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## New links between Ecuador and CERN



Picture taken during the signing ceremony at SENESCYT (Quito, Ecuador) on 12 July 2011. From left to right: Guillermo Solórzano, Minister for Coordination of Knowledge and Human Talent, Rene Ramirez Gallegos, National Secretary for Higher Education, Science and Technology - SENEICYT, Felicitas Pauss and José Salicio-Diez from CERN.

Ecuador's involvement with CERN dates back to 1999 when a first International Co-operation Agreement was signed. However, despite these early beginnings, only a few scientists from Ecuador, affiliated to non-Ecuadorian institutes, have since been directly involved in CERN's projects, in particular the CMS experiment at the LHC. The situation is now about to change thanks to a new protocol, which gives a better-defined framework to the collaboration between CERN and Ecuador. "We were extremely pleased with the very positive spirit of the Ecuadorian authorities at the signing ceremony," says Felicitas Pauss, Head of International Relations at CERN.

**A new protocol recently signed in Quito opens the way to stronger links between the Ecuadorian scientific community and CERN. The operational framework provided by the protocol will enable scientists from Ecuador to take part in CERN's projects, supported by the Ecuadorian authorities.**

"Uniting people from different countries and cultures is part of CERN's mission and I hope that, thanks to the new agreement, the number of Ecuadorian scientists and educators visiting CERN will soon increase."

The new agreement will benefit both the scientific and the educational communities in Ecuador as it concerns not only physicists, engineers and specialized technicians from universities, but also high-school teachers and students. "One teacher from Ecuador has already participated in an early High-School Teacher programme at CERN," confirms Felicitas Pauss. "The agreement also foresees the selection and funding,

(Continued on page 2)



### Are we there yet?

Two sets of exciting results have emerged from CERN this week, illustrating the breadth of our research programmes, as well as the need to keep our eyes firmly on the road ahead. When new results emerge, it is almost irresistibly tempting to over-interpret what they seem to be telling us, but it's at times like these that we need to remain circumspect, and not read more into the data than is really there.

The first physics to be presented from CERN this week came from the LHC experiments, which presented

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# New links between Ecuador and CERN

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by the Ecuadorian National Secretariat for Higher Education, Science, Technology and Innovation, of students participating in the Summer Student programme." One Ecuadorian student has already participated in this year's Summer Student programme.

The protocol also promotes the development of undergraduate and graduate programmes in physics at Ecuadorian universities. These courses should increase

the number of qualified students who can participate in CERN's scientific activities. Scientists from Ecuador will be involved in all aspects of these activities, from theoretical physics to experimental physics, GRID computing, electronics, etc. "The collaboration with Ecuador also aims at developing human skills that can better enable the local community to grow by building and strengthening research groups in the country's institutions," adds

José Salicio-Diez, CERN's Advisor for Latin American Countries. "There are scientists from Ecuador interested in becoming members of the CMS Collaboration, and this new protocol will play an important role in facilitating their efforts to stay on here," confirms Felicitas Pauss.

*CERN Bulletin*



(Continued from page 1)

## Schools out – but not at CERN

their latest results at the Lepton-Photon symposium in Mumbai starting on Monday 22 August. These included new results on Higgs searches. Not surprisingly to physicists who have been around for as long as I have, an excess seen at 145 GeV a month ago and presented at the EPS conference in Grenoble looks somewhat less convincing with more data analysed. It may still prove to be real, but as we said clearly at the EPS conference, it could equally well be a statistical fluctuation. Only more data will tell. What we do know now is that if the Higgs exists, it is almost certainly lighter than about 145 GeV or heavier than 466 GeV. These are precisely the regions where the Higgs particle is harder to disentangle from backgrounds. If it is there, as we suspect it might be, then we'll need much more data before we can find it or definitively exclude it. Either would be a great result. Exciting though it was to see the excess at the EPS-conference,

it's never wise to over-interpret an early result.

The same message of caution applies to the second major set of results to come from CERN this week. On Thursday, the journal Nature carried the first paper to be published by the CLOUD experiment. CLOUD brings together an international and interdisciplinary team of scientists who are using CERN expertise and accelerators to explore the physics underlying cloud formation. With current concerns about climate change, this is clearly important work, and over the long term will provide important data for better understanding the climate. But these are early days. CLOUD's first results indicate that vapours previously thought to account for the nucleation of atmospheric aerosol particles that eventually lead to cloud formation are insufficient to explain atmospheric observations. The results also show that the rate of aerosol formation from these vapours is enhanced by ionising

radiation from cosmic rays. What this tells us is that additional vapours must be involved, and it leaves open the possibility that cosmic rays could influence cloud formation: nothing more, nothing less. The next steps for CLOUD are to identify those other vapours, and to study the processes by which aerosols grow to become the condensation nuclei on which cloud droplets form. This will take time.

The LHC and CLOUD research programmes could hardly be further apart, but both are long journeys that are just at their beginning. Like any long journey, the start is always exciting and full of anticipation. The middle tends to be accompanied by choruses of 'are we there yet' from the back seat, and the end is where the sense of anticipation is fulfilled. Are we there yet? No, but we're well on our way.

*Rolf Heuer*

# LHC Report: Good fills but also some technical glitches

**S**o far, the LHC has delivered 2.5 fb<sup>-1</sup> luminosities to both ATLAS and CMS, giving physicists a steady flow of data to work on. A record

peak luminosity ( $2.4 \times 10^{33}$  cm<sup>-2</sup> s<sup>-1</sup>) was achieved by using smaller-than-nominal beam sizes from the injector chain and increased bunch intensities. The bunch intensities are now up to  $1.35 \times 10^{11}$  protons per bunch, which is well above the nominal value of  $1.15 \times 10^{11}$  protons.

