

FROM EVERY ANGLE

For nearly 60 years, CERN's surveyors have measured the Laboratory's tunnels and caverns both in preparation for the accurate positioning of magnets and detectors, and to plot their shapes, dimensions and other lumps and bumps. Now that they have the very latest 3D laser scanner, nothing will get past them.



A measurement campaign carried out using laser scanners in the ISOLDE Hall.

About 15 years ago, the arrival of 3D laser scanners, digital devices which can reconstruct various objects in the form of 3D images, opened the door to a whole host of possibilities in the topography world. These new tools have been used at CERN since 2004 to produce increasingly detailed digital images of the LHC tunnels and experiments.

The CERN surveyors' high-performance laser scanner has become an irreplaceable tool in many instances. It is capable of measuring every 2 millimetres from a distance of 10 metres (and therefore 4 millimetres from a distance of 20 metres or 1 millimetre from 5 metres) with a precision of 3 millimetres... and at a speed of 1 million measurements per second! "It works by measuring the difference in phase between the electromagnetic

wave emitted by the laser and the wave received in return," explains Tobias Dobers, an engineer in the SU Section of the ABP Group. "This method means the device is able to make very precise measurements." The laser scanner is controlled remotely and can rotate 360° horizontally and up to 310° vertically (it can't see its own feet!). This huge range of movement means that complex and large objects – such as a detector – can be measured in a matter of minutes.

At CERN, where requirements are often very specific, 3D laser scanners have three main missions: creating 3D models of the accelerator tunnels for the teams who need to install new equipment, particularly as part of the **R2E** (Radiation to Electronics) project; scanning the detectors of the



SCIENCE IN THE SERVICE OF ENERGY

Meetings on the subject of energy have marked the past two weeks at CERN. The first was on how we use energy, the second on how we might generate it in the future. Both are important, not just for CERN, but for society as a whole.

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A word from the DG

Science in the service of energy

Let's take a look at the first of those gatherings. It was the second in a series of workshops on energy for sustainable science, organised by CERN in collaboration with the **European Spallation Source** (ESS), which hosted the first, and **ERF**, the **European association of national research facilities**. The way we use energy is increasingly important, and constitutes a substantial fraction of CERN's operating budget. We consume 1.2 TeraWatt-hours (TWh) of energy per year. To put that in to context, the canton of Geneva consumes 3TWh per year. It is therefore incumbent on a laboratory like CERN to ensure that we use energy in the most efficient, responsible and sustainable way possible. Since the first workshop in 2011, much progress has been made in terms of improvements in efficiency, both planned and implemented, ideas to make use of

waste heat, and efforts to apply CERN technologies to energy supply, transport and storage.

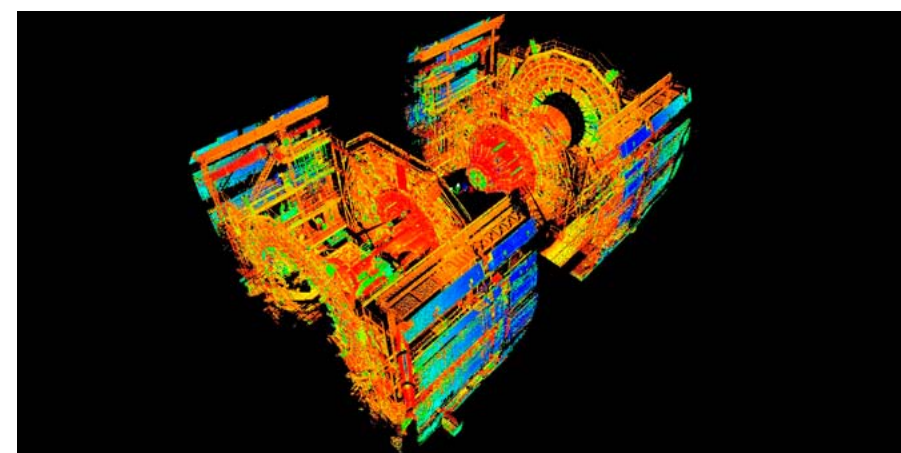
No sooner had that workshop ended than the second meeting began. It was the first in a new series, looking at the science, technology and policies of thorium-cycle fission. Using thorium, rather than uranium, as a fuel has many advantages. Runaway is impossible, the waste products are much shorter lived and the process does not produce material that could be used in weapons. Furthermore, the technology for thorium cycle reactors could also be used to break down existing nuclear waste, and produce isotopes for medical use. This is a field that is rapidly emerging, and it's one in which CERN can claim a strong stake. One of its pioneers is former Director General Carlo Rubbia, and

CERN carried out some of the early proof-of-principle tests at the TARC experiment in the mid-90s. It was therefore natural that the thorium energy conference, ThEC13, should be hosted here.

