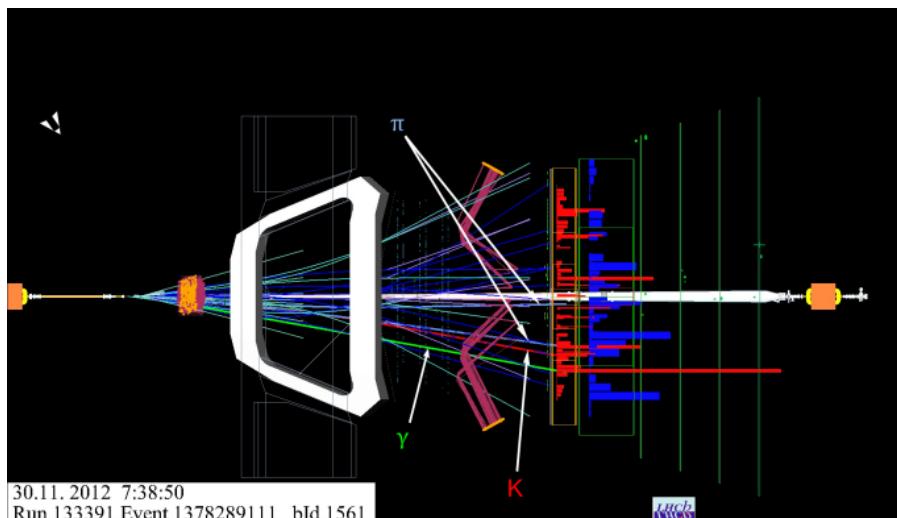


POLARISATION CONFIRMED

The polarisation of photons emitted in the decay of a bottom quark into a strange quark, as predicted by the Standard Model, has just been observed for the first time by the LHCb collaboration. More detailed research is still required to determine the value of this polarisation with precision.



In this LHCb event, K, π and γ are emitted from a $B^+ \rightarrow K^+\pi^-\gamma$ decay. This was investigated by the LHCb collaboration in order to study the photon (γ) polarisation.

If we imagine that photons are like little spinning tops which spin around an axis aligned with their direction of propagation, we can identify two types of photons. Those that are "right-handed" turn in the same direction as a corkscrew, and those that are "left-handed" turn in the opposite direction. If for a large number of decays of a given type we can observe an imbalance between the production of right-handed photons and the production of left-handed photons, we can say that there is a polarisation.

At CERN, the LHCb collaboration has been looking at precisely this phenomenon. In particular it has been studying the polarisation of the photon (γ) emitted in the decay of a bottom quark (b) into a strange quark (s): $b \rightarrow s\gamma$. According to the predictions of the Standard Model of particle physics, the photons emitted in this decay should almost always be left-handed. But until now, this

polarisation had not been demonstrated in an experiment. "Thanks to the data gathered by LHCb in 2011 and 2012, we have been able to study around 14,000 $b \rightarrow s\gamma$ decays," explains Olivier Schneider, a physicist at EPFL and a member of the LHCb collaboration. "By counting the number of photons emitted in different directions, we have successfully demonstrated polarisation (see box). Further research is needed to determine if this is polarisation with an excess of left-handed photons, as predicted by the Standard Model, or an excess of right-handed photons, and in what proportions."

If the polarisation turns out to be different from the Standard Model prediction, where almost 100% left-handed photons are expected, it could mean a U-turn for particle physics: "If our research eventually shows a right-handed polarisation, or even just a left-handed polarisation different to that



CELEBRATING WITH OUR NEIGHBOURS

CERN's 60th anniversary is all about celebrating 60 years of science for peace with people who matter to us. High on that list are our neighbours, and that's why we've devoted two days just for them on 24 and 25 May. There will also be a special day of visits to CMS for local schools, and we'll be taking part in the celebrations for the 200th anniversary of Geneva's entry to the Swiss Confederation.