Unfortunately, after a series of good fills, a cold compressor unit stopped working early on Saturday morning, 13 August,

**During the recent summer weeks the LHC continued running with 1380 bunches, gently pushing up the peak luminosity by reducing the beam sizes and increasing the bunch intensities. This smooth operation was temporarily interrupted by some cryogenics problems and some disturbances to the electrical network.**

causing problems to the cryogenic cooling system at point 8. The system needed about three days of repair and cool-down time in order to fully recover. However, soon after, operation was again disturbed by a site-wide power cut causing the accelerator complex and the associated experiments to stop. It took some time to restore the power manually, and again it was the cryogenics that suffered most from the power outage. Cryogenics specialists worked hard around

the clock to re-establish the powering conditions by early Sunday, 21 August.

The first fill after the recovery was used to set the collimation system in order to prepare for further squeezing of the beams at the interaction points in ATLAS and CMS with the aim of increasing the delivered luminosity. These and other tests will continue during the Machine Development period that started on Wednesday 24 August and which will be followed by a week-long technical stop.

*Jan Uythoven for the LHC Team*

## Building a new core website for CERN

**C**ERN's online presence is currently spread across many disparate websites, all separately managed. For example, there is no single home for news and announcements; the Bulletin is published every two weeks and, in between publications, news and announcements appear in a number of channels such as the users' page, Twitter, the Quantum Diaries blog, e-mails from Management direct to staff and users, and so on. "The idea of the new core website for CERN is to create a single place where one can find all this information," says Dan.

The project, supported by the DG and the IT Department, will look at redesigning the current public website, the Bulletin website, the Press Office website and the users' page. "It's a big challenge to design a website to serve CERN's amazingly diverse community. There are thousands of CERN staff and users, each with their own requirements and opinions – not to mention the broad, global audience hungry for information about CERN and the research that takes place here. How do you design a great online experience that satisfies everyone? I think this will be a particular challenge when we look at improving the users' page," says Dan.

**The web was born at CERN, but as early adopters, our own web presence now needs some love. With a new era of discovery ahead of us, the Communication Group is embarking on a project to develop a new core website for CERN that will make it easier and more enjoyable to access information in a timely way. The Bulletin catches up with Dan Noyes, who is leading this project, to learn more.**

Dan's approach to the problem consists in listening to the Lab's audiences to understand their needs. "The very first step of the redesigning process is to announce the planned changes early on, and explain the processes and thinking that will guide these changes," confirms Dan. "It's no use closing the door and producing a new website after a couple of months and then releasing it – people would hate it!"

On the technical side, the IT Department has already done a great job putting in place a new infrastructure and service for web content management, based on open source software called Drupal. This was done through the 'ENTICE' consultative process involving experiments and departments. In addition, to help in the design process, the Communication Group is working with Mark Boulton's web design agency – a company with a successful track record in open, consultative design projects involving large, diverse communities. "I'm really excited to be working with Mark and his team. I have

followed their work for a number of years and I have been thoroughly impressed with their ability to engage with large, diverse communities in an open design process. This feels like a really good fit for us at CERN," says Dan.

Mark Boulton, the lead designer with the design agency working on this project, will be presenting an IT colloquium on 1 September entitled 'Designing for communities'. The project team will be blogging about the project here: <http://cern.ch/change>. All staff and users are welcome to attend Mark's talk at 11 a.m. on 1 September in the Council Chamber. If you are unable to attend, a video recording of the session will be posted to the change blog.

*CERN Bulletin*

# LHCb attempts to crack the Standard Model

LHCb, one of the Large Hadron Collider (LHC) experiments, was designed specifically to study charge-parity or CP violation. In

simple words, its goal is to explain why more matter than antimatter was produced when the Universe slowly cooled down after the Big Bang, leading to a world predominantly composed of matter. This is quite puzzling since in laboratory experiments we do not measure a preference for the creation of matter over antimatter. Hence the CP-conservation law in physics that states that Nature should not have a preference for matter over antimatter. So why did the Universe evolve this way?

One of the best ways to study this phenomenon is with b quarks. Since they are heavy, they can decay (i.e break down into smaller parts) in many different ways, but are light enough for us to produce in copious amounts (unlike the heaviest quark, the top quark). In addition, theorists can make very precise predictions on their decay rates using the Standard Model, the theoretical framework we have to describe most phenomena observed to this day. Once we have predictions on how often b quarks should decay into one or another decay mode, we can compare this with what is measured with the LHCb detector, and see if there are any deviations from the Standard Model predictions. Such deviations would indicate that this model is incomplete, as every physicist suspects, even though we have not been able to define the nature of the more complex theoretical layer that

**LHCb will reveal new results tomorrow that will shed more light on the possible CP-violation measurement reported recently by the Tevatron experiments, different from Standard Model predictions. Quantum Diaries blogger for CERN, Pauline Gagnon, explains how.**

must be hidden or measure anything in contradiction with the Standard Model.

Here is how LHCb wants to do it: by studying rare decays with a precision never achieved before.

When electrons or protons collide in large accelerators, b quarks are produced, but they do not come alone. They are typically accompanied by one other quark (mostly u, d or s) to form composite particles called B mesons. Such mesons have been produced at several colliders, most abundantly in b-factories in the US and Japan, but also at the Tevatron, an accelerator similar to the LHC located near Chicago in the US.

Physicists from b-factories have studied the decays of B mesons in great detail for more than ten years, but nothing new disproving the Standard Model has been uncovered so far, even after scrutinizing the decays of more than 470 millions of B pairs of mesons! All decay modes inspected behaved according to the Standard Model predictions. This means we now need to study even rarer decay modes, the ones the Standard Model predicts will occur only once in a billion times. To do so, we need to look at several billion decays to detect the slightest deviation. It is in these small details that we hope to uncover new physics going beyond the Standard Model.