CERN enjoys considerable visibility and a very positive reputation in the public sphere for its contribution to fundamental science. Events like this allow us to build on that reputation to promote the vital importance of science more generally. Energy generation and supply are among the biggest challenges facing humankind today. Meetings such as these form an important part of the debate, showing how science is essential in ensuring a bright future for us all.

Rolf Heuer

FROM EVERY ANGLE



Cloud of 3D points on the CMS experiment obtained by the laser scanner. The colours are based on the texture (colour, brilliance, etc.) of the objects measured. Black or reflective surfaces for example are more difficult for the laser detector to handle and appear in red in the image, whereas neutral surfaces appear blue-green.

LHC experiments in order to get a precise plan of the locations of cables, the way in which components fit together or even what space is available; and finally to check the conformity of a building after civil engineering work is completed.

Although this tool saves precious time in the field, there is still plenty of work for the surveyors to do. "With millions of measurement points being recorded every second, you can imagine the size of the files we are left with after a measurement campaign," notes Aurélie Maurisset, a

surveyor for the CMS experiment. "In the post-processing phase, we therefore have to clean the files to make them digestible for the computer." And this involves several stages: first, manually cleaning any points which are obviously incorrect. Then the data passes through several filters until a clean and relevant set of data is obtained. "Then there is the meshing stage," continues Tobias. "This operation consists of taking a cloud of individual points and turning them into a consistent surface. This is also the stage where we assemble the various pieces of our puzzle." To reconstruct a 3D object, readings

of course have to be taken from several different positions. The surveyors must move the laser scanner around their target so that they can scan every part, and then, like a panoramic photo, join the different sets of readings together.

The last stage of the process is to integrate the newly digitised object into CERN's coordinates system. This geo-referencing allows all of CERN's teams to work from the same reference source. "It allows us to compare our results thoroughly," adds Aurélie. "It also sometimes reveals errors in the models... which the experts, of course, are quick to correct."

Anaïs Schaeffer

(Continued from page 1)

(Continued from page 1)

LS1 REPORT : ACCORDING TO SCHEDULE

The AD's BHN06 coils have been delivered back to CERN at long last from their repair at a Russian facility. The magnet will be reinstalled underneath the ATRAP experimental area, which has already been partially dismantled to make way for it.

Consolidation of the 7 PS main magnets continues as planned, with 4 magnets already removed from the beam line and delivered to the magnet workshop. A specialised team will be arriving in mid-November (also from Russia) to consolidate the magnets on the surface.

The PS Booster's beam dump replacement project remains ongoing, with the final survey of the beam transfer line currently underway. The SPS's irradiated cable replacement campaign continues as planned; it will be completed by the end of March 2014.

Over at the LHC, the Radiation to Electronics (R2E) campaign is progressing well. These activities are actually a few weeks ahead of schedule at Point 1, where teams have already

begun commissioning relocated cryogenic equipment.

The LHC's **QRL X-ray campaign** continues to search out damaged compensators in sector 2-3. Meanwhile, a damaged compensator has been replaced in sector 1-2, a replacement in sector 5-6 is currently being tested, and a damaged compensator in sector 8-1 has also been replaced and tested successfully.

In sector 4-5, damaged bellows were also found in an electrical feed box. Of the four damaged bellows discovered, one has already been repaired and another will be fixed on the surface during the next weeks.

The Superconducting Magnets and Circuits Consolidation (**SMACC**) project is advancing.

In fact, the first wagon of the SMACC train arrived in sector 4-5 this week. With the opening of the W bellows there, this wagon will have done the full tour of the LHC. This wagon will be reincorporated back into the consolidation train to assist with other SMACC operations.

Elsewhere in the LHC: the first short circuit tests have been carried out in LSS4; electrical maintenance in sector 2-3 has been completed; a non conformity in sector 5/6 is currently being resolved; and a second injector kicker magnet has been installed in LSS8.

