CERN Bulletin

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RELEASE THE BEAMS! - LINAC4 READY TO HIT THE 50 MEV MARK

The Linac4 accelerator is now prepared to reach 50 MeV. This milestone energy - expected in the coming weeks - will allow the machine to act as a replacement for the ageing Linac2, four years before it takes over at the head of the accelerator chain in 2020.

Inside the Linac4 tunnel, the final DTL cavities will guide beams to 50 MeV. (Image: Stephan Russenschuck.)

The Linac4 accelerator will bring H^- ion beams (hydrogen atoms with an extra electron) up to 160 MeV for injection into the PS Booster. As a key part of the LHC injector upgrade programme, Linac4 will allow the PS Booster to double its beam brightness, which will contribute to increasing the LHC's luminosity.

Linac4 will soon bring beams up to 50 MeV - the current energy delivered by the Linac2 accelerator. This milestone follows on from another recent accomplishment: the installation and commissioning of the final Drift Tube Linac (DTL) tank. Using an innovative (and patented!) design, three DTL tanks, now fully commissioned, will take the beam from 3 MeV to 50 MeV. "This achievement was eight years in the making," says Maurizio Vretenar, the Linac4 project leader. "We saw these tanks through from the drawing board to the test bench, and now to the accelerator chain itself; we couldn't be happier with their performance so far."

Once the DTL tanks were completed in the workshops, getting them into Linac4 wasn't just a matter of plug-and-play. "When we speak about commissioning and installation, there's a lot more to it than just moving the tanks into the tunnel," says Suitbert Ramberger, project engineer for the Linac4 DTL. "We had to connect the waveguides, check if the water cooling system was working, connect the radio frequency (RF)

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HIGH-LUMINOSITY LHC MOVES TO THE NEXT PHASE

This week saw several meetings vital for the medium-term future of CERN. From Monday to Wednesday, the Resource Review Board, RRB, that oversees resource allocation in the LHC experiments, had a series of meetings. Thursday then saw the close-out meeting for the Hi-Lumi LHC design study, which was partially funded by the European Commission.

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NEWS

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A word from the DG

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HIGH-LUMINOSITY LHC MOVES TO THE NEXT PHASE

These meetings focused on the High Luminosity upgrade for the LHC, which responds to the top priority of the European Strategy for Particle Physics adopted by the CERN Council in 2013. This upgrade will transform the LHC into a facility for precision studies, the logical next step for the high-energy frontier of particle physics.

It is a challenging upgrade, both for the LHC and the detectors. The LHC is already the highest luminosity hadron collider ever constructed, generating up to a billion collisions per second at the heart of the detectors. The High Luminosity upgrade will see that number rise by a factor of five from 2025.

For the detectors, significant upgrades are necessary to maintain detector performance at higher luminosity. In a challenging financial environment, detector upgrades must be subject to strict financial management in order to exploit the physics potential of high luminosity to the maximum while minimising the financial outlay.

At this week's RRB, ATLAS and CMS presented their Technical Proposals, supplemented with scoping documents containing the impact on the physics reach as a function of three funding scenarios, together with a preliminary money matrix containing indicative planning figures from participating institutes. These documents will be subject to continuous scrutiny by the Upgrade Cost Group, UCG, whose evaluation of costs and schedules will complement the scientific analysis of the LHC Experiments Committee, LHCC. The full process will take us up to 2025, marking the conclusion of the LHC's initial discovery phase.

In parallel, there is much to be done to prepare the LHC itself for high-luminosity running. The Hi-Lumi LHC design study was the R&D phase of this process. The close-out meeting on Thursday therefore signalled the end of a hugely complex and collaborative design phase, and the beginning of prototyping and industrialisation. Over the coming months and years, new magnets, many under development by partner labs, will be refined and installed, along with innovative structures known as crab cavities that will manipulate the beams to ensure maximum collision rates.

The High-Luminosity LHC upgrade will mark a transition from the LHC's discovery phase to in-depth exploration of new physics. This is in many ways analogous to the move from the discovery of W and Z particles with the SPS collider in the 80s to in-depth exploration with LEP through the 90s. What makes the LHC different is that the High Luminosity upgrade will allow us to cover both phases with a single, remarkable, machine.

Rolf Heuer

RELEASE THE BEAMS! - LINAC4 READY TO HIT THE 50 MEV MARK

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probes, perform RF 'cleaning' to ensure the integrity of the vacuum - it was a long checklist."

Ensuring faultless connections between the disparate accelerator components was a key part of the commissioning process. The DTL cavities were aligned with ±0.1 mm precision to each other and to the rest of the Linac4 line, including the preceding Radio Frequency Quadrupole (RFQ) and beam chopper, which take the beam from 45 keV to 3 MeV.

"The first step will be to accelerate the beam through the first tank of the DTL, to find the correct settings of the low energy part," says Alessandra Lombardi, who is in charge of the commissioning phase of Linac4. "We will then accelerate progressively through the second and the third tank to the energy of 50 MeV."

As soon as the beam has been fully commissioned up to 50 MeV, the Linac4 team will move on to the next item on the schedule: the Cell-Coupled DTLs (CCDTL). The remaining cavities are set to be installed and commissioned by the end of 2015, bringing Linac4 up to a staggering 100 MeV.

*Read about Linac4's commissioning with 12 MeV beams in: "First beam in Linac4 DTL" (**http://cern.ch/go/M7pc**).*

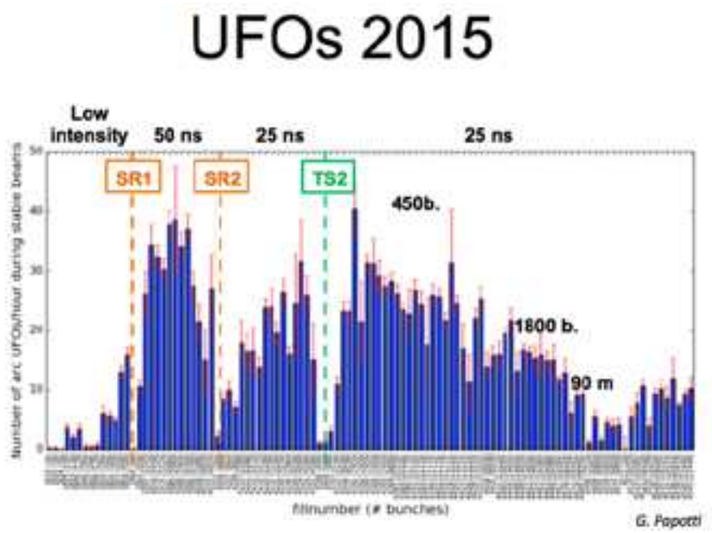
Katarina Anthony

The Linac4 design

Linac4 accelerator is home to 4 types of RF structures: the Radio Frequency Quadrupole (RFQ), accelerating the beam from 45 keV to 3 MeV; the Drift Tube Linacs (DTL), from 3 MeV to 50 MeV; the Cell-Coupled DTLs (CCDTL), from 50 MeV to 100 MeV; and, finally, PI-Mode Structures (PIMS), taking it up to 160 MeV.

LHC REPORT: PERHAPS THE END OF THE BEGINNING

The 2015 6.5 TeV proton run will end on the morning of 4 November as we approach the close of an interesting but somewhat challenging year. Following machine development time and a technical stop, the LHC will restart operation with a proton-proton configuration at 2.51 TeV in the middle of November. Data from this special run will be used by the experiments as a reference point for the proton-lead and lead-lead collisions.



The rate of UFOs per hour has dropped since the first high-intensity runs. Here it is seen after the first scrubbing run (SR1), through the second technical stop (TS2) until now (right end of the abscissae).

As of the end of October, the LHC is delivering luminosity in the order of 4.8×10^{33} $cm^{-2}s^{-1}$ to ATLAS and CMS, 3×10^{32} $cm^{-2}s^{-1}$ to LHCb and 5×10^{30} $cm^{-2}s^{-1}$ to ALICE, with an integrated luminosity of around 3.5 fb^{-1} for both ATLAS and CMS. Looking back, the year's operations can be roughly divided into four main phases, interspersed with technical stops, machine development periods and special physics runs.

Initial commissioning delivered the first beams at 6.5 TeV, followed by the first stable beams after two months of careful set-up and validation. The magnetic behaviour, optical properties and aperture were confirmed to be in good shape, and all the key beam-related systems were re-commissioned after the huge amount of work done during LS1.

The two scrubbing runs delivered good beam conditions at around 1500 bunches per beam after a concerted campaign to re-condition the beam vacuum system. However, electron cloud, which was anticipated to be more of a problem for the target 25 ns bunch-spacing beam, was still a significant issue at the end of the scrubbing campaign.