Recently, the Tevatron experiments, D0 and CDF, took the lead by measuring very rare decays, namely  $B_s \rightarrow \mu \mu$ , where a  $B_s$  (a meson made of an anti-b and an s quark) decays to a pair of muons, ( $\mu \mu$ ), a particle very similar to electrons, only heavier. CDF saw a small excess of events with respect to Standard Model expectations. And when they look at the angular distributions of  $B_s \rightarrow J/\psi \phi$ , that is when the  $B_s$  meson decays into two other mesons,  $J/\psi$  and  $\phi$ , they can measure a parameter called  $\varphi_s$ , which is supposed to be zero according to the Standard Model. Both D0 and CDF obtained a non-zero result, but this measurement is not quite accurate enough to really challenge the Standard Model.

And that's where LHCb, the new kid on the b-physics block, comes into play. With the LHC delivering data at a fast and furious pace, LHCb is already able to surpass the precision reached at the Tevatron. Already in July, LHCb (and CMS, another LHC experiment) contradicted the CDF claim of an anomalous number of  $B_s \rightarrow \mu \mu$  events. They might do it again with the release of their first measurement of  $\varphi_s$ , which is expected to be much more precise than the Tevatron result.

Will  $\varphi_s$  be equal to zero as predicted by the Standard Model? LHCb will announce this on Saturday at the Lepton-Photon conference in Mumbai. Could LHCb be the first experiment to crack the Standard Model? With the level of precision they are already reaching, even if it's not now, they will be in the best position to do it in the near future.

*Pauline Gagnon  
for CERN's Quantum Diaries Blog*

# EPLANET: the Europe-Latin America alliance for physics research and education

Officially launched in February 2011, EPLANET has now reached its "cruising-speed" with the first ten scientists arriving at CERN in June and July from Argentina, Brazil and Chile. The first ten EPLANET participants will stay at CERN for 39 months; they are involved in the ATLAS and CMS experiments.

In the four-year lifetime of the project, CERN will welcome around 256 scientists for a total of 956 months from Chile, Mexico, Argentina and Brazil. In total, EPLANET will provide 379 grants (equivalent to 1203 months) to junior and senior scientists from Latin American countries to be detached and involved in scientific and educational activities taking place here and in the other European Institutions involved in the programme. EPLANET will also give 476 short-duration grants (600 months in total) to European scientists for activities at the Pierre Auger Observatory in Argentina and in other Latin American institutions.

The scope of EPLANET is to support short exchanges (1-2 months) for senior research-

**Twenty-nine partner institutions participate in EPLANET – the EU-funded project aimed at strengthening the links between the physics communities in Europe and Latin America. The project will help the Latin-American scientific community to reach and consolidate the critical scientific mass and profit from the educational, technological and industrial impact of high-energy physics.**

ers, and longer exchanges (2-12 months) for junior investigators – providing support for a total of about 1800 months. The project will support the mobility of Early Stage Researchers (ESR) and Experienced Researchers (ER) to the installations where most of the research work in high-energy physics is taking place, such as the LHC and the Pierre Auger Observatory. The programme also addresses technological developments in medical physics related to high-energy physics. "EPLANET aims at fostering a sustainable collaboration between Europe and Latin America in high-energy physics and associated technologies," says José Salicio-Diez, who co-ordinates the participation of CERN in EPLANET. "The scientific results obtained thanks to this programme will go in parallel with advanced training and acquisition of new technologies in accelerator and detector physics, medical physics and computing."

At CERN, Latin American researchers will be involved in projects that will range from analysing data from the LHC for signatures of new physics; working on simulation studies; and also designing, prototyping, and tests of components for the CLIC study. Other tasks include the optimization and validation of the simulation software used to design quality assurance detectors for medical physics applications, and the development of the ROOT data analysis system.

In addition to allowing the mobility of scientists from west to east, EPLANET also represents an opportunity for European physicists to experience more closely the increasing vitality of the Latin American scientific community. About one-third of the programme's funds will support the mobility of Europeans to institutions in Latin America. "With EPLANET we hope to repeat and even improve on the success obtained by HELEN, the CERN-born project that has supported Europe-Latin American scientific exchanges since 2005. The variety and number of the institutions now involved in EPLANET will play a key role in the success of the programme," concludes José Salicio-Diez.

*CERN Bulletin*

# CERN at Arles: LHC featured in prestigious photography festival

The photographs were originally taken in October 2006, when Norfolk was sent on an assignment to a 'little known' laboratory in Switzerland. "When I came to CERN, nobody I knew had ever heard of the place," explains Norfolk. "Everybody I spoke to when I came back said, 'You've been where? You've done what?'" Kathy Ryan, New York Times Magazine photo editor, sent Norfolk to 'capture something new'. He describes Ryan's assignments as a dream for any photographer. "Kathy has only ever given me one briefing, which is, 'Bring me back something that I have never seen before.'"

Something new is exactly what Norfolk brought back. He proposed a photo series of 'six circles', featuring both the ATLAS and the CMS experiments. His photos were shot exactly in the plane of the beam's path. "It was very important for me to be exactly on axis," explains Norfolk. "I wanted the view of the camera to be the view of an atom entering the detector."

The two-dimensional 'circles' that emanate from Norfolk's finished works project more than just experimental physics. "There is a whole series of theological and quasi-theological imagery that has the rotational circle of life seen in all sorts of different religions of the world," says Norfolk. From the

Six photographs of the LHC experiment are being featured in this year's *Rencontres d'Arles* photography festival. Simon Norfolk's series, *The LHC: the spirit of enquiry*, was chosen as part of an exhibition celebrating 30 years of photography at the New York Times Magazine.

domes of St. Paul's Cathedral and the Hagia Sophia in Istanbul, to Tibetan thangka and Navajo sand paintings, circular imagery is a constant. "The experiment is so abstract and complicated that it almost seems as though scientists are once again quoting something from the 11th century," Norfolk explains. "The language has come full circle and we've gone back to sounding theological again, something almost from a scriptorium, rather than something that comes out of a science laboratory. This circularity is really beautiful."