CERN Bulletin

THORIUM : IN SEARCH OF A GLOBAL SOLUTION

Last week, an international conference held at CERN brought together the world's main experts in the field of alternative nuclear technology for the first time to discuss the use of thorium for the production of energy and the destruction of nuclear waste. Among the different technologies presented and discussed at the conference was ADS (Accelerator-Driven Systems) which relies primarily on particle accelerators.

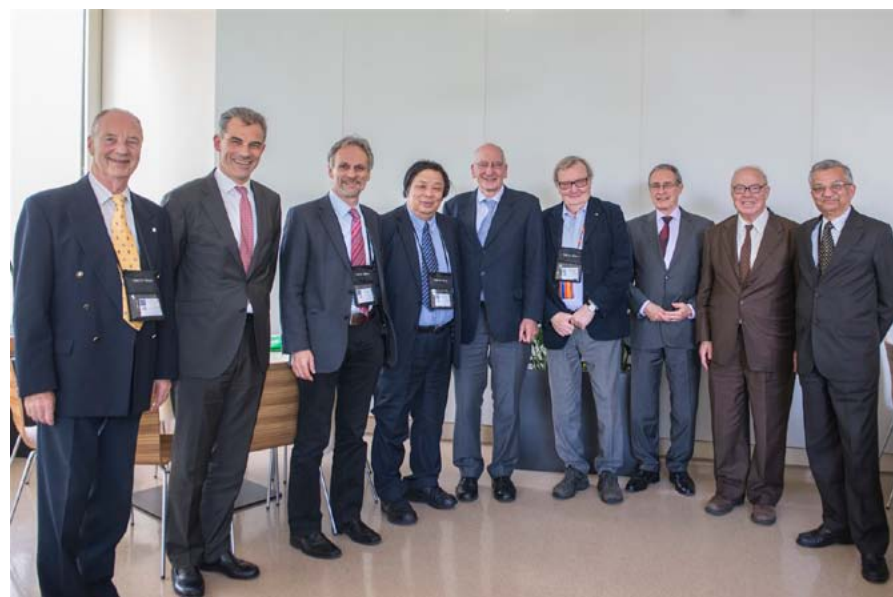
"CERN has always been interested in finding ways in which fundamental research can help to resolve the problems of society," says Jean-Pierre Revol, a physicist at the ALICE experiment who recently retired from CERN and is President of **iThEC**, the international not-for-profit organisation which promotes research and development in the field of thorium and which organised the **Thorium Energy 2013** (ThEC13) conference at the Globe of Science and Innovation from 27 to 31 October. "CERN was the obvious place to hold this conference to take stock of developments in the field of thorium. Carlo Rubbia proposed his Energy Amplifier at CERN and pioneering accelerator technologies are being developed here which could be used for energy production. We can also do simulations of the interactions

between beams and matter and finally we have installations such as n_TOF which provide increasingly precise data for these simulations."

Thorium could be an alternative to uranium for the production of nuclear energy. Its fission processes produce less radioactive waste, it is so abundant on Earth that there is enough to sustain human energy needs almost indefinitely, and its use in an ADS poses far fewer risks than in uranium reactors. The conference provided the global community of scientists and experts in the field with an opportunity to discuss thorium as a potential solution to the problem of energy supply. In terms of the technology, at a global level there are two schools of thought: those who favour the construction

of power plants using thorium in critical molten salt reactors and those who think that the best way to use thorium is in accelerator-driven systems. "This idea was put forward by Professor Carlo Rubbia at CERN about 20 years ago," explains Jean-Pierre Revol. "It involves the use of a proton accelerator to drive a nuclear reactor. There is a lot of development still to be done, but the basic technologies of ADS are in principle known and understood."

At the ThEC13 conference, both of these schools of thought were represented. Their advocates were able to discuss the general situation, exchange viewpoints and compare different prospects and technological challenges. "The dialogue was sometimes quite animated but always very



The conference Chair (far left), the organisers and some of the distinguished participants of the ThEC13 conference held at CERN from 27 to 31 October 2013.

constructive,” says Jean-Pierre Revol. “It even continued after the conference on several levels, for example between the experts in a particular technology regarding the internal components of the system: such as whether the accelerator should be a linac or a cyclotron.”

Numerous synergies arose from the ThEC13 conference. “For example, the Chinese scientists were particularly interested in the n_TOF facility, which could allow them to improve the precision of their calculations,” says Jean-Pierre Revol.