The initial 50 ns and 25 ns intensity ramp-up phase was tough going and had to contend with a number of issues, including earth faults, UFOs, the ULO (unidentified lying object) and radiation affecting electronics components in the tunnel. All these problems combined made operations difficult but nonetheless the LHC was able to operate with up to 460 bunches and to deliver some luminosity to the experiments, albeit with poor efficiency.

The second phase of the ramp-up following the second technical stop of the year was dominated by the e-cloud-generated heat load and the subsequent challenge for cryogenics, which had to wrestle with transients and operation close to their cooling power limit. The ramp-up in the number of bunches was thus slow but steady, culminating this week in a total of 2244 bunches in each beam. This result was achieved after a long campaign involving a lot of hard work and close collaboration between cryogenics, the scrubbing team and operations.

Importantly, the e-cloud generated during physics at 6.5 TeV scrubs slowly and so reduces the heat load for a given intensity. This opens a margin for more bunches, thus keeping the cryogenics close to the acceptable maximum.

The ULO has remained quiet and, happily, some conditioning of the UFOs has been seen. As a result, the rate of UFOs per hour has dropped noticeably, as shown in the figure. The overall machine's availability for physics has remained reasonable with around 30 to 35% of the scheduled time spent in stable beams since the last technical stop.

All this bodes well for 2016.

Mike Lamont for the LHC team

TO HIGH LUMINOSITY AND BEYOND!

This week marks a major milestone for the High Luminosity LHC (HL-LHC) project, as it moves from the design study to the machine construction phase. HL-LHC will extend the LHC's discovery potential, increasing luminosity by a factor of 10 beyond the original design value and allowing the scientific community to study new phenomena.

The green light was given during the 5th Joint HiLumi LHC-LARP annual meeting that took place at CERN from 26 to 30 October 2015. The meeting saw the participation of more than 230 experts from all over the world to discuss the results and achievements of the HiLumi LHC Design Study. During the week, these experts approved the first version of the HL-LHC Technical Design Report – the document that, following the Preliminary Design Report issued in 2014, describes in detail how the LHC upgrade programme will be carried out – and kicked-off the HL-LHC main hardware prototyping and industrialisation phase.

"This has been a very exciting few years for the HL-LHC project," says Lucio Rossi, HL-LHC Project Leader. "We've benefited from excellent contributors at CERN and around the world. They worked tirelessly to develop key innovative technologies to meet extraordinary technical demands." Such technologies include cutting-edge 12 Tesla superconducting magnets, very compact and ultra-precise superconducting cavities for beam rotation, advanced collimation technologies and a 100-metre-long high-power superconducting transmission line with zero energy dissipation. For the last of these, a world record current of 20 kA at 24 K was recently set in a 40 m long MgB_2 electrical transmission line - an important achievement that will enable the start of large-scale cabling production by industry.

With an integrated luminosity performance target of 250 fb^{-1} per year, the HL-LHC project will also make new demands on vacuum, cryogenics and machine protection systems. The project experts are developing new concepts for beam handling and diagnostics, advanced modelling for the intense beam, and novel schemes of beam optics and beam crossing to maximise the physics output of these collisions.

In addition to the technological challenges, the HL-LHC project also has an important civil engineering component, with new tunnels and underground halls needed to house the new cryogenic equipment and the power supply plants. "Such an extensive technical, technological and civil engineering endeavour would never have been possible without our collaboration with industry," says Rossi. "We have been working in close collaboration with leading companies and are continuing to foster new relationships, as we did at the 'HiLumi LHC goes to Industry' event held on 26 June."

While construction can now begin in earnest, there is still a long road ahead to installation in 2025. "We're entering an exciting period, not only for the HL-LHC project but for the entire accelerator community," concludes Rossi.

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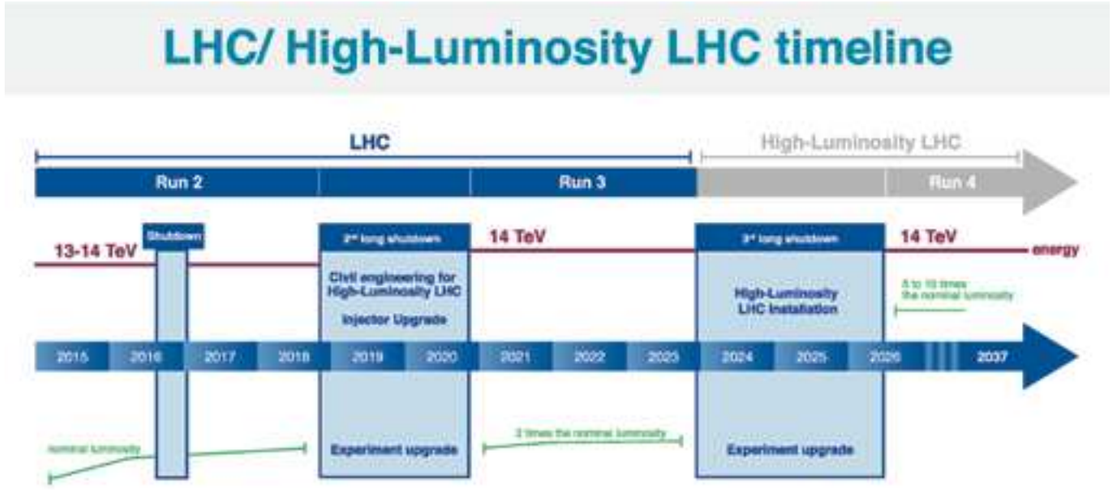


The magic of light, luminosity and HiLumi sonifications

In celebration of the HL-LHC's new status as a CERN-"approved" construction project, a special event was organised at Pathé Balexert, Geneva, for participants of the HiLumi LHC-LARP Annual Meeting. Entitled "Light, Luminosity and HiLumi Sonifications", the event featured musical performances, light displays, poetry readings and, of course, celebratory cocktails.

The evening began with a warm welcome from the master of ceremonies, Lucio Rossi, who shared his enthusiasm about the new phase of the HL-LHC project and thanked the attendees for their dedication to the project. Then poet and writer Davide Rondoni took to the podium and shared his newest piece inspired by "light", accompanied by music, which then crescendoed with performances by Louis Montesinos on the drums followed by CMS physicist Chiara Mariotti on the flute. The music for the event was composed by physicist and composer Domenico Vicinanza from GÉANT and Anglia Ruskin University (UK). He used sonified LHC beam data to generate the melodies.

A SPIN-OFF COMPANY HELPS TO UNLOCK THE FULL POTENTIAL OF INVENIO SOFTWARE

In recent years, the success of Invenio meant that the team of software developers based in the CERN IT Department were receiving more and more requests to assist organisations in creating new Invenio installations, as well as providing support for them. The large number of support requests required a new solution. CERN therefore decided to help a team of budding young entrepreneurs to set up a company to provide specialist Invenio support.

The TIND team visits the CERN Data Centre. Image: Martin Fürbach.

What do the CERN Document Server, the CERN Open Data Portal, EUDAT's B2SHARE, INSPIRE and Zenodo all have in common? Easy, they all run using the open-source software Invenio. The Invenio software suite is designed to support online digital libraries and document repositories. On the CERN Document Server, for instance, it manages around 1.5 million bibliographic records.

Since its launch in 2002, a highly active open-source community has grown around Invenio, with more than 50 developers contributing new code each year. Today, besides CERN, Invenio is being co-developed by an international collaboration comprising institutes such as DESY, EPFL, Fermilab and SLAC. It is being used by these organisations — as well as many others — to underpin a wide range of tools. "The large demand for the Invenio technology comes from both research organisations and private companies," says Jean-Yves Le Meur, head of digital library services in the CERN IT Department, who also had the initial idea of outsourcing Invenio support. "After a short while, we realised that we could no longer keep up in terms of providing support ourselves on a best-effort basis."

The solution came in 2012 from master's students at the School of Entrepreneurship (NSE) at the Norwegian University of Science and Technology (NTNU), who came to CERN for their annual 'technology screening' event, organised by the Knowledge Transfer Group. Throughout this week-long educational visit, the students assess the market potential of a range of selected CERN technologies. Alexander Nietzold and Kenneth Hole were among the NTNU students who came to CERN as part of this programme. Invenio was one of the technologies they learnt about and they decided to explore the possibility of setting up a company to provide support services for this software.

By May 2013, they had formally registered TIND Technologies as a company in Norway; by the end of the year, they already had their first customers. In February 2014, TIND signed an agreement with CERN for the provision of technical support by the Organization's Invenio development team and the Knowledge Transfer Group.