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A word from the DG

CELEBRATING WITH OUR NEIGHBOURS

It is without doubt that over our 60 years, CERN has had a significant impact on the region. We are a vital part of international Geneva, our economic impact on the region is significant, and our people are involved in all walks of life in the French and Swiss communities where they live.

Over recent years, we have stepped up our efforts to engage more strongly with our neighbours, and share with them the passion and excitement of our research. Our Open Days were originally conceived for the local community. Since 2009, we have invited representatives of the communities around us, and of international Geneva, for a now traditional New Year's ceremony in order to inform them of what is scheduled for the

coming year. And after asking our neighbours how they'd like us to engage with them more, we've helped in the development of scientific tourism, and we've launched a very successful programme for primary schools, which has made appearances in classrooms as far away as Mexico and Argentina.

Over the weekend of 24 and 25 May, people living around the LHC ring who have signed up for tickets at the CERN reception, town halls or tourist information offices listed on our website for neighbours will have the opportunity to visit the CMS detector at point 5 in Cessy, LHCb at point 8 in Ferney-Voltaire, or the LHC at point 4 in Echenevex. Although underground visits are by reservation, anyone coming to point 5 will have a range of

activities to entertain them on the surface. The following Monday at CMS is dedicated to local schools, while at the end of the month, we'll be present throughout the Ascension Day weekend of celebrations marking Geneva's entry to the Swiss confederation.

I'd like to thank all of you who have volunteered to help over the weekend of 24-25 May, and encourage you all to spread the word among your friends and neighbours. For anyone still wishing to volunteer, you can still do so. CERN's relationship with our local communities is an important one, and this is an opportunity for us to show them what an amazing neighbour they have.

Rolf Heuer

POLARISATION CONFIRMED

predicted by the Standard Model, it would open the door to new physics," enthuses Olivier Schneider. "In fact, various theories

beyond the Standard Model predict other polarisation values for the $b \rightarrow s\gamma$ transition. If these predictions were confirmed, it would

open up a whole new front for particle physics." Something which would be music to the ears of many physicists.

Anaïs Schaeffer

Want to know more?

To be more precise, the LHCb collaboration investigated the $B^+ \rightarrow K^+\pi^+\pi^+\gamma$ decay, in which the $b \rightarrow s\gamma$ transition takes place. The imbalance between right-handed photons and left-handed photons can be revealed by the "up-down asymmetry (A_{ud})", which was measured by comparing the number of photons detected above (up) and below (down) the plane defined by the K^+ , π^- and π^+ momenta in the rest frame of these three particles (see Figure 1).

The A_{ud} asymmetry was calculated for four mass intervals of the $K\pi\pi$ system: between 1100 and 1300 MeV/ c^2 ; between 1300 and 1400 MeV/ c^2 ; between 1400 and 1600 MeV/ c^2 ; and between 1600 and 1900 MeV/ c^2 . These four A_{ud} measurements are globally incompatible with the zero value, with a statistical significance of 5.2 sigma (see Figure 2), which indicates that the photons are indeed polarised.

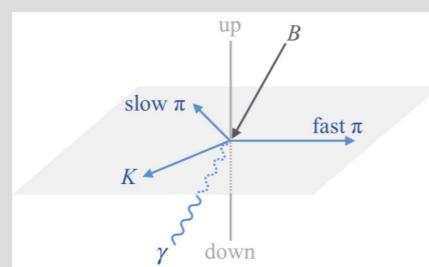


Figure 1: the light grey plane is defined by the momenta of the K^+ , π^- and π^+ particles. By comparing the number of photons detected above (up) and below (down) this plane, physicists can calculate the A_{ud} asymmetry, which is proportional to the photon polarisation.