India and China are two important players in thorium R&D, with India being the furthest advanced. These two countries need to increase their energy production dramatically and in a short space of time. Producing the energy they need with fossil fuels would result in a dramatic increase in the amount of CO₂ produced and in chemical pollution globally. The thorium solution therefore merits serious study. “We don’t claim to know it all and we can’t yet say what the ideal solution will be,” concludes Jean-Pierre Revol. “The value of a conference like ThEC13 is to facilitate exchanges between the different

countries facing the same problem. Our aim is to promote research and development in a field which has a real potential to succeed, just as CERN has been doing for a long time in the field of particle physics.”

The conference in figures

Around 200 participants from about 30 countries worldwide attended the conference held at the Globe of Science and Innovation. In addition to those attending at CERN, many followed the conference online via a live webcast. Almost 5000 people watched the webcasts of the presentations on 28 and 29 October, given by Carlo Rubbia, Hans Blix and Anil Kakodkar among others. Rolf Heuer, CERN Director-General, encouraged the participants to work hard since so much is at stake. All of the presentations are available on [the conference website](#) as videos and as downloadable files.

Antonella Del Rosso

Watch the interview with Hans Blix:



Watch the webcast of the talk:



DID YOU SAY “GLACIAL”?

“The situation is improving very slowly, but it’s glacial.” This is Dame Jocelyn Bell Burnell’s depressing assessment of the effects of the many and varied initiatives to increase the number of women working in science, technology, engineering and maths (STEM) careers in the UK.

Speaking at CERN as part of our own drive to increase diversity, the internationally renowned astronomer and passionate campaigner for increasing the number of women pursuing STEM careers emphasised the importance of tackling the problem at government level. “For decades, we have had very committed people doing great things in isolated initiatives but there’s not much to show for it,” said Dame Jocelyn. “We need political pressure and we’ve got to think about changing the science culture.”

Getting both recognition and ownership of the problem at the highest levels of government is essential. Dame Jocelyn cited parental leave following the birth of a child

as one extremely influential change. Evidence suggests that male scientists in Finland (where parental leave is shared between both parents on a ‘use it or lose it’ basis) who return to work after three months leave caring for a new baby advance faster in their careers. It’s not clear why this happens, but Dame Jocelyn suggests that the additional thinking time that this break from the daily work routine allows the brain to be more creative. Cultural and legislative changes on this scale require commitment from the top of government.

Changing science culture is not easy and Dame Jocelyn talked about the importance of overcoming unconscious bias in recruitment, and the benefits of embracing diversity in

project teams - many of the measures that she believes will encourage more women to pursue or remain in STEM careers will also benefit other minorities.

One national initiative that is having a positive effect is the UK Athena SWAN charter scheme in which UK universities analyse their statistics and work practices and identify practical and cultural improvements that will promote women’s careers in STEM. The universities are awarded a gold, silver or bronze award based on their efforts. The UK’s Chief Medical Officer has stated that in several years’ time, universities applying for medical research funding must demonstrate that they have achieved at least the silver award. As

researchers in every field know, future funding is a powerful incentive for change!

As a committed campaigner, Dame Jocelyn acknowledged that the UK’s problems are shared by many other countries. She concluded her talk by saying that CERN could be a powerful agent for change by ensuring

or encouraging its partners and suppliers to be inclusive organisations.

Dame Jocelyn’s talk was followed by a lively discussion in which members of the audience shared their own experiences (good and bad) from countries around the world.

Stephanie Hills

RAYMOND CAMBARRAT (1951 - 2013)

The news of the accidental death of Raymond Cambarrat while out in the mountains on 23 October left his colleagues and friends in a state of immense grief and deep sadness.

Raymond, throughout your career at CERN you watched over our safety, first through your work in the Fire Brigade, then in the field of fire prevention and finally in general safety. Everyone who worked alongside you really appreciated your unfailing smile and the fact that your door was always open.

You were strong, warm, attentive and devoted to others, extremely kind, friendly and affectionate: a good man and a true gentleman.

A great sportsman, you loved to share your passion for sport and its values. As a trainer, you helped thousands of children to discover and fall in love with rugby. You were always curious and looking for the next challenge, such as your incredible and fascinating bike ride from Paris to Beijing.

When you retired, you returned to the area where you were born, your mountains, just as you had always dreamed. And it was in the beautiful Pyrenees that you were taken from us. We would like to think that you’re now watching over walkers who lose their way in those same mountains.

Raymond, we want your loved ones to know how privileged we feel to have shared so many happy moments with you. Your sudden departure has left an immense void in our hearts. We will miss you terribly.