Nietzold, Hole and two other NTNU colleagues were associated with CERN for one year, during which they developed and launched a cloud-based hosting service for Invenio. Today, they have contracts to host Invenio for the UNESCO International Bureau of Education, the California Institute of Technology and the Max Planck institute for Extraterrestrial Physics, as well as for a range of companies and other high-profile organisations. They also soon intend to launch a new Invenio application for managing and hosting research data.

Nietzold is the CEO of the company, which today is based in Trondheim, Norway. "Invenio is really flexible," he explains. "It has a lot of application areas, so there's a lot of potential for growth."

"We're pleased that the company has already grown to include eight members of staff," says Hole. "We simply wouldn't be where we are today without the fantastic support we've received from CERN, as well as from NTNU Discovery and Innovation Norway."

Andrew Purcell

THE GLOBE LAID BARE

If you're at CERN at the moment, you will certainly have noticed the work under way on the Globe. The structure, which has been in pride of place opposite the Laboratory for over ten years, has never been so completely laid bare. But, as we explained in a previous article, it is all for a good cause. The Globe is built entirely from wood and certain parts of it need to be replaced.

Picture the general structure of the Globe. In simple terms, the building consists of two spheres, one inside the other. The inner sphere houses the *Universe of Particles* exhibition and the conference room and is connected to the outer sphere by two access ramps. "Each of these two spheres is made up of eighteen large supporting arcs," explains Amaya Martínez García of the GS department, who is supervising the Globe renovation project. "These eighteen arcs are supported by braces, which ensure the structure's horizontal stability. The main aim of the Globe renovation project is to replace the arcs that form the outer sphere." This work must be done in strict sequence to prevent the structure from collapsing like a house of cards. To ensure that the building remains stable, 75% of the bracing must be in place at all times. The Globe has therefore been divided into four quarters that will be renovated one by one, and a 35-tonne shoring tower has been erected inside to take the weight when the arcs are removed. One complete quarter of the structure – five 32m arcs (2 x 16m) weighing 6 tonnes each – has been renovated so far.

The new arcs are made of treated pine and so are more resistant to bad weather than the original spruce ones. "To protect the wood

The Globe after the removal of all the sun baffles. Image: Lucien Fortunati.

even more effectively against bad weather, the new arcs are covered with stainless steel fitted with gutters to drain runoff water, which is the main cause of the deterioration that we have seen occurring to the structural elements of the Globe and its ramps," explains Martínez García.

The 1650 panels that make up the Globe's sun baffles were all removed when the renovation work began and have been meticulously examined and assessed – one by one! – by CERN and the design office Charpente Concept. "The 70 sun baffles from the middle section, which had been the most exposed to the weather, needed replacing," says Martínez García. "The rest will be restored through sanding, coating with a natural oil varnish and replacing certain damaged panels."The ramps will be completely renovated and treated with a protective resin coating.

If all goes to plan, the Globe will open to the public once more at the beginning of April 2016 and its new frame should last another 40 years.

Anaïs Schaeffer

HOW TO AVOID A NIGHTMARE ON CERN STREET

You boot up your laptop and seek out the nearest secure Wi-Fi network. It's the twenty-first century - surely there must be something available? But as the search continues and the spinning ball keeps on turning, you start to feel that slow creep of dread… unless, of course, you're using Eduroam!

"Eduroam is a secure, worldwide roaming Wi-Fi access service developed for the international research and education community*." Put another way, Eduroam can save you from the frustration, misery and hopelessness you'd otherwise experience when trying to get your device online in a new location. It is simple, secure and – once you are connected – provides you with Internet access in universities and facilities around the world – including at CERN.

With a simple click, CERN users can install Eduroam credentials onto their laptop, tablet or mobile device. These credentials act as a "master password", allowing you to unlock Eduroam Wi-Fi networks around the world.

The new network has been strongly embraced by visitors to CERN, for whom connecting to the Wi-Fi was always a bit of a chore: "While CERN does have an open Wi-Fi network available for its employees and visitors, connecting to it does take time and patience," says David Foster, Deputy Head of the IT Department. "With Eduroam, however, visitors can be verified directly by their home institute." CERN visitors can access the Eduroam Wi-Fi network across the site, simply by using their home institute login credentials.

Eduroam has even expanded outside traditional academic locations to include museums, trains and even airports. Geneva Airport, for instance, recently adopted Eduroam, allowing visiting academics to get online as soon as they land. "You can find Eduroam almost everywhere – something I've learnt from experience," says David Foster. "Once, I was in Zagreb, Croatia, visiting some friends, when suddenly my phone started going nuts – buzzing with messages and e-mails. Well, we had just happened to walk past a museum that had Eduroam and my phone automatically joined the network. Just like that, I was connected." This was by no means a unique set of events, and David shared similar experiences he has had while in the UK and elsewhere. He adds: "The aim is real global connectivity."

So download your Eduroam certificate today! Just visit the CERN Eduroam webpage on: **http://cern.ch/go/fRj8** (login required) for a simple one-click installation. You can also discover the extensive list of Eduroam network sites on the official Eduroam website on: **https://www.eduroam.org/**.

**The Eduroam network is available to CERN users and visiting academics from Eduroam institutes.*

Katarina Anthony

ALL ABOARD THE SAFETY TRAIN(ING)!

Would you like to influence CERN's safety courses? Do you want to help build better training courses? If your answer is yes to one or both of these questions: now is the time! The Safety Training section is looking for volunteers from the whole CERN community to test new courses before they go online for all members of the personnel.

The Safety Training section is redesigning the CERN e-learning package in order to adopt a more educational approach and to make the courses a more enjoyable experience. The section is now calling for volunteers. "We know we can do much more with testers' help and feedback," explains Christoph Balle, Safety Training section leader. "By having the end users actively involved in the process, we'll achieve our goal of communicating safety in the best possible way. As the volunteers will play an active role in the development of the courses, they will be providing a service to the whole community."

Content is king, particularly in the learning process. This is why content quality should be the guiding principle when designing a new course. "To ensure accuracy, all the safety e-learning courses have so far been tested by people directly involved with the subjects. But this is not enough anymore," continues Christoph. Good and accurate content in addition to a more pleasant look are not the sole factors that make a successful course. He adds: "Since the testers will look at the courses with fresh eyes, they will help us notice potential flaws and improve the courses in general."

A diverse and large group of volunteers can broaden the range of opinions and ideas, enriching the courses by bringing new perspectives and a variety of backgrounds. "The more people involved in our project, the easier it will be for us to create better work," says Christoph. Despite their differences in terms of knowledge or background, all of these volunteers will have one thing in common: the time, energy and resources they will bring will be vital to the courses' success.

"We want to build different groups of testers and make them as heterogeneous as possible," concludes Christoph. "We will then assign each course being tested to a different group. After having followed the course, they will have to provide us with feedback. It won't take more than half an hour of their time, approximately two or three times a year."

What are you waiting for? Take part! Go to: **http://cern.ch/go/7xJS** and sign up to become a virtual member of the Safety Training team.

Rosaria Marraffino

Computer Security

SAHARA - SECURITY AS HIGH AS REASONABLY ACHIEVABLE

History has shown us time and again that our computer systems, computing services and control systems have digital security deficiencies. Too often we deploy stop-gap solutions and improvised hacks, or we just accept that it is too late to change things.

In my opinion, this blatantly contradicts the professionalism we show in our daily work. Other priorities and time pressure force us to ignore security or to consider it too late to do anything… but we can do better. Just look at how "safety" is dealt with at CERN!

"ALARA" (As Low As Reasonably Achievable) is the objective set by the CERN HSE group when considering our individual radiological exposure. Following this paradigm, and shifting it from CERN safety to CERN computer security, would give us "SAHARA": "Security As High As Reasonably Achievable". In other words, all possible computer security measures must be applied, so long as they are feasible and cost-effective. In order to achieve this, the security aspects of a new software application, computing service or control system would need to be reviewed beforehand – in the same way that other aspects, like functionality, availability, maintainability or usability, are defined and agreed upon beforehand.

I am happy that many of our colleagues from several departments, including BE, HR, FP, TE, and the HSE Unit, contacted us very early in their development and procurement process in order to check the corresponding security footprint. Great job guys. I hope that many more will do the same!

