00**  
at CERN (500-1-001 - Main Auditorium)

**Particle World (2/2)**  
by Dr. Shears, Tara (University of Liverpool)  
**from 11:15 to 12:00**  
at CERN (500-1-001 - Main Auditorium)

**Library Introduction**  
by Mr. Basaglia, Tullio  
**from 12:00 to 12:30**  
at CERN (500-1-001 - Main Auditorium)

**Welcome Drink from 17:00 to 19:00**  
at CERN (Restaurant 1)



## ICAN SYMPOSIUM | CAN THE FUTURE OF ACCELERATORS BE FIBERS? | 27-28 JUNE

The International Coherent Amplification Network (ICAN) will be holding a symposium on new fiber-based accelerator concepts at CERN, from 27 to 28 June 2013.

Concluding its EU-supported feasibility study, the ICAN Consortium reported on a revolutionary laser architecture that could for the first time accelerate particles to very high energy, at high repetition rate with good wall-plug efficiency. To highlight this new possibility - and illustrating the vitality and leadership of European science, the École Polytechnique (France), the Optoelectronics Research Centre (UK), the University of Jena (Germany) and CERN are organising an ICAN symposium where details of this novel laser architecture will be presented. The ICAN symposium will be held at CERN from 27 to 28 June in the presence of colleagues from institutes and industry to discuss the status of the research and prepare the groundwork for a HORIZON 2020 proposal.

## CERN'S TRAINING CENTRE IS GETTING BIGGER

In response to a joint request from the HSE Unit and the GS-FB Group and to accommodate the increase in the number of training courses on offer at CERN (due in no small part to LS1), the Prévessin training centre is currently being extended.

Notable features of the extension include two new teaching rooms and, most importantly, three containers that will accurately replicate the conditions encountered in the LHC tunnel and will be used for part of the "Self-Rescue Masks" training course to simulate various accident scenarios such as a helium leak.

While this new "tunnel" is expected to be operational by the summer, the centre's new premises for the reconditioning of respiratory equipment used in the "Self-Rescue Masks" course are already operational. The training centre, which has also already been offering fire extinguisher training for a year, will be one of the attractions that members of the public

will be able to visit during the Open Days this September, with stands hosted by several of CERN's departments and groups (GS, HSE, etc.).



Image: Christoph Balte.

The catalogue of training courses itself will gradually be supplemented. For example, over the coming year, sessions on topics such as "Confined Spaces", "Working at Height" or "Checking Personal Protective Equipment" will be introduced. Please note that, while most of the training courses are given in French and/or English, courses in other languages including Italian, Spanish

HSE Unit

## MOVE! EAT BETTER: TRY OUT A Pedometer!

Looking for your next challenge after a successful leg in the CERN relay race? Want to get started on a new fitness regime? Hesitating to take the plunge or just a bit curious?



...and for those who already do a lot of exercise, think of your neurones:

### Physical activity is good for your brain!

It has been shown that physical activity has positive effects on mental health and cognitive function through:

- the secretion of endorphins, which have an exhilarating, relaxing and analgesic effect,
- the combination of serotonin and dopamine, which improves the balance of your mood,
- an increase in protein concentration, which improves the malleability of the brain, with positive effects for certain illnesses, such as Alzheimer's disease,
- from a psychological point of view: improved confidence and self-esteem.

The list of the benefits of physical activity is long, and keeps getting longer as more research is carried out... [see [the article](#) in CHIS Bull 37].

### The recipe for success?

Every step counts! And it's probably easier than a 30-minute workout at the gym. Recording the number of steps you take can become an incentive to move more and it gives you a good idea of whether you're doing enough exercise to stay fit, or not...

CERN Medical Service

## ENTRANCE C - MEYRIN SITE: NEW ACCESS CONDITIONS

Entrance C on the Meyrin site, which drivers of motorised vehicles can use Mondays to Fridays from 7 a.m. to 9 a.m. and from 5 p.m. to 7 p.m., has been altered to include a turnstile to allow cyclists and pedestrians to use their access card to get in and out of the site from 6 a.m. until 10 p.m.

A new type of entrance gate fitted with a number plate reader similar to that installed at the entrance to the Prévessin site should, once fully tested, allow drivers of motorised vehicles to access the site.

For the time being, the conditions of use of Entrance C remain unchanged. Further information on the entry into force of new arrangements will be issued in due course.

GS Department

## SAFETY ALERT: ELECTRICAL INSULATION DEFECT ON SAFETY HELMETS

Contrarily to the information provided until 31 May 2013, some "Euro Protection" safety helmets do not respect any of the requirements for electrical insulation..