We, your colleagues and friends, share the sadness of your loved ones and join your family and friends in their mourning, with a special place in our thoughts for your wife, Cora, and your children, Grégory and Marion.

Your friends and colleagues at CERN



60 YEARS: SLEEK AND STYLISH

As you are aware, CERN will be celebrating its 60th birthday in 2014. To mark the event, next year will be filled with exciting events... of which there will be a taster in the next issue of the *Bulletin*.



YEARS/ANS CERN

Anaïs Schaeffer

Computer Security

DON'T LET CHROME EXPOSE YOUR PASSWORDS

Do you still struggle with remembering your password? Is this despite our many attempts to help you: "Train your Brain: Don't put your password on paper!", "Creativity@CERN" and "Maths to the rescue!"? Then you might have considered the "save your password" features in Chrome, Firefox or Internet Explorer... these features remember your Facebook, CERN, Twitter, Amazon and ebay passwords. But be careful: it might be easy for someone to read them!

If enabled, Chrome, Firefox, Internet Explorer and others can remember the password of specific sites after you've logged in to those sites the first time. As the passwords are, however, stored in plain text, they can still be read out by anyone with access to that computer. In Chrome, just type "chrome://settings/passwords" and click the password you want to reveal. Or in Firefox, go to "Options->Security->Saved Passwords..." and hit "Show Passwords". Internet Explorer does not provide such a "simple" option, but

there are tools that can access your saved passwords in this browser too⁽¹⁾.

If you are security-aware and want to be on the safe side, never ever type your password into a PC that you don't own or don't trust. Examples of such public PCs include those in Internet cafes, hotels and conference venues, as well as those available near the CERN Users Office, in the CERN Library or in the CERN training centre. If you have to, use private browsing, e.g. the "incognito window"

in Chrome, the "Private Window" in Firefox and "InPrivate Browsing" in Internet Explorer. Also consider changing your password once you're back on your personal PC. In order to store passwords on your personal PC, protect the password vaults with a master password. In Firefox, you "Use a master password" in "Options->Security". For Chrome and Internet Explorer, the master password is tied to the logged-in account. Alternatively, you can use generic password vaults like [KeePass](#) or [Password Safe](#)⁽²⁾.

In the meantime, we are pleased to present the official logo for this important anniversary: created by the Graphic Design Service team, it elegantly combines the curves of the numbers 6 and 0 to mirror the shape of our accelerator chain, and in doing so pays homage to the technological prowess of CERN's installations.

The overlap of the 6 and the 0 also symbolises collaboration between countries, professions and people, which is one of the Organization's fundamental values. The slightly tilted perspective of the logo suggests the geographical layout of CERN's facilities as well as the dynamism of a forward-looking Laboratory.

There's an obvious nod to the CERN logo, but the new logo differs in the way it evokes a more festive spirit: formed of a loop like a ceremonial ribbon, it gives a foretaste of what is shaping up to be a memorable year for the Laboratory.

However, Google has made a [strong statement](#) on this issue, stating that the security of your passwords on your own PC strongly depends on who has access to it. And right they are. The ultimate security for all your individual passwords strongly depends on the protection level of the PC you use; whether all of its applications, in particular its operating system and browser(s), are up-to-

date and patched; the way you browse the Internet and handle emails ("Jekyll or Hyde? [Better browse securely](#)"); and finally how strong and secure your account's password is. Recommendations on the choice of a good password can be found on [our website](#).

⁽¹⁾ Very helpful technical documentation on this

can be found here: <http://raidersec.blogspot.in/2013/06/how-browsers-store-your-passwords-and.html>

⁽²⁾ Note that usage is of your own risk. Neither the CERN Security Team nor the IT department support these tools.

Computer Security Team



Training & Development

SAFETY TRAINING : PLACES AVAILABLE IN NOVEMBER - DECEMBER 2013

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

November - December 2013 (alphabetical order)

Driving of forklifts

04-NOV-13 to 05-NOV-13, 8.30 - 17.30, in French with handouts in English

Driving of cherry-pickers

09-DEC-13 to 10-DEC-13, 8.30 - 17.30, in French with handouts in English

Electrical habilitation for electricians in low voltage

30-OCT-13 to 01-NOV-13, 9.00 - 17.30, in English
04-NOV-13 to 06-NOV-13, 9.00 - 17.30, in English