Unfortunately, in some cases, the Security team is involved too late in the process. This was the case, once again, with some of this year's summer students. My fear that we would need to disappoint a few of them at the end of their contracts came true once again… in particular those students who were supposed to set up a web application. Summer students tend to do everything from scratch. Thus, as usual, at the end of their contracts, they ask us to open CERN's outer perimeter firewall for their web application. But hold on. The application runs on a laptop under the student's desk? His/her supervisors have no idea how to maintain its "Ubuntu" operating system? The web technology is outdated? It employs "Joomla!" or "Wordpress" instead of CERN's Drupal? The application is using a local login or sending login passwords in plain text over the network? The webpages themselves are susceptible to common

security flaws like "cross-site scripting" and "SQL injection"? It's an impressive level-five failure for which we have to decline firewall opening. Result: complete frustration for the student who won't have achieved a thing, a supervisor who is unhappy, and us unhappy too, for killing off a nice project.

Therefore, if you are supervising such a task, make sure your student contacts us at the very beginning. Let's talk about good and bad IT practices; let's talk about the building blocks already provided by the IT department; let's talk about how to architect a good application and create well-designed software. Please spare both of us an uncomfortable situation where we have to scrap your student's project because it is completely insecure.

In fact, the "SAHARA" paradigm should be applied to every computing service, control system, software application and web application at CERN. Consider "security" early enough in your process and it will save time, effort and frustration later on. On both sides. And it will make CERN a more secure workplace, for the benefit of the Organization's operations and reputation!

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

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

Stefan Lueders, Computer Security Team

Ombud's Corner

MINDFULNESS IN THE WORKPLACE

Mindfulness in the workplace: what possible relevance could an ancient Buddhist practice have in today's busy professional world? And yet, the notion seems to have caught on in many organisations as more and more people are finding it to be an effective way of dealing with the complexities of day-to-day working life…

Multi-tasking, managing change, office politics, so many demands on our thoughts and our time… how can we stay focused and effective in our commitments? What can we do to take charge of our lives so that we remain on top of things and do not let ourselves fall victim to the external pressures that surround us? How can we build that inner serenity that will allow us to face whatever comes with equanimity and focus on our own goals and priorities?

There may be as many answers to these questions as there are individual coping strategies, but the benefits of increased self-awareness cannot be denied. Indeed, it is by paying attention to ourselves, by observing our emotions and noting our thoughts that we can train our minds to work better and bring us some relief from stress.

So how then do we put mindfulness to work in practice? The key lies in being aware of what is happening within ourselves when we are faced with difficulties, and in leveraging that awareness to shift out of autopilot mode and bring about a more effective response. For example, when we find ourselves in problematic or conflictual situations, we might ask ourselves: are we seeing things as they really are or has what we experience already been filtered through our own thoughts and preconceptions? Could there be another possible interpretation?

Robert is unhappy because his colleague Andrea has not provided him with the data that he needs for his project to advance. He interprets this to mean that Andrea is deliberately withholding the information and decides to stop collaborating with her.

Peter overhears his supervisor congratulating a co-worker on their project results. He interprets this to mean that his colleague did not credit his share of the work and starts complaining about this to other members of the team.

As a supervisor, Jane needs to give some constructive feedback to one of her team. She feels very uncomfortable about doing this and interprets this to mean that she risks hurting his feelings or demotivating him from his task. As a result, her message to him is confused and unclear.

In all these situations, it is the lens through which we *interpret* things that colours our reactions – certain types of actions trigger certain emotions within ourselves and set off a chain reaction where we find ourselves being carried along by the experience rather than taking charge and getting on top of it. By training ourselves to systematically challenge our interpretations, we can learn to *choose our response* and react in new ways that will free us from the old ingrained and automatic patterns that have proved ineffective in the past.

Putting mindfulness to work therefore allows us to check our usual conditioned responses to challenging situations and hone our own "response-ability" in order to bring about a positive outcome that is of mutual benefit to all.

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

Sudeshna Datta-Cockerill

ROGER ANTHOINE (1925-2015)

CERN was saddened to learn of the passing of Roger Anthoine on 26 October. Roger was the first person in charge of CERN's public relations activities, including VIP visits and the Press Office. He launched the *CERN Courier* and the *CERN Bulletin*, and even invented the role of CERN official guide.

One of CERN's earliest staff members, Roger first established the *CERN Courier* as CERN's in-house magazine, and then, when the *Courier* became the de-facto international journal of high-energy physics, he established the *Bulletin*. It is a tribute to him that both of these publications remain central to life at CERN today. But it is not only in publications that Roger left his mark. As head of the public information office almost from the start, he established the spirit of openness and transparency that still guides CERN's public communications to this day.

The Director-General has sent letters of condolence to his family. You can read more about Roger's career and life in the recent *Courier* article that was published in April to celebrate his 90th birthday. A full obituary will follow in the *Bulletin* and the *Courier*.

Take note

A2 CODE - INTERNAL ACCIDENT REPORT. DOES IT RING A BELL?

A2 Code* - It is under this designation (used by the CERN community) that the form for internal accident reports is hidden. More specifically it refers to the CERN Safety Code A2 "Reporting of Accidents and Near Misses" (EDMS: 335502 or via the official Safety Rules website on: http://cern.ch/go/W9C9).

Which events should be declared?
All accidental events, which cause or could have caused injuries or damage to property or the environment, must be reported especially if they involve:

a) a member of the personnel, visitor, temporary labourer or contractor if it occurred on the CERN site or between sites.
b) a member of the personnel if it occurred while commuting or during duty travel.

Who can fill in the report?
The reporting of occurred accidents or near misses should be made by the person involved or by any direct or indirect witness of the event as soon as possible after the event.

Contribute to the improvement of Safety within the Organization

Why make such a report?
Reporting an accident helps prevent other accidents that could have a common cause and/or the reoccurrence of a similar accident. It is equally important to report near misses. Indeed, statistical studies show that the higher the number of incidents the higher the probability of an accident. It is generally recognised that for 600 incidents without injuries or damage, there are 30 accidents with damage to property, 10 minor injuries, and one serious or even fatal injury. Therefore, the prevention of accidents also involves dealing with near misses.

What happens to a report?
Each report is sent according to a predefined and specific routing to the various people responsible for Safety at CERN. These include: the hierarchy of the creator of the report, the TSOs and DSOs concerned, as well as the HSE Unit.

The reports are registered and analysed in order to define the corrective and preventive actions to be taken, either specific to that situation or generic to the CERN domain.

Take a few minutes to fill in an internal accident report (Safety Code A2)

How to fill in an internal accident report?

1. Log in to EDH
2. Click on "Other Tasks"
3. In the Safety tab, click on "Internal Accident Report"
4. Fill in the form and click on "Send".

For further information please check the document on: **http://cern.ch/go/dz77**.

Who to contact if you have questions?
If you have trouble filling in the form or for any other questions, please write to: **accident-inventory-admins@cern.ch**.

**The A2 Code is different to the HS50 form, which, in accordance with Administrative Circular 14, is to be filled in only in the case of an accident suffered by a person (affiliated to the CERN Health Insurance Scheme) in order to be classified as an occupational accident. This report is independent to the internal accident report (A2 Code).*

HSE Unit

CERN LIBRARY | EVENTS IN NOVEMBER

Book presentation: "The Island of Knowledge: the limits of science and the search for meaning" by Marcelo Gleiser.

Thursday, 12 November
4 p.m. to 5.30 p.m.
Library (52-1-052)
Coffee will be served at 3.30 p.m.
https://indico.cern.ch/event/457320/

To be human is to want to know, but what we are able to observe is only a tiny portion of what's "out there". Brazilian theoretical physicist Marcelo Gleiser traces our search for answers to the most fundamental questions of our existence and reaches a provocative conclusion: science, the main tool we use to find answers, is fundamentally limited. Our tools of exploration limit the precision of our perceptions, and the nature of physical reality (the speed of light, the uncertainty principle, the impossibility of seeing beyond the cosmic horizon, the incompleteness theorem) just adds to our own limitations as an intelligent species. These limitations, though, constitute neither a deterrent to progress nor a surrender to religion. Rather, they free us to question the meaning and nature of the universe while affirming the central role of life and ourselves

in it. Science can and must go on, but recognising its limits reveals its true mission: to know the universe is to know ourselves.

Telling the dramatic story of our quest for understanding, "The Island of Knowledge" offers a highly original exploration of the ideas of some of the greatest thinkers in history, from Plato to Einstein, and how they affect us today. An authoritative, broad-ranging intellectual history of our search for knowledge and meaning, "The Island of Knowledge" is a unique view of what it means to be human in a universe filled with mystery.

"The Island of Knowledge: the limits of science and the search for meaning", by M. Gleiser, Basic Books, 2014, ISBN 9780465031719.