The photos are on display in Arles, France, as part of an exhibition curated by Ryan in anticipation of her forthcoming book celebrating 30 years of photography at New York Times Magazine. "The exhibition at Arles featured her best ten choices from the thirty years she has worked with Times – it is flattering to be amongst them," explains Norfolk. Each of the ten sets of photos is exhibited in a side chapel of an old church in the middle of Arles. "Each of the photographers has one of these side chapels," describes Norfolk. "Through the middle of the church runs a long bench where pages from the magazine in which the photos



Simon Norfolk's series "The LHC: the spirit of enquiry" on display at the Rencontres d'Arles festival.



## Did you know?

### Analogue photography: challenges lead to greater reward

Simon Norfolk does not use a conventional camera. His large-format Ebony RW45 resembles an antique, but is rather at the cutting edge of analogue photography. A working day for Norfolk typically starts with ten minutes or so in a windowless bathroom, or anywhere that is in complete darkness. His camera is loaded with a single negative, to be exposed and then unloaded once again in the dark. As a result, a 'hyperactive' day can result at best with up to ten photographs. But as Norfolk explains, this is more than justified: "It is the opposite of digital photography, where you shoot everything and think about what it is that you want to talk about later, with the 600 jpegs on your computer screen. Instead you take a long look around, think about exactly what you want to say, find the picture that will say it, and photograph it." For CERN, this meant six photos of circles, and worldwide exposure.

originally appeared are displayed along with documented conversation between the photographer and the photo desk."

**The exhibition will be open to the public until 18 September, 2011.**

*Jordan Juras*

# SubClones visit CERN – and the subatomic world

The Alan Parsons Live Project is back on tour, with dates scheduled for the end of the summer across Europe and the Americas. A stop at CERN recently complemented a day off between two cities and allowed the band to move from the frontier of the music industry to the frontier of science. "We saw everything there was to see at CERN," explains Alan Parsons. "It was all fascinating stuff but unfortunately we couldn't see what was underground, though, so I think we will have to come back."

Parsons' new project, SubClones, features three members whose identities remain a secret. Although the Clones' faces were hidden with intriguing metallic mesh masks during the visit, they enjoyed the sites and shared some insight into the connections that can be made between music and science. "Science as a language is very similar to music. Science is a universal language in the same way that music is," explains

**While the LHC has been creating subatomic particles, Alan Parsons has re-entered the studio with his new project, SubClones. The three-piece electronic rock group has joined the legendary Alan Parsons Live Project on tour, and their common friend Patrick Geeraert gave them the chance to drop into CERN for a visit.**

pClone, lead singer of SubClones. "It is everywhere, and influences you every day."

The SubClones concept draws on three 'outer worldly' members. "SubClones are a band that has a message of hope for a turbulent world," says pClone. "We see both a dark side and a positive side to change – a changing society that we cannot control

leaves a lot of people uneasy, but we try to create a positive message that can be shared outside of ourselves."

SubClones' EP is available for download through iTunes and they have made available a free download of their track 'Thank You Card' on their website:

[subclones.com/](http://subclones.com/)

*Jordan Juras*



Alan Parsons during his visit to CERN



The SubClones at work in SM18.

# CAST reaches milestone but keeps on searching

**C**AST, the world's most sensitive axion helioscope, points a recycled prototype LHC

dipole magnet at the Sun at dawn and dusk, looking for the conversion of axions to X-rays. It incorporates four state-of-the-art X-ray detectors: three Micromegas detectors and a pn-CCD imaging camera attached to a focusing X-ray telescope that was recovered from the German space programme (see *CERN Courier* April 2010).

Over the years, CAST has operated with the magnet bores - the location of the axion conversion - in different conditions: first