Electrical habilitation for electricians in low and high voltage

16-DEC-13 to 19-DEC-13, 9.00 - 17.30, in French

Electrical habilitation for non electricians

14-NOV-13 to 15-NOV-13, 9.00 - 17.30, in French

Laser Experts

09-DEC-13 to 10-DEC-13, 9.00 - 17.30, in English

Magnetic Fields

15-NOV-13, 9.00 - 11.30, in English

Driving crane

12-DEC-13 to 13-DEC-13, 8.30 - 17.30, in French

Radiological Protection - Controlled Radiation Area - Course A for CERN employees and CERN associates

07-NOV-13, 8.30 - 17.00, in English

13-NOV-13, 8.30 - 17.00, in English
20-NOV-13, 8.30 - 17.00, in English
27-NOV-13, 8.30 - 17.00, in English
28-NOV-13, 8.30 - 17.00, in French
18-DEC-13, 8.30 - 17.00, in French

Refresher course for Driving crane

28-NOV-13, 8.30 - 17.30, in French

Refresher course for Driving of cherry-pickers

06-NOV-13, 8.30 - 17.30, in French
29-NOV-13, 8.30 - 17.30, in French

Refresher course for Electrical habilitation for electricians in low voltage

07-NOV-13 to 08-NOV-13, 9.00 - 17.30, in English
12-NOV-13 to 13-NOV-13, 9.00 - 17.30, in English

Refresher course for Electrical habilitation for electricians in low and high voltage

04-NOV-13 to 05-NOV-13, 9.00 - 17.30, in French

Refresher course for Electrical habilitation for non electricians

05-DEC-13, 9.00 - 17.30, in French
06-DEC-13, 9.00 - 17.30, in French
20-DEC-13, 9.00 - 17.30, in French

Refresher course Self-Rescue Mask Training

04-NOV-13, 8.30 - 10.00, in French
04-NOV-13, 10.30 - 12.00, in English
11-NOV-13, 8.30 - 10.00, in French
11-NOV-13, 10.30 - 12.00, in English
18-NOV-13, 8.30 - 10.00, in French
18-NOV-13, 10.30 - 12.00, in English
25-NOV-13, 8.30 - 10.00, in French
25-NOV-13, 10.30 - 12.00, in English
02-DEC-13, 8.30 - 10.00, in French
02-DEC-13, 10.30 - 12.00, in English
09-DEC-13, 8.30 - 10.00, in French
09-DEC-13, 10.30 - 12.00, in English
16-DEC-13, 8.30 - 10.00, in French
16-DEC-13, 10.30 - 12.00, in English

Risks associated with operations in confined spaces

26-NOV-13, 9.00 - 17.30, in French

Safety in cryogenics - level 1

26-NOV-13, 9.00 - 12.00, in English

Self-Rescue Mask Training

05-NOV-13, 10.30 - 12.00, in French
12-NOV-13, 10.30 - 12.00, in French
19-NOV-13, 10.30 - 12.00, in French
21-NOV-13, 10.30 - 12.00, in English
28-NOV-13, 10.30 - 12.00, in English
05-DEC-13, 10.30 - 12.00, in English
10-DEC-13, 10.30 - 12.00, in French
12-DEC-13, 10.30 - 12.00, in English
17-DEC-13, 10.30 - 12.00, in French

Use of fire extinguisher - live exercises

15-NOV-13, 10.30 - 12.30, in English
20-NOV-13, 10.30 - 12.30, in French
04-DEC-13, 10.30 - 12.30, in English
06-DEC-13, 10.30 - 12.30, in French
18-DEC-13, 10.30 - 12.30, in English

Working at heights - Using a harness to prevent falling from a height

13-NOV-13, 9.00 - 17.30, in French
26-NOV-13, 9.00 - 17.30, in English
27-NOV-13, 9.00 - 17.30, in English
17-DEC-13, 9.00 - 17.30, in French
18-DEC-13, 9.00 - 17.30, in English

Isabelle Cusato, HSE Unit

Take note

SAFETY BULLETIN 2013-2

The HSE Unit just released the Safety Bulletin 2013-2 entitled "Protect your head!".

The Bulletin is available on EDMS under the following number: **1323573**. We would like to remind you that HSE Safety Bulletins are published in English and French and share feedback from incidents/near misses/accidents that have occurred on the CERN site with the aim of improving prevention.