Book-launch apéritif with Johann Rafelski, editor of "Melting Hadrons, Boiling Quarks - From Hagedorn Temperature to Ultra-Relativistic Heavy-Ion Collisions at CERN".

Friday, 13 November
12 noon to 12.30 p.m.
CERN Council Chamber

As a prelude to the "Hagedorn's Legacy" workshop - to be held in the afternoon of the same day - Johann Rafelski will briefly present a new book, largely conceived as a tribute to Rolf Hagedorn. He will provide his personal experience in preparing such a project and collecting many contributions from eminent colleagues in the field. Enjoy his insights and anecdotes with a glass of wine and small snack.

CERN Library

CERN OPENLAB TO HOST INNOVATION AND ENTREPRENEURSHIP EVENT | 26 NOVEMBER

Do you have a bright idea for a business? The first-of-its-kind 'CERN openlab Innovation and Entrepreneurship Event' is a great opportunity for you to explore it further. The event, which is being organised in collaboration with the CERN Knowledge Transfer Group and IdeaSquare, will take place on Thursday, 26 November. This full-day event is also supported by CERN openlab partner company Intel as part of a joint project on innovation and entrepreneurship.

During the morning session, experts from a variety of organisations will speak on diverse subjects related to both innovation and entrepreneurship. From commercialisation and start-up funding to marketing and social impact, the broad range of topics covered by these talks will provide a valuable learning opportunity.

CERN personnel and users are encouraged to come forward with their own innovative ideas for the event. There will be the opportunity to privately discuss these ideas on a one-to-one basis with the experts in the afternoon, with a view to helping CERN personnel and users assess the technical and business feasibility of their proposals (in strict confidentiality).

"The primary mission of our public-private partnership is to accelerate the development of cutting-edge solutions for the worldwide LHC community," says Alberto Di Meglio, head of CERN openlab. "We're now pleased to be collaborating with the CERN Knowledge Transfer Group and IdeaSquare on this event to contribute to the development of innovative ideas with potential applications beyond high-energy physics."

For more information and to register, please visit the event's Indico page on: ***http://cern.ch/go/vsC7****.*

CERN openlab

CONFERENCE | THE BIG BANG AND THE INTERFACES OF KNOWLEDGE: TOWARDS A COMMON UNDERSTANDING? | 11 NOVEMBER

The third in a series of conferences organised by CERN and Wilton Park, this event will once again bring together scientists, theologians and philosophers to discuss the themes of the nature and understanding of a common language, truth and logic.

Wednesday, 11 November at 4 p.m.
in the Main Auditorium
For more information and to register, go to:
http://cern.ch/go/vsC7.

In 2012, CERN and Wilton Park hosted the pioneering international conference *"The Big Bang and the interfaces of knowledge: towards a common language?"*. The event was very successful and a follow-up conference was organised in June 2014 with the purpose of widening the spectrum of scientists, theologians and philosophers involved, continuing the dialogue on one of the key themes that emerged during the first meeting: the nature and the understanding of "truth".

A key theme emerging from the 2014 event was the nature and understanding of logic, and this third meeting will focus on broadening that particular dialogue between scientists, philosophers and theologians. In particular, the meeting will seek to: create a community engaged in advancing inter-disciplinary dialogue between scientists, philosophers and theologians; give insight into new avenues of joint study and research; encourage conversations between scientists, philosophers and theologians about making their work more accessible to each other.

You are cordially invited to attend the concluding open session of the conference, which will also be recorded by the BBC. Registration is mandatory for people who do not hold a CERN access card. All sessions in English only.

SYMPOSIUM |SCIENCE, TECHNOLOGY, INNOVATION & SOCIAL RESPONSIBILITY | 11 NOVEMBER

It is widely recognised that science, technology and innovation are among the most powerful forces driving social change and development today. Their impact on the progress of humanity will be discussed at this symposium.

Wednesday, 11 November
3 p.m. to 6 p.m.
Council Chamber

This symposium, organised by CERN and the World Academy of Art & Science (WAAS) under the auspices of United Nations Office at Geneva, will survey the potential impact of scientific and technological innovation in different fields on the progress of humanity in the 21st century and the alternative mechanisms available to ensure socially responsible management of these activities by the research community, business and governments.

The introduction will be given by Rolf Heuer, CERN Director-General, Michael Møller, UNOG Director-General, and Heitor Gurgulino de Souza, WAAS President. Registration is mandatory for people who do not hold a CERN access card. The talks will be in English only. The event is not webcast.

Learning

PREPARING FOR RETIREMENT - NEW SEMINARS

We would like to take the opportunity to inform you about a new programme related to retirement, organised by the Human Resources Department. Retirement marks the end of a career and the start of a new chapter in life. In all cases, being well-informed and prepared is necessary to cope successfully with this transition.

The programme has been developed for **staff members** and consists of two seminars:

1. **Leaving CERN** (half day seminar): short presentations by internal speakers, focusing on what options CERN offers at the end of your career:
   - organised once per year,
   - next session scheduled on **24 November 2015**, in the afternoon,
   - enrolment and more information on Indico (**http://cern.ch/go/rD9k**).
2. **Preparation for retirement** (2-day seminar): interactive workshop (in smallgroups) delivered by external experts, focusing on how to prepare psychologically as well as practically to cope with all the changes retirement brings:
   - organised regularly **in 2016**, in English or French,
   - enrolment via the CERN training catalogue on: **http://cern.ch/go/KnT7**. *(Please note that the "Sign-Up" button will only be activated as of Monday, 9 November – apologies for this technical inconvenience).*

If you are a staff member and considering retirement in the next one or two years, then these seminars are ideally suited for you, and we encourage you to join. Spouses/partners are also welcome – please indicate their participation when you enrol.

For more information, you can contact Erwin Mosselmans on: ***erwin.mosselmans@cern.ch,*** *HR-LD, tel. 74125.*

Human Resources Department

Seminars

FRIDAY NOVEMBER 06, 2015

08:45 **CERN School of Computing**: Meeting of the Advisory board **513 R-070**

TUESDAY NOVEMBER 10, 2015

11:00 **LHC Seminar**: ALICE results
17:00 **Miscellaneous**: York ATLAS meeting

WEDNESDAY NOVEMBER 11, 2015

11:15 **ISOLDE Seminar**: Nucleosynthesis of heavy elements in supernovae and neutron star mergers
16:00 **Science and Society**: The Big Bang and the interfaces of knowledge: towards a common understanding? **Main Auditorium**

THURSDAY NOVEMBER 12, 2015

11:00 **Academic Training Lecture Regular Programme**: The Cosmological Constant Problem (1/2) **Council Chamber**

FRIDAY NOVEMBER 13, 2015

11:00 **Academic Training Lecture Regular Programme**: The Cosmological Constant Problem (2/2) **Council Chamber**

TUESDAY NOVEMBER 17, 2015

11:00 **EP Seminar**: NOVA results
11:00 **Miscellaneous**: York ATLAS meeting

Supplemental

NEWS

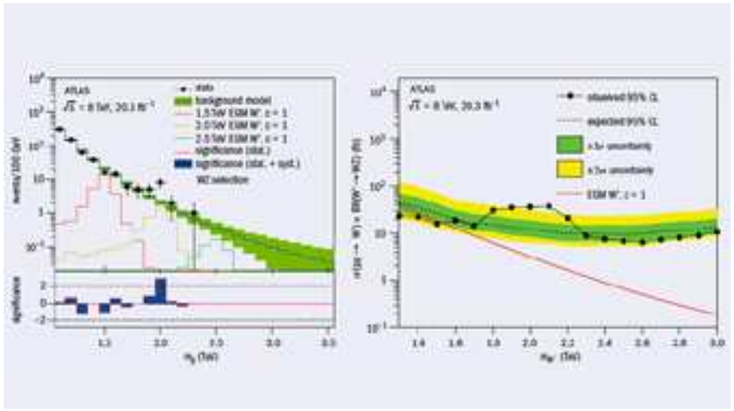
FROM THE CERN WEB: STANDARD MODEL, SESAME AND MORE

This section highlights articles, blog posts and press releases published in the CERN web environment over the past weeks. This way, you won't miss a thing...

Is the Standard Model about to crater?
28 October – CERN Courier

The Standard Model is coming under more and more pressure from experiments. New results from the analysis of LHC's Run 1 data show effects that, if confirmed, would be the signature of new interactions at the TeV scale.

Continue to read on: **http://cern.ch/go/F8xm**



Left: ATLAS non-leptonic M_{WZ} data. Right: ATLAS σ × B exclusion for W' → WZ.

New CERN programme to develop network between SESAME schools
22 October - by Harriet Jarlett

In September CERN welcomed 28 visitors from the Middle East for the first ever student and teacher school for SESAME.