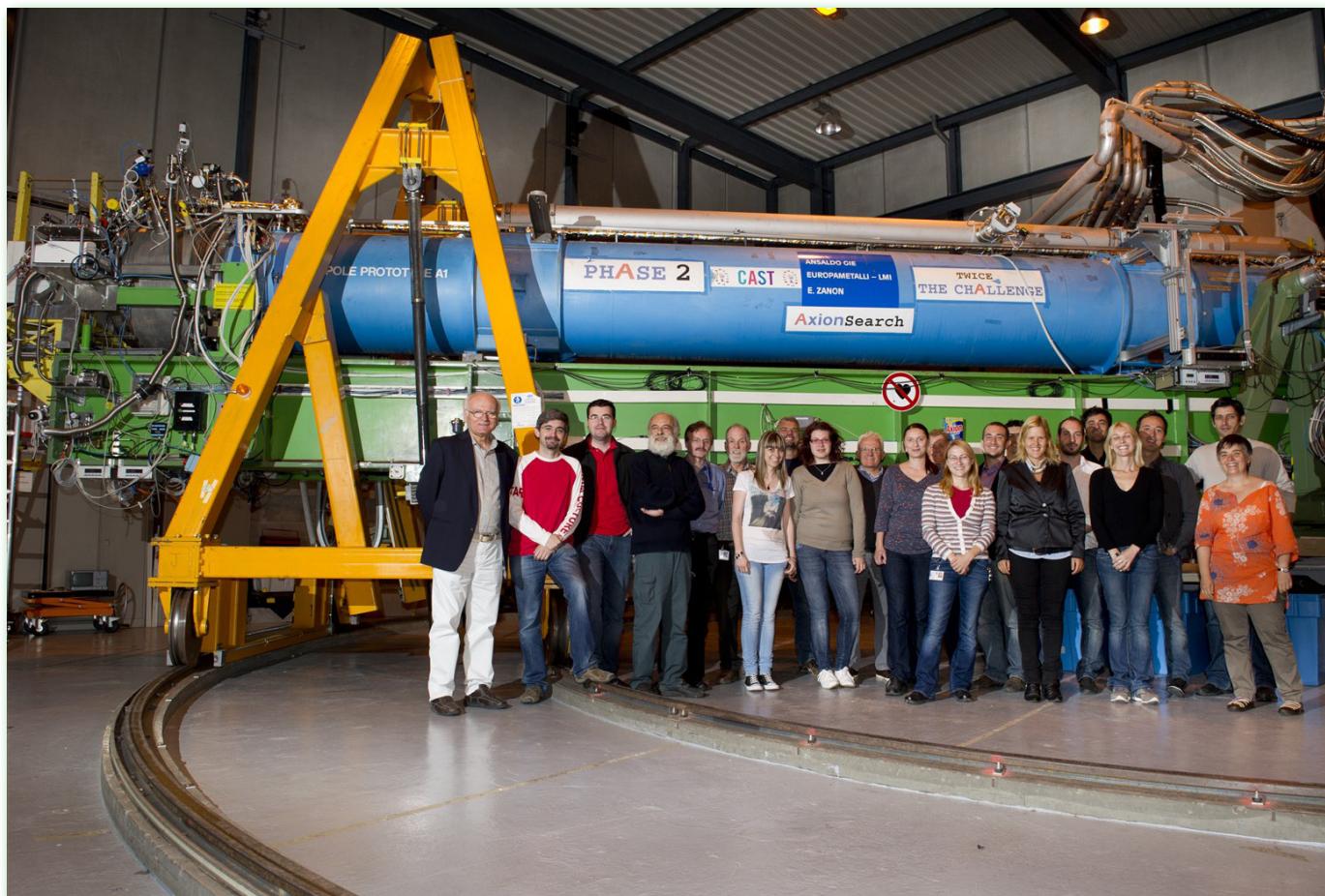
**After eight years of searching for the emission of a dark matter candidate particle, the axion, from the Sun, the CERN Axion Solar Telescope (CAST) has fulfilled its original physics programme.**

in vacuum, covering axion masses up to  $20 \text{ meV}/c^2$ , and then with a buffer gas ( ${}^4\text{He}$  and later  ${}^3\text{He}$ ) at various densities, finally reaching the goal of  $1.17 \text{ eV}/c^2$  on 22 July. While a direct solar axion signal remains elusive, the experiment has set the most restrictive experimental limit on the axion-photon coupling strength for rest masses that include the theoretically and cosmologically motivated range from  $\mu\text{eV}/c^2$  to  $\text{eV}/c^2$ . At the same time, the collaboration has gained very valuable experience in low-

background detectors (< 10 keV) and ultra cold (around 1.8 K) gas systems.

After scheduled maintenance, CAST will resume data taking in 2012 with improved sensitivity for solar axions (hot dark matter). The experiment will also expand its physics horizon, searching for paraphotons (the "hidden sector"), chameleons (dark energy), while exploring the ambitious possibility of searching for relic axions (cold dark matter) in an, as yet, inaccessible rest mass range of around  $0.1 - 1 \text{ meV}/c^2$ .

*CERN Courier*



Members of the CAST collaboration in July, together with dipole-based helioscope.

## e-EPS News: Light for Development

A central goal of the EPS International Year of Light project will be to promote optical technologies

and optics education to improve the quality of life in the developing world – under the theme of ‘Light for Development’.

Light plays a central role in human activities in science, technology and culture. On a fundamental scientific level, light is necessary for the existence of life itself whilst on a more technical level, light-based technologies will underpin the future development of human society.

The systematic study of the physics of light and electromagnetic waves has been central to the evolution of modern science and – in the 20th century alone – there have been many fundamental advances, and Nobel Prizes, linked with the studies of atomic physics, optics, lasers and so on.

Light-based technologies have revolutionized medicine, have opened up international communication via the Internet and continue to be central in

**e-EPS News is a monthly addition to the CERN Bulletin line-up, showcasing articles by the e-EPS – the European Physical Society newsletter – as part of a collaboration between the two publications.**

linking cultural and political aspects of the global society. Moreover, advances in lighting and solar energy will be crucial for future sustainable development.

Scientists and educators are, of course, well aware of the tremendous importance of optical science and technology for future international development, but it is essential that this message is communicated more widely. It is precisely this need which has motivated the EPS project for the declaration of an International Year of Light under the auspices of the United Nations.

A central component of the International Year of Light project is the theme of Light for Development, focusing specifically on how the science of light can improve the quality of life in the developing world and in emerging economies.

Within this theme, the EPS will coordinate, and work with, international partners to promote the implementation of technolo-

gies such as clean and energy-efficient lighting, solar power and practical photonic devices for applications such as environmental monitoring, malaria diagnosis, water purification and spectroscopy; and in agriculture.

The possibility for low cost deployment and miniaturization of these technologies builds upon many recent advances in photonics, in areas such as the development of LED sources, versatile detection systems, sensors and so on.

These practical aims will be complemented by global activities in education and outreach, focusing especially on optics education in emerging and developing nations, and mechanisms for building worldwide educational capacity through outreach activities focused on scientific activities for young people and students of all ages.