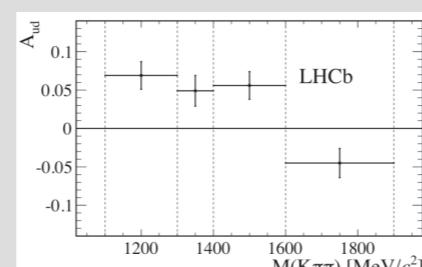


Figure 2: measurements of the A_{ud} asymmetry for four mass intervals of the $K\pi\pi$ system

Note that the A_{ud} asymmetry does not directly provide the λ polarisation value, but is proportional to it according to the relationship: $A_{ud} = k * \lambda$, where k is a constant that is in principle different for each mass

interval of the $K\pi\pi$ system. A more detailed study could allow the value of k to be determined for each mass of the $K\pi\pi$ system. This would also allow the polarisation to be calculated.

(Continued from page 1)

(Continued from page 1)

LS1 REPORT: PS BOOSTER PREPARES FOR BEAM

With Linac2 already up and running, the countdown to beam in the LHC has begun! The next in line is the PS Booster, which will close up shop to engineers early next week. The injector will be handed over to the Operations Group who are tasked with getting it ready for active duty.



Taken as we approach the end of LS1 activities, this image shows where protons will soon be injected from Linac2 into the four PS Booster rings.

Over the coming two months, the Operations Group will be putting the Booster's new elements through their paces. "Because of the wide range of upgrades and repairs carried out in the Booster, we have a very full schedule of tests planned for the machine," says Bettina Mikulec, PS Booster Engineer in Charge. "We will begin with cold checks; these are a wide range of tests carried out without beam, including system tests with power on/off and with varying settings, as well as verification of the controls system and timings."

Among the many major improvements, almost 80% of the Booster's Front End Computers were renovated in the framework of the ACCOR project - the largest percentage of changes in any machine during LS1. This resulted in massive changes in the accelerator's controls system, for which the Controls group as well as most of the equipment groups were heavily involved. "Dry runs have been carried out to test the control system modifications, but the cold checks will allow for a detailed verification of the system as a whole," says Mikulec. "During these checks, the Controls group together with the equipment experts will have to be very responsive to any issues we spot, so that

we will be ready for beam at the end of the month."

One of the more significant improvements to the injector has been the installation of new power converter controllers, FGC3s. These are the newest generation of CERN power converter controllers, and build on the previous generation used in the LHC. The new generation of FGC is expected to replace the obsolete controllers across the whole injector chain. "We will be learning how to operate the new system with the small corrector magnets and look forward to benefitting from its improved performance," says Mikulec. "As the first injector to receive such an upgrade, these performance tests are vital not just for us, but also for the other accelerators."

The Booster's new alignment will also be under the scrutiny of the Operations Group. "Over the past 40 years, many machine elements have moved and often on purpose," explains Mikulec. "We have the difficult situation of having four rings that often have elements in common, like the main quadrupoles. Previously, when a change of the particle orbit was needed, it would sometimes require us to physically move

and tilt the quadrupoles. Connecting orbit correctors to the new power converter controllers finally allows us to steer the beams without moving the magnets." However, these many "misalignments" were ingrained in the typical operation of the injector - so the Operations group will need to re-learn how to steer the beam in the four rings.

Beams will be entering the PS Booster on 30 May, and then need to be sent on to the PS by 20 June. While it will be a jam-packed race to the finish line for the Operations group, it is a challenge they are well prepared to face!

Meanwhile, elsewhere...

In the LHC, preparatory works prior to the cool-down of the first sector (6-7) were completed, and the cool-down of this sector began on 7 May. Access is strictly forbidden for 3 weeks. Pressure tests of the third sector will be done next week.

The PS hardware commissioning has been progressing well. In order for the magnet covers to be installed - the final step in commissioning - the PS power converters will be "unlocked" for one week. This means they will be electrically disconnected, allowing for safe access to the machine. During this "unlocking" teams will have one last chance to carry out work before cold checks by OP.

In the PS Booster, the repaired BI.SHM is currently being replaced. This will conclude in time for the cold checks. Finally, in the SPS the re-installation of the LSS1 is currently underway.