SESAME is a third-generation synchrotron light source nearing completion in Jordan that will allow researchers from the region to investigate questions from a broad range of subjects, including the natural sciences, archaeology and the arts.

Continue to read on: **http://cern.ch/go/vJQ7**

Students and teachers participate in lectures about CERN science at the first ever SESAME teacher and students school.

CERN supports new business incubation network in Spain
20 October - by Harriet Jarlett

This week CERN signed its eighth Business Incubation Centre of CERN technologies (BIC) agreement with INEUSTAR, the Spanish Science Industry Association.

The programme, called the INEUSTAR-Pioneers, aims to bridge the gap between basic science and industry, supporting businesses and entrepreneurs to turn innovative technologies related to high-energy physics from technical concepts into a market reality.

Continue to read on: **http://cern.ch/go/8ffT**

Rolf Heuer, CERN's Director-General, and Javier Cáceres, INEUSTAR´s General Manager, sign the BIC agreement.

TAKE NOTE

CLOSURE OF THE CAR POOL IN BUILDING 130 UNTIL 6 NOVEMBER

The Car Pool, Building 130, will be closed from Friday, 9 October until Friday, 6 November for renovation.

All activities, such as SIXT rental cars and maintenance of the CERN car fleet, will be temporarily transferred to the Car Pool at Building 124.

Mobile phone: 161113 (+41 75 411 1113).

Thank you in advance for your understanding.

GS-IS Group

QUANTUM @ THÉÂTRE FORUM MEYRIN | 30-31 OCTOBER

The Gilles Jobin Company has the pleasure of welcoming you to QUANTUM @ Théâtre Forum Meyrin.

QUANTUM @ Théâtre Forum Meyrin
Friday, 30 October - 8.30 p.m.
Saturday, 31 October - 7.00 p.m.

SPECIAL PRICE FOR CERN PERSONNEL: 15 CHF upon presentation of your CERN card (regular price: 25 CHF/20 CHF).

QUANTUM is a "creative collision" between 2012 Arts@CERN resident artists Gilles Jobin, choreographer, and Julius Von Bismarck, visual artist. Von Bismarck's lumino-kinetic installation lights up the stage while Carla Scaletti's music score uses real LHC "sonified" data! Physicists Michael Doser and Nicholas Chanon participated in the creation as scientific advisors to the choreographer. Created at the CMS experiment for the CERN Open Days in 2013, QUANTUM comes back to Geneva at Théâtre Forum Meyrin for its 50th performance after a 100,000 km world tour that took the company from New York to San Francisco, Vancouver to South America and around Europe!

Théâtre Forum Meyrin offers an art and sciences programme around QUANTUM:

Friday, 30 October

- **7 p.m.**: *"En quête de matière"*, film by Mark Levinson
- **9.30 p.m.**: talk after the show and meet the artist

Saturday, 31 October

- **4 p.m.**: *"En quête de matière"*, film by Mark Levinson
- **5:15 p.m.**: debate - *"Art et Sciences"* Monica Bello, Head of Arts@CERN, Gilles Jobin, choreographer, Sami Kanaan, Administrative Councillor in charge of Culture and Sport, physicist by training, Frédéric Plazy, Director of *La Manufacture* and astrophysicist.
- **8.30 p.m.**: *"La Fièvre des particules"*, film by Mark Levinson

Following QUANTUM, the Gilles Jobin company will be organising an exceptional Seminar and Research Workshop for artists and scientists.

GVA Sessions Made in Meyrin
"Choreography in the Quantum space"
31 October to 6 November 2015
in Geneva

Guest of honour: India

Guests and speakers: Gilles Jobin, choreographer (CH), Nicholas Chanon, CERN physicist and CNRS researcher (FR), Monica Bello, Head of Arts@CERN (ES), Carla Scaletti, composer and software designer @symbolicsound (USA), Minerva Muños, physicist and choreographer (MX), Peter Mettler, film director (CAN), Sara Camnasio, astronomer (USA) and more…

For GVA Sessions information and to sign up go to: **http://cern.ch/go/gxP7**.

Open to artists and scientists!

More information on QUANTUM on:
http://cern.ch/go/W6F6.
Reservations on:
http://cern.ch/go/Hhv8.

VACCINATION AGAINST SEASONAL FLU

The Medical Service once again recommends you to get your annual flu vaccination for the year.

Vaccination is the most effective way of avoiding the illness and any serious consequences and protecting those around you. The flu can have especially serious consequences for people with chronic conditions (diabetes, cardio-vascular disease, etc.), pregnant women, infants, and people over 65 years of age.

Remember, anyone working on the CERN site who wishes to be vaccinated against seasonal flu should go to the Infirmary (Building 57, ground floor) with their vaccine.

The Medical Service will issue a prescription on the day of the vaccination for the purposes of reimbursement by UNIQA.

NB: The Medical Service cannot provide this vaccination service for family members or retired members of the personnel.

For more information:

- The "Seasonal flu" flyer by the Medical Service (**http://cern.ch/go/TS9B**)
- Recommendations of the Swiss Federal Office of Public Health (**http://cern.ch/go/zCW9**)

CERN Medical Service

PLEASE EXERCISE EXTREME CAUTION AT THE SAINT-GENIS ROUNDABOUT

In the interests of enhanced safety, a new pathway for pedestrians and cyclists has been constructed around the outside of the Saint-Genis roundabout. However, the markings of the previous cycle path, which is now closed to traffic, are still visible and can cause confusion. We therefore call on everyone to exercise extreme caution and to use the new pathway.

New two-way markings have been laid out, inviting pedestrians and cyclists coming from the direction of Saint-Genis-Pouilly to go towards the Swiss border or CERN Entrance E using the left-hand side of the roundabout (i.e. the Prévessin side). So, from now on, cyclists must no longer go around the roundabout on the right-hand side and pedestrians will no longer have to cross the D884 dual carriageway.

Similarly, people staying at the Saint-Genis hostel are invited to follow these new markings to get to CERN or to return to the hostel, which means they will avoid having to cross the D35 highway at a spot where traffic is generally very fast.

EXTREME CAUTION must be exercised and the still-visible old road markings must not be followed.

ACADEMIC TRAINING LECTURES | THE COSMOLOGICAL CONSTANT PROBLEM | 12-13 NOVEMBER

Please note that the next series of Academic Training Lectures will take place on the 12 and 13 November. The lectures will be given by Antonio Padilla (University of Nottingham, UK).

The Cosmological Constant Problem (1/2)
on Thursday, 12 November
from 11:00 a.m. to 12:30 p.m.
https://indico.cern.ch/event/453187/

The Cosmological Constant Problem (2/2)
on Friday, 13 November
from 11:00 a.m. to 12:30 p.m.
https://indico.cern.ch/event/453188/

at CERN, Council Chamber (503-1-001)

Description: I will review the cosmological constant problem as a serious challenge to our notion of naturalness in Physics. Weinberg's no go theorem is worked through in detail. I review a number of proposals possibly including Linde's universe multiplication, Coleman's wormholes, the fat graviton, and SLED, to name a few. Large distance modifications of gravity are also discussed, with causality considerations pointing towards a global modification as being the most sensible option. The global nature of the cosmological constant problem is also emphasized, and as a result, the sequestering scenario is reviewed in some detail, demonstrating the cancellation of the Standard Model vacuum energy through a global modification of General Relativity.

UNIVERSITY OF GENEVA | CONFERENCES IN NOVEMBER

To celebrate the 20th anniversary of Michel Mayor and Didier Quelozof's discovery of the first extrasolar planet, the University of Geneva is organising a lecture featuring the two astrophysicists | On the occasion of the centenary of General Relativity, NCCR SwissMAP together with the mathematics and physics departments of the University of Geneva is organising a series of 4 colloquia.