The Year of Light project will be officially launched during the joint EPS-Italian Physical Society Passion for Light workshop in Varenna, Italy on Friday, September 16th, 2011.

e-EPS



# Do you write secure code?

Thus, if you have the pleasure or task of producing software applications, take some time and familiarize yourself with good programming practices. They should not only prevent basic security flaws in your code, but also improve its readability, maintainability and efficiency. Basic rules for good programming, as well as essential books on proper software development, can be found in the section for software developers on our security web page (<https://security.web.cern.ch/security/recommendations/en/index.shtml>). You can also easily test your software yourself. Check the warnings of your compiler thoroughly, and run one of our suggested static code analysers ([https://security.web.cern.ch/security/recommendations/en/checklist\\_for\\_coders.shtml](https://security.web.cern.ch/security/recommendations/en/checklist_for_coders.shtml)). In addition, the HR technical training provides an excellent course on secure programming in Java, C++, Python, Perl, and web languages (<https://security.web.cern.ch/security/training/en/index.shtml>). The next one-day, hands-on courses are on securing PHP, Java, and Web applications (September 27th, 28th, and 29th, respectively), as well as on secure programming in Python (October 28th). There are still places available! Finally, do not hesitate to contact Computer.Security@cern.ch if your prefer an external review of your software!

Computer Security Team

**At CERN, we are excellent at producing software, such as complex analysis jobs, sophisticated control programs, extensive monitoring tools, interactive web applications, etc. This software is usually highly functional, and fulfils the needs and requirements as defined by its author. However, due to time constraints or unintentional ignorance, security aspects are often neglected. Subsequently, it was even more embarrassing for the author to find out that his code flawed and was used to break into CERN computers, web pages or to steal data...**

## So, how about your skills in writing secure software?

If you want to win one of three marvellous books on software security, please check the short program below and send in the programming flaws you have identified by 12 September to Computer.Security@cern.ch:

```
1 /* Safely Exec program: drop privileges to user uid and group
2 * gid, and use chroot to restrict file system access to jail
3 * directory. Also, don't allow program to run as a
4 * privileged user or group */
5 void ExecUid(int uid, int gid, char *jailDir, char *prog, char *const
argv[])
6 {
7 if (uid == 0 || gid == 0) {
8 FailExit("ExecUid: root uid or gid not allowed");
9 }
10
11 chroot(jailDir); /* restrict access to this dir */
12
13 setuid(uid); /* drop privs */
14 setgid(gid);
15
16 fprintf(LOGFILE, "Execvp of %s as uid=%d gid=%d\n", prog, uid, gid);
17 fflush(LOGFILE);
18
19 execvp(prog, argv);
20}
```

(Courtesy of Barton Miller, University of Wisconsin, Madison, US)

Of course, if you have questions, suggestions or comments, please contact Computer.Security@cern.ch or visit us at <http://cern.ch/security>.



## Ombuds' Corner Le coin de l'Ombuds

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

# Stuck between a rock and a hard place? Try an open discussion!

**G**reg\* is a student at CERN doing his doctoral thesis. His thesis adviser, Wilbur\*, resides in a remote university and does not come to CERN very often. As a result, he and Greg interact mostly by phone or e-mail. Greg only gets the chance to speak to Wilbur face-to-face when he flies home or when a general meeting for the project is held at CERN. At CERN, Greg is under the supervision of a Section Leader, Phil\*, who is responsible for the overall part of the project for which Greg is working.

After two years, Greg delivered his second written report outlining his past activities as well as future ones needed to finish his doctoral thesis. Soon after, he was called by his CERN supervisor, Phil, who told him that his work was not up to the required level and that many elements of his study were still missing. Greg then argued that Phil had been overloading him with lots of additional tasks within the project and that, as a consequence, he did not have enough time in his schedule to meet his thesis objectives. Phil then insisted that Greg's thesis was a personal responsibility and

that the additional tasks he had required from him had priority and should be considered as a normal part of his job as a CERN student. This problematic situation further escalated when Greg's thesis adviser called him to say that he was not so satisfied with the progression of Greg's work, and that he had also received complaints from Greg's CERN supervisor about him. His time was really running short, as Greg had already spent two years working on his thesis.

Greg then came to the Ombuds to share his dilemma: either he would work on the required CERN activities and might miss his thesis deadline, or he would concentrate on finishing his thesis, taking the risk of increasing the possibility of conflict with his CERN supervisor. What to do? Were these the only possible two solutions?

Through the discussion with the Ombuds, Greg decided to ask Phil and Wilbur to attend a joint meeting where the requirements of the thesis would be revised and agreed upon. There he would ask Wilbur for a short extension of his PhD deadline and for part financial support during this additional period. Such an arrangement would

allow Greg to fulfill his priority goals as defined by his CERN Section. Phil agreed to attend the meeting and promised to support Greg in his request to Wilbur.

### Conclusion

Situations where two different lines of management are present are not uncommon. The same problem might arise for people working in a Project, led by a Project Leader, while still belonging to the chain of the CERN line management. Conflict may arise in cases where there are different opinions about whom to report to, for example to the Project Leader or the Supervisor. The only solution is that all parties - student or staff in the project, Project leader, and CERN Supervisor - work together in a transparent way.

### Contact the Ombuds early!

<http://cern.ch/ombuds>

Vincent Vuillemin

\* Names and story are purely fictitious.



## 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.

### ANNUAL PENSION FUND UPDATE

All members and beneficiaries of the Pension Fund are invited to attend the

**Annual Pension Fund Update  
to be held  
in the CERN Council Chamber  
on Tuesday 20 September 2011  
from 10-00 to 12-00 a.m.**

Copies of the 2010 Financial Statements are available from departmental secretariats.

Coffee and croissants will be served prior to the meeting as of 9-30 a.m.

*CERN Pension Fund*



### "WELL DONE, CERN!" A BIG THANK YOU TO ALL THOSE WHO DONATED THEIR BLOOD

The blood donation clinic held on 27 July resulted in a total of 147 units collected from 171 volunteers, including 64 first-time donors.

The Swiss blood bank CTS is grateful for the support and dedication of the CERN personnel, particularly as blood stocks tend to be at their lowest during the summer period.