Katarina Anthony

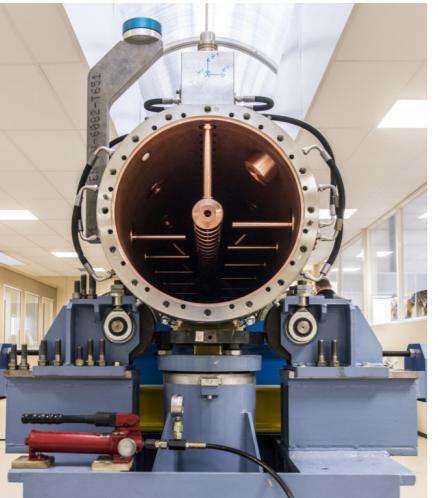
FROM THE DRAWING BOARD TO THE TEST BENCH

After seven years of design, prototyping and manufacturing, the Linac4 Drift Tube Linac (DTL) is being assembled in CERN's Building 181. In fact, the first DTL tank is just a few tests away from installation into the Linac4 tunnel. Let's check in on how this essential element of the accelerator complex has - at last - come into being.

The Linac4 DTL is designed to take the new linear accelerator's H^+ ion beams from 3 to 50

MeV. Divided into three tanks, holding a total of 108 drift tubes in vacuum, each made from

a dozen parts, and assembled with ancillary elements, cooling circuits and hundreds of



A peek inside a Linac4 DTL tank.

bolts and screws, it's no surprise it has been nicknamed a 'puzzle with thousands of pieces'.

A trying tale

Although the first tank will soon be ready for installation, constructing the DTLs has been a trying tale for the Linac4 team. "Not only were we tasked to design CERN's first drift tube linac for over a quarter of a century, we also encountered numerous manufacturing issues," says Suitbert Ramberger, project engineer for the Linac4 DTL. "A precision of ± 0.1 mm is required when positioning drift tubes in the 7.3 m long vacuum vessels and companies rarely have such expertise. So we turned to the Los Alamos team responsible for the Spallation Neutron Source (SNS) DTL, who provided extremely helpful advice on how to proceed."

Innovative design

"We wanted to reduce the complexity of the design and make it reliable for 30 years of operation," says Maurizio Vretenar, project leader of the Linac4 project. "While traditionally DTLs are equipped with screws in order to adjust the drift tube position after the assembly, we concluded that manufacturing techniques had improved to the point where DTLs could be built with fewer means of adjustment. This way we could make do without bellows or double sealing." In fact, this new design was the subject of its own patent (for more information, read the Bulletin article: "The invention that is shaping Linac4").

Extreme precision

Some of the most challenging pieces to manufacture were the girders that hold the drift tubes in place. With geometry of parts measured in terms of a few tens of microns, they tested the limits of traditional manufacturing. "Several companies tendered for the contract but were just not able to guarantee the tolerances," says Ramberger. "Not only does the external manufacturing company need the right machinery, they also need significant expertise. Interestingly, the latter can be traded for the former. Although two girders were final machined at CERN, the main workshops did not have the equipment or environment usually considered appropriate for this type of job! It is amazing what you can do with the right people."

Imitation is the best form of flattery

Now, with seven years of experience under their belts, the Linac4 DTL team are experts in their own right and a resource to other teams

looking to build drift tube linacs. "The DTL in Bilbao's planned 50 MeV light ion facility of the ESS-Bilbao (ESSB) is an exact replica of the Linac4 DTL," says Vretenar, "as is the mechanical design of the DTL for the European Spallation Source (ESS) currently under development at the INFN, Legnaro (LNL). Both institutes contributed to Linac4's DTL development, and now their teams are following the work of our team very closely." No matter the discipline, imitation is always the best form of flattery.

Happily ever after

"The beauty of the Linac4 DTL design is its



Assembling the Linac4 DTL in Building 181.

puzzle-like simplicity," concludes Ramberger. "Each complex piece was designed to slot into place for straight-forward assembly... with no extra welding required. It's been a speedy assembly process and soon all the tanks will be ready to go!"

Katarina Anthony

DATA DEFENDERS

Uniting High-Energy Physics institutes, experimental collaborations and funding agencies, the HEP Data Preservation Initiative (DPHEP) has set out to change the way we save "information".