Conferences in French (except on 24 November). For more information, go to: ***http://cern.ch/go/RDd9****.*

Lecture in French. For more information, go to: ***http://cern.ch/go/XHL8****.*

UNIVERSITY OF GENEVA | PHYSICS COLLOQUIUM | 2 NOVEMBER

SECTION DE PHYSIQUE

COLLOQUE DE PHYSIQUE

24, QUAI ERNEST-ANSERMET, CH-1211 GENÈVE 4

Lundi 2 novembre 2015, 17h00
Ecole de Physique, Auditoire Stueckelberg

« Uptake and Transport of Nanoparticles and Drugs in Biological Matter »
Prof. Eckart Ruehl
Physical Chemistry, Freie Universität Berlin, Germany

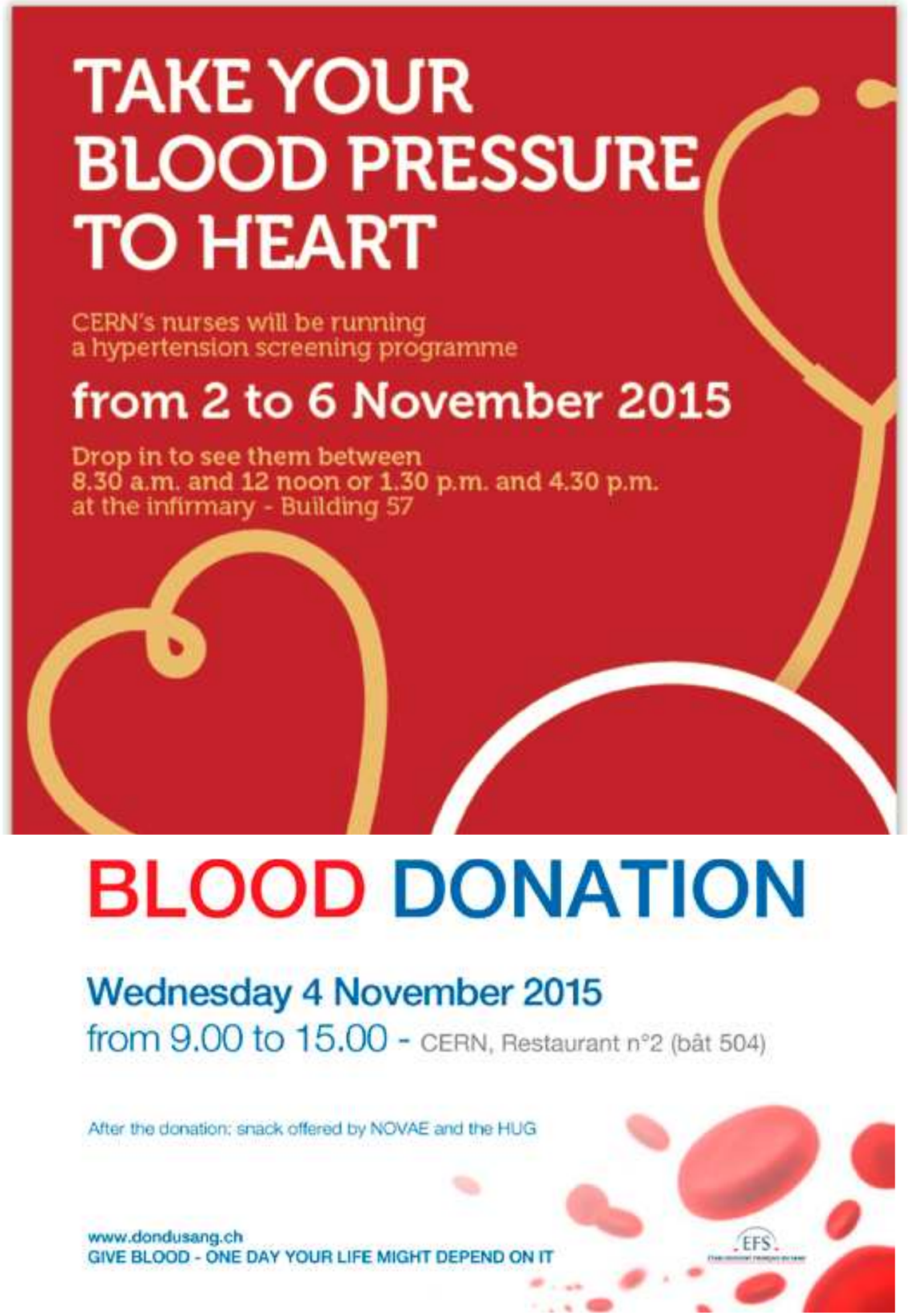
Résumé

Nanoparticles are nowadays frequently used in innovative products, so that humans are increasingly exposed to these ultrasmall man-made objects. Possible adverse health effects due to nanoparticles have been considered, which are still under discussion.
From the physical chemistry point of view this requires to develop in an interdisciplinary research environment a quantitative understanding of the crucial properties of nanoparticles as well as physical and biological barriers preventing particle penetration into cells, organs, and entire organisms. In addition, innovative detection approaches of nanoparticles are of importance for their quantitative and sensitive detection in biological environments.
Selected spectromicroscopy approaches will be presented. Knowledge, that is useful for avoiding any uptake and accumulation of nanoparticles in organisms, can be also exploited for optimizing those processes, in which particle uptake is highly desired, such as nanoparticle-based drug delivery. Modern strategies of nanoscopic drug delivery systems are briefly reviewed.

Une verrée en compagnie du conférencier sera offerte après le colloque.

Prof. Ruth Durrer

Genève, le 28 octobre 2015/RD/nc
Secrétariat de la Section de Physique - N. Chaduiron – 022 - 379.63.83



LEARNING

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

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

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

If you need a course that is not in the catalogue, please contact your supervisor, your Departmental Training Officer or the HR-LD group at **Communication.Training@cern.ch.**

Upcoming Technical Management courses (in chronological order)

		Language	Next Session	Duration	Available places
	Procurement of supplies at CERN up to 200 000 CHF – e-learning	English	n/a	1 hour	n/a
	Achats de fournitures au CERN jusqu'à 200 000 CHF – e-learning	français	n/a	1 hour	n/a
	Project Scheduling and Costing	English	13/14 October	2 days	3
	Managing by Project GDPM	English	21/22 October	2 days	2
	Selecting the right person for CERN	English	19 November	1 day	6
Extra Session	Procurement and Contract Management of Supplies	English	24 November	1 day	3
	Project Engineering	English	10/11 December	2 days	8
New	Innovation Management in Horizon 2020	English	11 December	5 hours	17
New	Gestion de la maintenance	French	14/16 December	2.5 days	6

PLACES AVAILABLE - LEADERSHIP PROGRAMME (UP TO THE END OF 2015)

Please find here the courses in the field of leadership scheduled up to the end of 2015 and which still have places available.

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

If you need a course that is not in the catalogue, please contact your supervisor, your Departmental Training Officer or the HR-LD group at **Communication.Training@cern.ch.**

	Language	Next Session	Duration	Available places
Eléments essentiels de la gestion du personnel pour les superviseurs (adapté de « CDP pour superviseurs »)	French	Module 1 - 2, 3 November Module 2 - 11 December Module 3 - 21, 22 January	5 days	8 places
Comment, en tant que superviseur, tirer le meilleur parti de l'entretien annuel	French	20 November	1 day	8 places
How to get, as a supervisor, the most out of the annual interview	English	30 November	1 day	10 places

Newly launched communication course

Communiquer avec impact	French	12, 13 November	2 days	5 places

PLACES AVAILABLE - PERSONAL DEVELOPMENT AND COMMUNICATION COURSES (UP TO THE END OF 2015)

Please find here the courses in the field of personal development and communication scheduled up to end of 2015 and which still have places available.

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

If you need a course that is not in the catalogue, please contact your supervisor, your Departmental Training Officer or the HR-LD group at **Communication.Training@cern.ch**.

	Language	Next Session	Duration	Available places
Voice and Nonverbal Behaviour in Speech Communication	English	19-20 November	2 days	4 places
Communicating to Convince	English	23-24 November	2 days	4 places
Négociation efficace	French	3-4 November	2 days	9 places
Les enjeux de la voix et du comportement non verbal dans la communication orale	French	5-6 November	1.5 days	6 places
Handling Difficult conversations	English	20 November 27 November 5 February 2016	3 days	3 places
Animer ou participer à une réunion de travail	French	30 November 1, 2 December	3 days	5 places
Communiquer pour convaincre	French	25-26 November	2 days	7 places

The following places are available on the newly launched Communication workshops:

	Language	Next Session	Duration	Available places
Communication: Science or Art? (Workshop 1)	English	19 November	1 day	7
Communication : Science ou Art ? (Atelier 1)	French	27 November	1 day	8
Communiquer avec succès en milieu interculturel (Atelier 2)	French	4 December	1 day	5
Effective Cross Culture Communication (Workshop 2)	English	20 November	1 day	7

SAFETY TRAINING: PLACES AVAILABLE IN NOVEMBER AND DECEMBER 2015

There are places available in the forthcoming Safety courses. For updates and registrations, please refer to the Safety Training Catalogue on: http://cern.ch/go/8tpW.