The CTS and the Medical Service wish to express their gratitude to all the donors for their generosity, and to Novae (Restaurant 1) for the refreshments it provided free of charge for the donors.

Forthcoming dates for blood collection at CERN are: 2 November 2011, 15 March 2012 and 25 July 2012.

*GS Department*

### RESTAURANT OPENING HOURS DURING THE JEÛNE GENEVOIS WEEKEND

- Restaurant No. 1: Thursday 8 September from 7 a.m. to 11 p.m., Friday 9 September from 6-30 a.m. to 12 midnight, and at the weekend from 7 a.m. to 11 p.m.
- Restaurant No. 2: closed from Thursday 8 September to Sunday, 11 September.
- Restaurant No. 3: closed from Thursday 8 September to Sunday, 11 September.

*GS Department*



## ACCU MEETING

**DRAFT Agenda  
for the meeting to be held  
on Wednesday 7 September 2011  
at 9:15 a.m. in room 60-6-002**

- |                                    |  |
|------------------------------------|--|
| 1. Chairperson's remarks           | 6. Report on services from GS department |
| 2. Adoption of the agenda          | 7. Report on new CHIS rules              |
| 3. Minutes of the previous meeting | 8. Users' Office news                    |
| 4. Matters arising                 | 9. Any Other Business                    |
| 5. News from the CERN Management   | 10. Agenda for the next meeting          |

Anyone wishing to raise any points under item 9 is invited to send them to the Chairperson in writing or by e-mail to

**Michael.Hauschild@cern.ch**

*Michael Hauschild (Secretary)*

ACCU is the forum for discussion between the CERN Management and the representatives of CERN Users to review the practical means taken by CERN for the work of Users of the Laboratory. The User Representatives to ACCU are (CERN internal telephone numbers in brackets):

Austria	M. Jeitler (76307)	Norway	J. Nystrand (73601)
Belgium	C. Vander Velde (Chairperson) (71539)	Poland	M. Witek (78967)
Bulgaria		Portugal	P. Bordalo (74704)
Czech Republic	S. Nemecek (71144)	Romania	R. Muresan (79143)
Denmark	J.B. Hansen (75941)	Slovak Republic	A. Dubnickova (71127)
Finland	K. Lassila-Perini (79354)	Spain	I. Riu (76063)
France	N. Besson (75650)	Sweden	K. Jon-And (71126)
	A. Rozanov (71145)	Switzerland	M. Weber (71271)
Germany	H. Lacker (78736)	United Kingdom	M. Campanelli (72340)
	I. Fleck (73593)	Non-Member States	S. McMahon (77598)
Greece	D. Sampsonidis (77979)		D. Acosta (71566)
Hungary	V. Veszprémi (72318)		E. Etzion (71153)
Italy	G. Passaleva (75864)		C. Jiang (71972)
	N. Pastrone (78729)		N. Zimine (75830)
Netherlands	G. Bobbink (71157)	CERN	E. Auffray (75844)
			R. Hawkings (78432)

CERN Management is represented by S. Bertolucci (Director for Research and Computing), S. Lettow (Director for Administration and General Infrastructure) and J. Salicio Diez/PH with M. Hauschild/PH as Secretary. Human Resources Department is represented by J. Purvis, the General Infrastructure Services Department by M. Tiirakari, the Occupational Health Safety and Environmental protection Unit by E. Cennini, and the CERN Staff Association by M. Goossens. Other members of the CERN Staff attend as necessary for specific agenda items. Anyone interested in further information about ACCU is welcome to contact the appropriate representative, or the Chairperson or Secretary (73564 or Michael.Hauschild@cern.ch).

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



# Safety Training Course

## SAFETY TRAINING: SCHEDULED SESSIONS IN SEPTEMBER AND OCTOBER 2011

The following training courses are scheduled in September – Octoberx. You can find the full Safety Training programme on the Safety Training online catalogue.

If you are interested in attending any of the below courses, please talk to your supervisor, then apply electronically via EDH from the course description pages, by clicking on SIGN-UP.

Registration for all courses is always open – sessions for the less-requested courses are organized on a demand-basis only. Depending on the demand, a session will be organised later in the year.