When we talk about preserving physics results, our minds first turn to preserving raw data. But data preservation is much more than just the keeping of bits; it also involves saving the software used. Data needs to be available once experiments end, and it needs to be interpretable. Suppose a new theory or discovery arises and we need to revisit previous data sets with our new understanding. This could occur five, ten, fifty years from now... how can we ensure that the full potential of our data will be accessible then?

Back in 2009, collaborations at CERN, DESY, SLAC and FNAL had a similar revelation. Colliders were coming to the end of their life

and, if no action was taken, the data would effectively be lost forever. To tackle this issue, laboratories and experiments worldwide established a study group now known as DPHEP. They published a thorough description of the problem, the DPHEP Blueprint, drawing the attention of the HEP community back to the issue and bringing the problem to the top of list. "The main priority was to ensure that data is not lost, since this has happened many times in the past," says Cristinel Diaconu, who chairs the DPHEP initiative.

"We have a clear picture of the problem at hand, and while there are many projects that have been working out solutions to similar issues, they have yet to be put into place in the

HEP community," confirms Jamie Shiers, CERN IT Department member and current DPHEP Project Manager. "That's where our initiative comes in. It is not only providing the IT support and resources but - more importantly - it sets out to change the paradigm we have about data preservation. We already know we can keep the bits, but unless physicists are involved, no one will know what to do with them! Data preservation is something that needs to be considered right from the start of an experiment, looking decades ahead if possible." With many funding agencies now requiring new projects to present a data and software management plan that includes preservation, there's also a financial motivation.

One of the solutions proposed by the DPHEP initiative is to implement a data preservation certification for all experimental projects, based on industry standards. "Instead of insisting on a single area of data preservation, the certifications focus on verifying the data's overall accessibility using a balanced set of criteria," explains Shiers.

With technology changing so rapidly,

whatever hardware looks like the solution today may well be obsolete tomorrow. That being said, an option that looks particularly promising is virtual machines (VM). "CernVM takes a snapshot of an experiment's software environments," says Shiers. "These can be used for data preservation, with snapshots repackaged and accessed in the distant future. The first pilot project using CernVM is packaging together some of the 2010 CMS

data and software environments. We want to prove that virtual machines will work in the long haul, and will check in on the packages in 5 years' time to see if any issues have arisen." The CMS data package will be available for CERN's 60th anniversary outreach activities. Similar projects from ATLAS, ALICE and LHCb are in the works.

Katarina Anthony

THE "KARMA LEVEL SEXY BOTTOM" AWARDS ARE BACK AT CERN

The highly coveted "Karma Level Sexy Bottom" awards are given to the winners of the "Bike to CERN" competition. There is only one way to secure your place in history: commute to work on your bike, no matter what the weather conditions are and how busy you may feel.



The president of the CERN cycling club, Henrik Nissen (left), with Tim Smith, one of the three winners of the "Bike to CERN" Challenge.

challenge them: Bike2Work, which has been going for 10 years and which, every June, mobilises some 50,000 employees from more than 1100 companies and organisations across Switzerland, and the "unofficial Bike to CERN" challenge, which runs throughout the year. In 2013, 125 people took part in this local competition, but many CERN personnel ride to work every day without registering their kilometres. The three winners, all corresponding to the so-called "Karma Level Sexy Bottom", are: Tim Smith (7182 km), Martial Dujardin (5109 km) and Gabriele Thiede (4326 km). The remaining group of participants have all received a diploma stating their respective karma level.

A festive celebration for the winners took place in front of Restaurant 1 on Wednesday, 7 May.

Now is the perfect time to sign up for the 2014 season:

- Bike2Work in June (minimum 10 times).
- The "unofficial" Bike to CERN challenge, which runs throughout the year.

The rule is simple: commit to cycling and the next award can be yours!

CERN Bulletin



WINTER ATOMIADES 2014: CERN SKIERS WIN 31 MEDALS!