Title of the course EN	Title of the course FR	Date	Hours	Language
Installation Specific Safety				
ALICE - Confined Space	ALICE - Espace confiné	05-Nov-15 to 09-Nov-15	14.00 - 16.00 and 9.00 - 10.00	English
ALICE - Underground - Guide	ALICE - Souterrain - Guide	10-Dec-15 to 14-Dec-15	14.00 - 16.00 and 9.00 - 10.00	English
CMS - Shift Leader in Matters of Safety (SLiMoS)	CMS - Chefs d'équipe en matière de sécurité (SLiMoS)	13-Nov-15	13.00 - 17.00	English
		27-Nov-15	13.00 - 17.00	English
		11-Dec-15	13.00 - 17.00	English
CMS - Underground - Guide	CMS - Souterrain - Guide	02-Nov-15	14.00 - 17.00	English
ISOLDE - Experimental Hall - Electrical Safety - Handling	ISOLDE - Hall d'expérience - Sécurité électrique - Manipulation	03-Nov-15	13.00 - 14.30	English
		17-Nov-15	13.00 - 14.30	English
		23-Nov-15	13.00 - 14.30	English
ISOLDE - Experimental Hall - Radiation Protection - Handling	ISOLDE - Hall d'expérience - Radioprotection - Manipulation	03-Nov-15	14.30 - 17.00	English
		17-Nov-15	14.30 - 17.00	English
		23-Nov-15	14.30 - 17.00	English
Electrical Safety (EL)				
Habilitation électrique - Electrician Low Voltage - Initial	Habilitation électrique - Électricien basse tension - Initial	09-Dec-15 to 11-Dec-15	9.00 - 17.30	English
Habilitation électrique - Electrician Low and High Voltage - Initial	Habilitation électrique - Électricien basse et haute tensions - Initial	17-Nov-15 to 20-Nov-15	9.00 - 17.30	English
Habilitation électrique - Electrician Low and High Voltage - Refresher	Habilitation électrique - Électricien basse et haute tensions - Recyclage	23-Nov-15 to 24-Nov-15	9.00 - 17.30	French
		07-Dec-15 to 08-Dec-15	9.00 - 17.30	English
Habilitation électrique - Non-Electrician - Initial	Habilitation électrique - Non-électricien - Initial	16-Nov-15	9.00 - 17.30	English
		01-Dec-15	9.00 - 17.30	English
Habilitation électrique - Non-Electrician - Refresher	Habilitation Electrique - Non-Electricien - Recyclage	30-Nov-15	9.00 - 17.30	English
Habilitation électrique - Person making tests in labs or on test-stands - Initial	Habilitation électrique - Personnel réalisant des essais en laboratoire ou en plate-forme d'essai - Initial	23-Nov-15 to 25-Nov-15	9.00 - 17.30	English
Habilitation électrique - Electrician Low Voltage - Working with power on	Habilitation électrique - Électricien basse tension - Travaux sous tension	19-Nov-15 to 20-Nov-15	9.00 - 17.30	French
		23-Nov-15 to 24-Nov-15	9.00 - 17.30	French
		07-Dec-15 to 08-Dec-15	9.00 - 17.30	French
Fire (FS)				
Fire Extinguisher	Extincteur d'incendie	05-Nov-15	10.30 - 12.00	French
		05-Nov-15	14.00 - 15.30	French
		12-Nov-15	14.00 - 15.30	English
		13-Nov-15	10.00 - 11.30	French
		16-Nov-15	10.30 - 12.00	English
		16-Nov-15	14.00 - 15.30	English
		20-Nov-15	10.30 - 12.00	English
		20-Nov-15	14.00 - 15.30	English
		24-Nov-15	10.30 - 12.00	French
		24-Nov-15	14.00 - 15.30	French
Mechanical Safety (M)				
Cryogenic Safety - Fundamentals	Sécurité Cryogénie - Fondamentaux	11-Nov-15	14.00 - 16.00	French
Cryogenic Safety - Helium Transfer	Sécurité Cryogénie - Transfert d'hélium	19-Nov-15	9.30 - 12.00	English
Electrical Palett Truck - Driving	Transpalette électrique - Conduite	16-Nov-15	8.30 - 12.30	French
Overhead Crane - Operator and Slinger - Initial	Pontier-élingueur - Initial	10-Dec-15 to 11-Dec-15	8.30 - 17.30	French
Overhead Crane - Operator and Slinger - Refresher	Pontier-élingueur - Recyclage	09-Dec-15	8.30 - 17.30	French
Non-Ionizing Radiation (NIR)				
Laser - Expert	Laser - Expert	09-Nov-15 to 10-Nov-15	9.00 - 17.30	English
Laser - User	Laser - Utilisateur	19-Nov-15	9.00 - 12.30	English
Radiation Protection (RP)				
Radiation Protection - Controlled Area - CERN Employees and Associates	Radioprotection - Zone contrôlée - Employés et associés CERN	02-Nov-15	9.00 - 17.00	English
		16-Nov-15	9.00 - 17.00	English
		25-Nov-15	9.00 - 17.00	English
		26-Nov-15	9.00 - 17.00	French
		02-Dec-15	9.00 - 17.00	English
Safety Organisation (SO)				
Safety in Projects	Sécurité dans les projets	18-Nov-15	14.00 - 17.00	English
Territorial Safety Officer (TSO) - Initial	Délégué à la sécurité territoriale (TSO) - Initial	01-Dec-15 to 03-Dec-15	8.45 - 17.30	French
Safety and Health (SH)				
Ergonomics	Ergonomie	05-Nov-15	09:00 - 12:00	English
Self-Rescue Mask - Initial	Masque auto-sauveteur - Initial	02-Nov-15	10.00 - 12.00	French
		02-Nov-15	14.00 - 16.00	French
		09-Nov-15	14.00 - 16.00	English
		16-Nov-15	10.00 - 12.00	English
		23-Nov-15	14.00 - 16.00	English
		07-Dec-15	10.00 - 12.00	French
		07-Dec-15	14.00 - 16.00	English

Self-Rescue Mask - Refresher	Masque auto-sauveteur - Recyclage	03-Nov-15	10.00 - 12.00	French
		05-Nov-15	10.00 - 12.00	English
		12-Nov-15	10.00 - 12.00	English
		17-Nov-15	10.00 - 12.00	French
		18-Nov-15	10.00 - 12.00	English
		19-Nov-15	10.00 - 12.00	French
		24-Nov-15	10.00 - 12.00	French
		26-Nov-15	10.00 - 12.00	English
		01-Dec-15	10.00 - 12.00	French
		03-Dec-15	10.00 - 12.00	French
		08-Dec-15	10.00 - 12.00	French
		10-Dec-15	10.00 - 12.00	English
Worksite (WS)				
Confined space	Espace confiné	17-Nov-15	9.00 - 17.30	French
Scaffolding - Accepting	Échafaudage - Réception	23-Nov-15 to 24-Nov-15	9.00 - 17.30	French
Working at Heights - Using a harness	Travail en hauteur - Utilisation du harnais	04-Nov-15	9.00 - 17.30	English
		07-Dec-15	9.00 - 17.30	French

LAUNCH OF TECHNICAL TRAINING COURSES FOR PROGRAMMERS

This autumn, two new technical training courses have been launched for scientists and engineers at CERN who undertake programming tasks, particularly in C and C++. Both courses are taught by Andrzej Nowak, an expert in next-generation and cutting-edge computing technology research.

The training courses are organised in cooperation with CERN openlab and are sponsored by the CERN IT department – there is only a nominal registration fee of 50 CHF. This is an opportunity not to be missed!

- **Computer architecture and hardware-software interaction (2 days, 26-27 October)**

  The architecture course offers a comprehensive overview of current topics in computer architecture and their consequences for the programmer, from the basic Von Neumann schema to its modern-day expansions. Understanding hardware-software interaction allows the programmer to make better use of all features of available computer hardware and compilers. Specific architectural features are discussed (such as execution ports, branching algorithms, etc.), as well as instruction sets, compilers, memory operation and architecture, fundamentals of floating point and acceleration. Demo labs are included.

  Participants can register via the training catalogue on: **http://cern.ch/go/78Mq.**

- **Programming and environments for parallelism (4 days, 3-6 November)**

  The parallelism course dives into a wide range of parallel programming techniques, whether data- or task-parallel. We start with an overview of patterns and look at trade-offs, pitfalls and available parallel programming environments – with a particular focus on OpenMP4, Threading Building Blocks and Cilk. The last day is an advanced class devoted to fine-tuning and balancing parallel programs using modern frameworks, runtimes and APIs. Demo labs are included.

  Participants can register via the training catalogue on: **http://cern.ch/go/78Mq.**

For more information, please contact **Technical.Training@cern.ch**.