This alert concerns the safety helmets identified under the following SCEM numbers:

- 50.43.30.050.4 white
- 50.43.30.060.2 yellow
- 50.43.30.070.0 blue

This amounts up to several hundreds of helmets on the CERN site.

People who need to wear an electrically insulated safety helmet for their activities, must from now on acquire a duly insulated item to be found on the CERN store under the following SCEM numbers:

- 50.43.30.210.6: Petzl Vertex ST Helmet (without vent)
- 50.43.30.300.1: IDRA Helmet with a visor for electrical work

As for the people who do not need to wear an electrically insulated helmet for their activities, they can continue working with the aforementioned helmets.

For your information, please take note of the maximum use limit of each helmet:

- "Euro Protection" Safety Helmets (SCEM number: 50.43.30.050.4/50.43.30.060.2/50.43.30.070.0): 5 years
- Petzl Vertex ST Helmets (without vent) (SCEM number: 50.43.30.210): 10 years
- IDRA Helmets (SCEM number: 50.43.30.300.1): 4 years

HSE Unit

## BETWEEN 3 JUNE AND 3 AUGUST, LIMIT YOUR ELECTRICITY CONSUMPTION

CERN is normally supplied by the French 400 kV RTE/EDF network and has a reduced-power backup supply from the Swiss 130 kV ALPIQ/SIG network.

During LS1, from 3 June to 3 August 2013, the EN-EL Electrical Engineering Group will be carrying out maintenance and consolidation work on CERN's 400 kV and 66 kV substations.

On 3 June 2013, CERN's power supply will be transferred with no interruption to the Swiss 130 kV network. The power available will technically be limited to 50 MW, a threshold which is compatible with the current level of consumption given that the warming up of the LHC's cryogenic installations is now complete.

During this critical two-month period, CERN's electricity consumption will be closely monitored by operators in the CERN Control Centre (CCC) and must be kept below 50 MW. To avoid any risk of overloading or load-shedding, the Electrical Engineering Group are asking all users to limit their consumption during this period.

Thank you for your cooperation,

EN-EL Electrical Engineering Group

## DIVERSITY IN ACTION | INTERACTIVE WORKSHOP | 4 JULY

Come and take part in an interactive workshop organised by the CERN Diversity Programme designed to creatively explore the meaning of diversity and share your experience of working with differences at CERN.

Thursday 4 July 2013 – 1.30 p.m. - 5.30 p.m.  
Pump Hall - Building 216-R-401

"Diversity in Action" is an interactive half-day workshop designed to creatively explore the meaning and importance of diversity at CERN, in support of the Organization's value of "appreciating differences, fostering equality and promoting collaboration". Using participative multi-media methods, this innovative workshop will provide participants with insights into diversity, help them to develop greater sensitivity to differences, explore ways to recognise and overcome biases and thereby strengthen our tradition of inclusiveness at CERN.

Alan Richter, Ph. D., is the president of QED Consulting, a 25-year-old company based in New York. He has consulted to organisations for many years in multiple capacities, primarily in the areas of leadership, values, culture and change. He has worked closely with many



# Training & Development

## NEW COURSE: “LYNC – CLICK TO CALL AND COLLABORATE WITH OTHERS”

The presentation will cover the main features of Lync: initiating and receiving phone calls from Lync, chatting (Instant Message), how to stay connected as you were in your office, creating and participating in online meetings, sharing presentations/desktops with other people, using the voice mailbox on Exchange, integration with Outlook, CERN Phone book, phone system etc.

General information about Lync can be found on <http://cern.ch/lync>  
Softphone features of Lync are detailed on <http://cern.ch/softphone>

Please register through the Training Catalogue.

*Lync service and Technical Training*

## SUMMER FRENCH COURSES FOR BEGINNERS (15 JULY TO 3 SEPTEMBER 2013)

We are now offering a French course for beginners.

If you are interested in following this course, please enrol through this link or contact Kerstin Fuhrmeister: Tel. 70896.

## SUMMER ORAL EXPRESSION ENGLISH COURSE

An English Oral Expression course will take place this summer at some time between August 19 and October 4.

Schedule: to be determined (2 sessions of 2 hours per week).

Please note that this course is for learners who have a good knowledge of English (CERN level 7 upwards).  
Please be sure to indicate your planned absences in the comments field so we can schedule the course.  
If you need more information please send a message to [English.training@cern.ch](mailto:English.training@cern.ch).

## AFETY TRAINING: PLACES AVAILABLE IN JUNE 2013

There are places available in the forthcoming Safety courses. For updates and registrations, please refer to the Safety Training Catalogue.