The 12th Winter Atomiades took place at Flachau, Austria, from 8 to 15 March 2014. The event, organised by the Association of the Sports Communities of the European Research Institutes (see here), brought together 18 research centres, including CERN, AIT, ESRF, PSI and many others, with a total of about 280 participants.



Lots of fun and a great result for the 13 CERN skiers at the 2014 Winter Atomiades in Flachau, Austria. From left to right and from bottom to top: Lennart Jiriden (PH), Anna Lipniacka (PH), Guillaume Michet (DGS), Vera Chetvertkova (TE), Thierry Boileau (external), Jean-Louis Grenard (EN), Clement Bovet (EN), Rob Kroops (PH), Giuseppe Lo Presti (IT), Simone Campana (IT), Sylviane Gander (external) and Javier Pablos (TE).

The team of 13 athletes from six different CERN departments won 31 medals across all disciplines, in a spirit of fun and fair play. CERN came second in the general ranking of all participating institutes!

The next Winter Atomiades will be organised by ILL Grenoble in 2017 and the forthcoming

summer Atomiades will be organised by JRC Geel, in Belgium in June 2015.

CERN Bulletin

WERNER ALBRECHT (1924 - 2014)

Werner Albrecht, one of the very first mechanical designers recruited by CERN, passed away on 28 March. Born and educated in Zurich, where he spent the first years of his professional life, he joined CERN in June 1955.

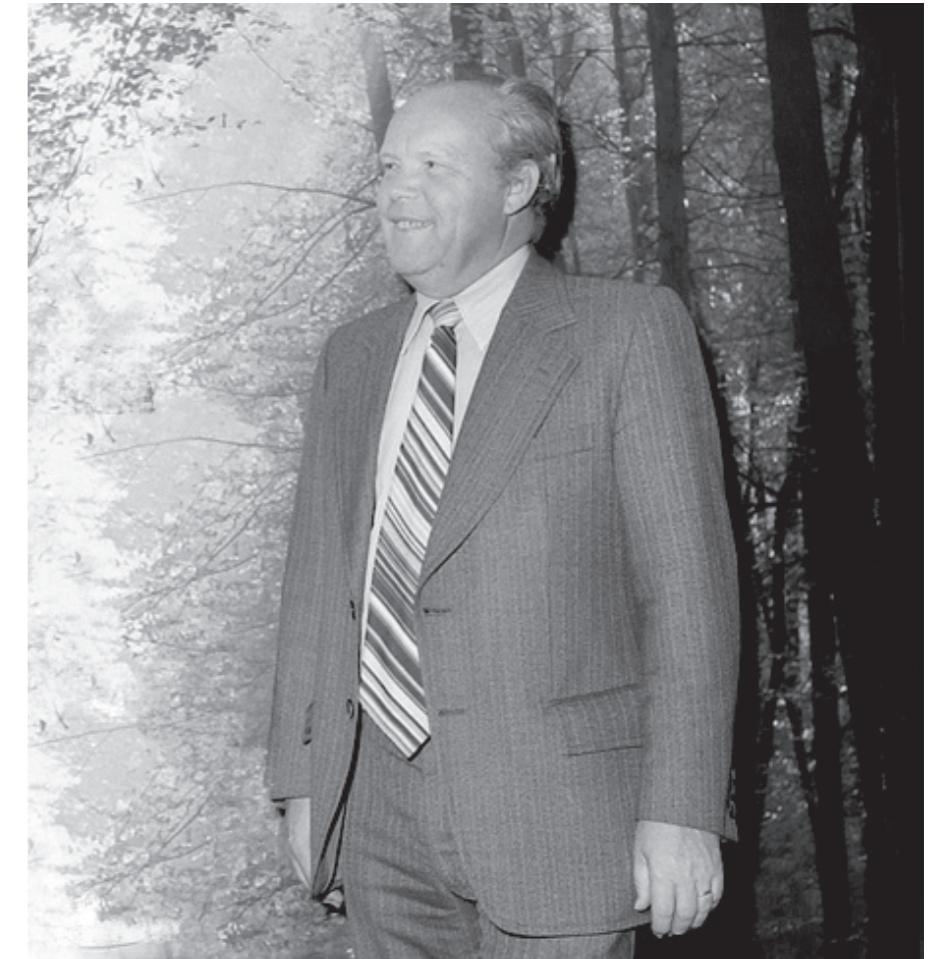
Thanks to his experience and personality, he soon became the deputy to Frank Blythe, the head of the Synchrocyclotron (SC) technical office. The office, which included a large mechanical workshop, had been created in the light of the development and construction of the SC - the first of CERN's accelerators.