*Alphabetical order (original course titles are maintained)*

### **Chemical Safety – Introduction**

11-OCT-11, 9h00 – 11h30, en anglais

### **Conduite de chariots élévateurs**

17-OCT-11 au 18-OCT-11, 8h00 – 17h30, en français \*

### **Ergonomie - Sensibilisation à l'ergonomie bureautique**

15-SEP-11, 9h00 – 12h30, en français

15-SEP-11, 14h00 – 17h30, en anglais

### **Habilitation électrique : Personnel électricien effectuant des opérations du domaine de tension BTA**

11-OCT-11 au 13-OCT-11, 9h00 – 17h30, en français

### **Laser Users**

28-OCT-11, 9h00 – 12h30, en anglais

### **Magnetic Fields**

03-OCT-11, 9h30 – 11h30, en anglais

### **Masque autosauveteur**

06-SEP-11, 10h30 – 12h00, en français

15-SEP-11, 8h30 – 10h00, en anglais

15-SEP-11, 10h30 – 12h00, en français

27-SEP-11, 10h30 – 12h00, en anglais

### **Radiological Protection**

02-SEP-11, 8h30 – 12h30, en anglais

02-SEP-11, 13h30 – 17h30, en français

13-SEP-11, 13h30 – 17h30, en anglais

20-SEP-11, 8h30 – 12h30, en anglais

20-SEP-11, 13h30 – 17h30, en français

30-SEP-11, 13h30 – 17h30, en anglais

07-OCT-11, 8h30 – 12h30, en anglais

07-OCT-11, 13h30 – 17h30, en français

11-OCT-11, 13h30 – 17h30, en anglais

18-OCT-11, 8h30 – 12h30, en anglais

18-OCT-11, 13h30 – 17h30, en français

28-OCT-11, 13h30 – 17h30, en anglais

### **Recyclage - Conduite de plates-formes élévatrices mobiles de personnel (PEMP)**

05-SEP-11, 8h00 – 17h30, en français \*

### **Recyclage - Pontier-élingueur**

06-SEP-11, 8h00 – 17h30, en français \*

### **Recyclage Habilitation - Electriciens de réseaux**

05-SEP-11, 9h00 – 17h30, en français

07-SEP-11, 9h00 – 17h30, en français

### **Recyclage Habilitation - Non électriens**

06-SEP-11, 9h00 – 17h30, en français

### **Recyclage Habilitation - Personnel électricien effectuant des opérations du domaine de tension BTA**

14-OCT-11, 9h00 – 17h30, en français

### **Risques liés aux interventions en espace confiné**

20-SEP-11, 9h00 – 17h30, en français

### **Safety in cryogenics - level 1**

12-SEP-11, 9h00 – 12h00, en anglais

### **Secourisme - Cours de base**

22-SEP-11 au 23-SEP-11 (1 jour et demi), 8h30 – 17h30, en français

### **Secourisme - Cours de recyclage**

23-SEP-11, 13h30 – 17h30, en français

### **Sensibilisation aux gestes et postures de travail**

30-SEP-11, 9h00 – 17h30, en français

### **Sécurité chimique – Introduction**

27-SEP-11, 9h00 – 11h30, en français

### **Sécurité dans les installations cryogéniques - niveau 1**

05-SEP-11, 9h00 – 12h00, en français

(\*) Session in French with possibility to have the documentation in English.

*Isabelle Cusato (HSE Unit)*



# Language training

## ENGLISH COURSE

### General and Professional English Courses

The next sessions will take place:

From 3rd October 2011 to beginning of February 2012 (break at Christmas).

These courses are open to all persons working on the CERN site, and to their spouses.

For registration and further information on the courses, please consult our Web pages:

<http://cern.ch/Training> or contact Kerstin Fuhrmeister, tel. 70896.

Speaking activities will include discussions, meeting simulations, role-plays etc. depending on the needs of the students.

For registration and further information on the courses, please consult our Web pages: <http://cern.ch/Training> or contact Kerstin Fuhrmeister, tel. 70896.

### Oral Expression

The next sessions will take place from 3rd October 2011 to beginning of February 2012 (break at Christmas).

This course is intended for people with a good knowledge of English who want to enhance their speaking skills.

There will be on average of 8 participants in a class.

### Writing Professional Documents in English - Administrative

### Writing Professional Documents in English – Technical

The next sessions will take place from 3rd of October 2011 to beginning of February 2012 (break at Christmas).

These courses are designed for people with a good level of spoken English who wish to improve their writing skills.

There will be an average of 8 participants in a class.

For registration and further information on

the courses, please consult our Web pages or contact Kerstin Fuhrmeister, tel. 70896.

### Cambridge FCE examination course

We are offering a course in preparation for Cambridge 1st certificate examination. This would consist of two 15-week sessions of 4 hours a week leading to the examination in June.

We need a minimum of 7 participants to open this course. If you think you might be a suitable candidate please contact Kerstin Fuhrmeister or Tessa Osborne in order to arrange an appointment for a test.

For registration and further information on these courses, please consult our Web pages: <http://cern.ch/Training> or contact Kerstin Fuhrmeister: Tel. 70896. or Tessa Osborne: Tel. 72957

# Seminars

## WEDNESDAY 31 AUGUST

### ISOLDE SEMINAR

14:30 - Bldg. 26-1-022

### Two level scheme solvers for nuclear spectroscopy

K. G. RAGNAR JANSSON / LUND'S UNIVERSITET

## THURSDAY 1 SEPTEMBER

### INDUCTION SESSIONS

8:30 - Globe, 80-1-001 - Globe 1st Floor

### INDUCTION PROGRAMME - 1st Part

N. DUMEAUX, S. LYNN HOBSON, E. MACARA, D. SERAFINI

### COMPUTING SEMINAR

11:00 - Council Chamber, Bldg. 503

### Designing for Communities

M. BOULTON / MARK BOULTON DESIGN

### COLLIDER CROSS TALK

11:00 - TH Auditorium, Bldg. 4

### TBA [SFITTER]

M. RAUCH / KARLSRUHER INSTITUT FÜR TECHNOLOGIE

## FRIDAY 2 SEPTEMBER

### A&T SEMINAR

8:45 - Kjell Johnsen Auditorium, Bldg. 30-7-018

### A&T Sector oral papers to be presented at the conference IPAC11

### THIRD SAFETY SEMINAR

10:00 - Bldg. 6-2-004

## MONDAY 5 SEPTEMBER

### TH SEMINARS

08:00 - TH Auditorium, Bldg. 4

### Quantum Gravity: from UV to IR

### OTHER CERN EVENTS

19:30 - Globe, 80-1-001 - Globe 1st Floor

### Fortuna auf Triumphzug - die Buchhandlung LiteraRt in Genf - der Galiani Verlag in Berlin & CERN laden zu einer

## TUESDAY 6 AUGUST

### INDUCTION SESSIONS

8:30 - Salle Dirak, Bldg. 40-S2-D01

### INDUCTION PROGRAMME - 2nd Part

C. GRANIER, M. SGOURAKI

### POST-INDUCTION DAY TRAINING

9:00 - Bldg. 593

### Post Induction day training on popular IT and GS services

### CERN COLLOQUIUM

17:00 - MAin Auditorium, Bldg. 500

### The Discovery of the Double Helix

J. D. WATSON / COLD SPRING HARBOR LABORATORY

## WEDNESDAY 7 SEPTEMBER

### TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

### TBA

N. ARKANI-HAMED / IAS