June 2013 (alphabetical order)

**First Aiders - Basic Course**  
13-JUN-13, 8.15 – 17.30, in English

**First Aiders - Refresher Course**  
06-JUN-13, 8.15 – 12.30, in French  
06-JUN-13, 13.15 – 17.30, in French

**Habilitation ATEX niveau 1 (Habilitation ATEX level 1)**  
28-JUN-13, 9.00 – 17.30, in French

**Habilitation électrique personnel électricien basse et haute tensions (habilitation électrique for electricians in low and high voltage)**  
10-JUN-13 to 13-JUN-13, 9.00 – 17.30, in English

**Habilitation électrique personnel non électricien (habilitation électrique for non electricians)**  
03-JUN-13 (afternoon) to 04-JUN-13 (full day), 9.00 – 17.30, in English

**Laser Experts**  
03-JUN-13 to 04-JUN-13, 9.00 – 17.30, in English

**Laser Users**  
28-JUN-13, 9.00 – 12.30, in English

**Noise - Understanding the risks**  
14-JUN-13, 10.00 – 12.30, in French

**Radiological Protection - Controlled Radiation Area - Course A for CERN employees and CERN associates**  
06-JUN-13, 8.30 – 17.00, in French  
13-JUN-13, 8.30 – 17.00, in English  
14-JUN-13, 8.30 – 17.00, in English  
17-JUN-13, 8.30 – 17.00, in French  
27-JUN-13, 8.30 – 17.00, in English  
28-JUN-13, 8.30 – 17.00, in English

**Recyclage – Chariots élévateurs (refresher course for driving of forklifts)**  
28-JUN-13, 8.30 – 17.30, in French, with handouts in English

**Recyclage – Conduite de plates-formes élévatrices mobiles de personnel (PEMP) (refresher course for driving of cherry-pickers)**  
06-JUN-13, 8.30 – 17.30, in French, with handouts in English  
27-JUN-13, 8.30 – 17.30, in French, with handouts in English

**Recyclage - Habilitation électrique personnel électricien basse tension (refresher course for habilitation électrique for electricians in low voltage)**  
06-JUN-13 (afternoon) to 07-JUN-13 (full day), 9.00 – 17.30, in English

**Recyclage - Habilitation électrique personnel électricien basse et haute tensions (refresher course for habilitation électrique for electricians in low and high voltage)**  
17-JUN-13 to 18-JUN-13, 9.00 – 17.30, in French

**Recyclage - Habilitation électrique personnel non électricien tension (refresher course for habilitation électrique for non electricians)**  
14-JUN-13, 9.00 – 17.30, in English  
19-JUN-13, 9.00 – 17.30, in French

**Refresher course Self-Rescue Mask Training**  
03-JUN-13, 8.30 – 10.00, in French  
03-JUN-13, 10.30 – 12.00, in English  
10-JUN-13, 8.30 – 10.00, in French  
10-JUN-13, 10.30 – 12.00, in English  
17-JUN-13, 8.30 – 10.00, in French  
17-JUN-13, 10.30 – 12.00, in English  
24-JUN-13, 8.30 – 10.00, in French  
24-JUN-13, 10.30 – 12.00, in English

**Risks associated with operations in confined spaces**  
04-JUN-13, 9.00 – 17.30, in French

**Self Rescue Mask Training**  
04-JUN-13, 10.30 – 12.00, in French  
06-JUN-13, 10.30 – 12.00, in English  
13-JUN-13, 10.30 – 12.00, in English  
18-JUN-13, 10.30 – 12.00, in French  
20-JUN-13, 10.30 – 12.00, in English  
25-JUN-13, 10.30 – 12.00, in French  
27-JUN-13, 10.30 – 12.00, in English

**Sensibilisation aux gestes et postures de travail (gestures and postures at work)**  
10-JUN-13, 9.00 – 17.30, in French

**Use of fire extinguisher – live exercises**  
05-JUN-13, 10.30 – 12.30, in English  
07-JUN-13, 10.30 – 12.30, in French  
12-JUN-13, 10.30 – 12.30, in French  
14-JUN-13, 10.30 – 12.30, in English  
19-JUN-13, 10.30 – 12.30, in French  
21-JUN-13, 10.30 – 12.30, in English  
26-JUN-13, 10.30 – 12.30, in English  
28-JUN-13, 10.30 – 12.30, in French

**Utilisation des équipements de protection respiratoire (Use of Respiratory Protection Equipment)**  
28-JUN-13, 8.30 – 12.00, in French