HSE Unit

MOVE! EAT BETTER: TRY THE FIT FORMULA

In the physics world, some formulas lead to a Nobel prize. In the world of health and physical activity, the Medical Service also has a winning formula...

$$\text{FIT (physical activity)} = \text{Frequency} \times \text{Intensity} \times \text{Time}$$



Frequency = more than 3 times per week.

Intensity = physical activity which slightly increases your heart rate and breathing rate.

Time = more than 30 minutes (per session).

As part of our Move! Eat better campaign, the Medical Service is still offering the use of a pedometer (available on loan from the infirmary), which is a really useful tool to help you reach the winning FIT formula.

CERN Medical Service

WATCH OUT FOR THE LEAVES!

Now that autumn is here, dead leaves falling from the trees form a colourful carpet that is pleasing to the eye. However, the reality is less pleasant for pedestrians, since these leaves increase the risk of slipping and falling, especially when the ground is wet.

These conditions are also hazardous for two- and four-wheeled vehicles, whose grip on the ground can be severely reduced, thereby increasing the risk of them skidding out of control. Cyclists are among the most vulnerable road users when faced with these hazards. It is therefore essential to be alert to the dangers, which can be lessened by taking a few simple precautions such as moderating your speed and wearing suitable shoes.

We also invite you to notify the [Service Desk](#) if you notice a road or pavement where there is a high concentration of dead leaves. The CERN Roads and Drainage Service will then ensure that the leaves are cleared in order to reduce the risk of accidents in the area.

HSE Unit

Université de Genève | Séminaire de physique corpusculaire | 20 novembre

Standard Model measurements at the LHC: importance and prospects, Dr Michelangelo Mangano, CERN.

Wednesday 20 November 2013, 11:15 a.m.
Science III, Auditoire 15081
Boulevard d'Yvoy, 1211 Genève 4

Abstract: The key missions of the LHC include the study of the Higgs boson and of electroweak symmetry, and the search for new physics phenomena. These goals, nevertheless, rely on the precise measurements of Standard Model (SM) particles, which are the ultimate measurable decay products of any phenomenon emerging from the LHC. The detailed and accurate study of the dynamics of SM interactions, therefore, becomes a crucial step in fulfilling the LHC's key missions. The dynamical regime exposed by the LHC, with the highest energies ever produced in the laboratory, and the precision required by the experimental measurements, challenge our ability to deliver accurate enough

theoretical predictions, and limit the fullest exploitation of the LHC results. A global and coordinated campaign of SM measurements and comparisons to theory will however greatly enrich the outcome of LHC physics, increasing the sensitivity to anomalies and new phenomena, and better guiding the interpretation of the data.

Organised by Prof. Teresa.Montaruli@unige.ch and Prof. Giuseppe.Iacobucci@unige.ch.

HEPTech Academia – Industry Matching Event on Control Systems for Accelerators and Detectors

The HEPTech AIME (Academia – Industry Matching Event) on Controls for accelerators and detectors will take place from 2 to 3 December in Athens, Greece.



The HEPTech network invites you to Demokritos NCSR to participate in an event that aims to bring together Academia and Industry to share ideas and potential applications of Controls Technology. The event will provide an overview of current Controls Systems for large scale projects including the LHC, the CMS and ATLAS detectors, medical accelerator facilities and contributions from companies active in these fields.

The programme will also address some of the challenges faced by future High Energy Physics projects in the controls area and provide a glimpse into the future requirements of research infrastructures such as the European Spallation Source (ESS), and the Extreme Light Infrastructure (ELI), while exploring different possible approaches to the commercialisation of controls technology.

The event is open to anyone with interest in the areas addressed whether from Academia or Industry. It aims to provide a forum where participants can exchange ideas and foster future collaborations in this area.

Anastasios Charitonidis (FP/KT), on behalf of the organizing committee

John Adams Lecture | 120 Years of Accelerators that Heal | 3 December

120 Years of Accelerators that Heal, Dr Ugo Amaldi, Technische Universität München and TERA Foundation.

Tuesday 3 December 2013 at 14:00
Kjell Johnsen Auditorium, Building 30

Abstract: The discovery of X-rays was made possible by the intelligent use of the best accelerator of the time. Since then, the development of particle accelerators has been at the root of both fundamental discoveries in physics and unforeseeable medical applications. The lecture will describe

the major steps in this 120-year history of diagnostics and tumour therapy.