**Working at heights - Using a harness to prevent falling from a height**  
13-JUN-13, 9.00 – 17.30, in French  
18-JUN-13, 9.00 – 17.30, in English

*by Isabelle CUSATO, HSE Unit*



# Technical training

If you would like more information on a course, or for any other inquiry/suggestions, please contact [Technical.Training@cern.ch](mailto:Technical.Training@cern.ch).  
Eva Stern and Elise Romero, Technical Training Administration (Tel: 74924)

### »Electronics design

Altium Designer: Front End Specialist (Advanced)  
Altium Designer: PCB Specialist (Advanced)  
CAO = Allegro Design Entry HDL Front-to-Back Flow v16.6  
Comprehensive VHDL for FPGA Design  
Expert VHDL for FPGA Design  
Introduction to VHDL  
LabVIEW for Experts  
LabVIEW for beginners  
Siemens - STEP7 : level 2  
Signal Integrity: Advanced GigaBit-Differential Channel Design (AGCD)  
Signal Integrity: Essential Principles of Signal Integrity (EPSI)

### »Mechanical design

AutoCAD - level 1  
AutoCAD Electrical  
CATIA-Smarteam Basics  
SmarTeam - CATIA data manager at CERN

### »Office software

EXCEL 2010 - Level 2: ECDL  
Expression Web - Level 1 (former Sharepoint Designer or Frontpage)  
Indico Advanced - Conference Organization  
Indico for beginners - Meeting Organization  
Lync – click to call and collaborate with others  
PowerPoint 2010 - Level 1: ECDL  
WORD 2010 - level 1 : ECDL

### »Software and system technologies

Core Spring  
Drupal Site Developing  
ITIL Foundations (version 3) EXAMINATION  
Intermediate Linux System Administration  
Introduction to Linux  
JAVA - Level 2  
JCOP - Finite State Machines in the JCOP Framework  
Le Langage C (ANSI et C99)  
Oracle Certified Professional  
PERL 5 - Advanced Aspects  
Python - Hands-on Introduction

### »Special

CST PARTICLE STUDIO

Next Session	Duration	Language	Availability
23-Sep-13 to 24-Sep-13	2 days	English	9 places available
25-Sep-13 to 27-Sep-13	3 days	English	6 places available
06-Jun-13	3 days	English	One more place available
14-Oct-13 to 18-Oct-13	5 days	English	7 places available
25-Nov-13 to 29-Nov-13	5 days	English	7 places available
10-Jul-13 to 11-Jul-13	2 days	English	3 places available
08-Jul-13 to 12-Jul-13	5 days	English	7 places available
12-Jun-13 to 14-Jun-13	3 days	English	7 places available
10-Jun-13 to 14-Jun-13	5 days	French	One more place available
26-Jun-13 to 28-Jun-13	2 days	English	19 places available
24-Jun-13 to 28-Jun-13	2 days	English	19 places available

Next Session	Duration	Language	Availability
12-Sep-13 to 20-Sep-13	4 days	French	4 places available
14-Oct-13 to 18-Oct-13	5 days	French	2 places available
16-Sep-13 to 11-Oct-13	10 days	English	4 places available
23-Sep-13 to 25-Sep-13	3 days	French	8 places available

Next Session	Duration	Language	Availability
16-Sep-13 to 17-Sep-13	2 days	French	6 places available
26-Sep-13 to 27-Sep-13	2 days	English	5 places available
13.juin.13	3 hours	French	7 places available
13.juin.13	2 hours	French	7 places available
17.juin.13	1 hour	French	44 places available
13-Jun-13 to 14-Jun-13	2 days	French	2 places available
24-Jun-13 to 25-Jun-13	2 days	French	5 places available

Next Session	Duration	Language	Availability
23-Sep-13 to 26-Sep-13	4 days	English	3 places available
04-Jul-13 to 05-Jul-13	16 hours	English	4 places available
12.juin.13	1 hour	English	12 places available
19-Jun-13 to 25-Jun-13	5 days	English	9 places available
12-Jun-13 to 14-Jun-13	3 days	English	7 places available
06-Jun-13	32 hours	English	2 places available
24-Jun-13 to 26-Jun-13	3 days	English	5 places available
16-Sep-13 to 19-Sep-13	4 days	English	7 places available
17-Jun-13 to 21-Jun-13	5 days	English	2 places available
20.sept.13	1 day	English	7 places available
08-Jul-13 to 11-Jul-13	4 days	English	One more place available

Next Session	Duration	Language	Availability
08-Oct-13 to 09-Oct-13	2 days	English	9 places available