The first attempts to heal tumours with X-rays were made only one month after Röntgen's discovery, but the understanding of the mechanisms by which the radiation kills the cells and the introduction of dose fractionation took much longer. The use of X-rays in diagnostics developed much faster and its benefits were very visible during the First World War. Today no tumour could be treated and no patient could be operated without a CT scan, which employs an X-ray tube that is not very different from the one introduced by William Coolidge in 1912.

On the particle therapy frontier, more sophisticated and larger particle accelerators

have contributed to the continuous increase of the tumour control rate. The initial betatrons were substituted, at the end of the 1950s, by radiofrequency electron linacs. More recently proton and carbon ion accelerators have become important tools in the fight against tumours, in particular "radio-resistant" tumours. After a review of the rationale for all forms of radiotherapy and of the accelerators used in proton therapy, the European centres for carbon ion therapy will be discussed and the challenges facing the physicists and the engineers developing the accelerators will be described.

Exhibition | Palais des Nations | "Memoria e Futuro" - Smart, sustainable and inclusive management of cultural heritage

7 to 27 November 2013

Opening on Tuesday 12 November 2013 at 12:30 p.m.

Palais des Nations
Salle des pas perdus - Door 15

MEMORIA / FUTURO

TECNOLOGIE
PER IL
PATRIMONIO
CULTURALE

SMART
SUSTAINABLE
AND INCLUSIVE
MANAGEMENT
OF CULTURAL
HERITAGE

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LOCAL ADDRESS AND EMERGENCY CONTACT DETAILS

The HR Department would like to remind members of the personnel that they are responsible for ensuring that their personal data concerning local address and preferred emergency contact details remains valid and up-to-date.

Both are easily accessible via the links below: details and modify if necessary.

- Local address: <https://edh.cern.ch/Document/Personnel/LocalAddressChange> Thank you in advance.

Bureau du chef du département HR

- Emergency contacts: <https://edh.cern.ch/Document/Personnel/EC>
Please take a few minutes to check your

25 YEARS OF SERVICE AT CERN

The 33 staff members having achieved 25 years of service at CERN in 2013 were invited by the Director-General to a reception in their honour on 5 November 2013.



Francis	ANGHINOLFI	PH	Thierry	GYS	PH
Paul	ASPELL	PH	Eugenia	HATZIANGELI	BE
Thomas	BOHL	BE	Jean-Michel	JOUANIGOT	IT
Christian	BOISSAT	IT	Jean-Marie	LE GOFF	FP
Michael	CAMPBELL	PH	Pierre	MAESEN	BE
Laurent	CECCONE	TE	Miguel	MARQUINA	IT
Didier	CHAPUIS	GS	Pedro	MATO VILA	PH
Philippe	CHARPENTIER	PH	Anna	PEISERT	PH
Olivier	COUET	PH	Diego	PERINI	EN
Nicole	CREMEL	IT	Didier	PIEDIGROSSI	PH
Guy	CROCKFORD	BE	Denis	RAFFOURT	GS
Carmelo	D'AMBROSIO	PH	Ignacio	REGUERO	IT
Dimitri	DELIKARIS	TE	José	SALICIO DIEZ	PH
Hans	DIJKSTRA	PH	Anders	UNNERVIK	FP
Maria	DIMOU	IT	Marc	VANDEN EYNDEN	BE
José-Luis	DURAN-LOPEZ	BE	Mats	WILHELMSSON	EN
Jean-Michel	ELYN	BE			

HR Department

WEDNESDAY NOVEMBER 13, 2013

- 11:30 TH Cosmo Coffee **TBA**
- 14:00 TH Theoretical Seminar **Quantum Gravity - Important Challenge for Theoretical Physics** TH Conference Room

THURSDAY NOVEMBER 14, 2013

- 11:00 Collider Cross Talk **Correlation Results from p-Pb Collisions** TH common room

FRIDAY NOVEMBER 15, 2013

- 14:00 Computing Seminar **JEPC: A Java Middleware for Complex Event Processing** IT Amphitheatre

MONDAY NOVEMBER 18, 2013

- 16:00 Other Seminars **IdeaLab seminars - DRAFT (2/8)** 1-1-025

TUESDAY NOVEMBER 19, 2013

- 14:00 TH String Theory Seminar **TBA** TH Conference Room

WEDNESDAY NOVEMBER 20, 2013

- 11:30 TH Cosmo Coffee **TBA**
- 14:00 TH Theoretical Seminar **Divergent series in quantum mechanics and quantum field theory: the issue of Borel summability** TH Conference Room