For around 25 years Werner kept this position at Frank's side while the services under their responsibility evolved to become the natural facility to provide design and development for a large range of apparatus required by experimental physicists.

After Frank's retirement in 1980, Werner became head of the office, maintaining its typical character as an efficient, informal and friendly service. Omega, UA1, Aleph, Opal and Delphi are examples of large installations that they extensively supported.

Werner was serious, competent, reliable and always happy to help. Greatly respected by his collaborators and by the engineers and physicists using his services, he was always able to find straightforward satisfactory solutions to technical problems, as well as the way to implement them rapidly. He retired from CERN in 1989.

Werner had the greatest respect for the institutions of his country and he felt it was his duty to serve the community. Thus, in Grand-Saconnex, where he lived, he assumed the roles of councillor and President of the Council. After retirement he held the posts of treasurer and Vice-President of the CERN Pensioners' Association (GAC).



Our heartfelt condolences go to his wife Marguerite, his children Roger and Catherine and their families. We, his old friends from CERN, will remember Werner with deep

gratitude and respect.

His CERN colleagues

JACQUES SPALTER (1929 - 2014)

It is with great sadness that we announce the death of Jacques Spalter on 1 April. His funeral took place in the presence of family and close friends.

A graduate of the ESPCI in Paris and then of Stanford where he completed his PhD, Jacques Spalter started work at CERN in 1968. He spent his entire career in the DD Division (which later became the IT Department) and retired in 1994. Throughout this period, he was held in high esteem by successive

heads of the Division, who entrusted him with administration, planning and budget management responsibilities, as well as with the task of representing the Division on personnel recruitment committees.

He lived through the days when IT and computers were still in their formative

years, and went on to participate in the extraordinary advances in this field, which changed the way in which physics experiments were performed and in which data was automatically analysed. All of the computing power was centralised, and the CDC and IBM supercomputers and their

systems became more and more complex. It was therefore necessary to construct the huge Computing Centre, at the instigation of the Director, Mervyn Hine. But in the 1960s and 70s, mini and microcomputers took the experiment halls by storm and, connected together in networks, revolutionised the methods used for both physics and administration. In the 1980s, CERN played an important role in the digital revolution, which underpins today's information society, and the DD Division was the stage for creations such as the WWW and PET, after having been a pioneer in networks and the processing of "big data".



Jacques provided the essential administrative support our Division needed to succeed in these endeavours. We remember that he approached his work with passion, precision and rigour. He fiercely defended these values, sometimes showing a degree of impatience, but always remaining courteous. For his closest colleagues, Jacques became a friend and we will miss him greatly.

To his wife, children and grandchildren, we address our sincere condolences.

His colleagues and friends

Behind the scenes of GS

NOTHING LEFT TO CHANCE

The AS (Alarm Systems) Section in the GS-ASE Group is, as its name suggests, in charge of the various alarm systems spread across CERN's many sites. Its mission? To install, manage and maintain more than 26,000 alarms of all types located both above ground and in the tunnels.

Detection

Among these systems, the best known are of course the heat and/or smoke detectors, which quickly raise the alarm in the event of a fire. CERN has 8500 of these devices in total. In combination with these, evacuation alarms are also found all over the Laboratory, including some 1800 break glass call points for 2000 sirens. In the LHC tunnel, the evacuation alarms are connected to 200 Oxygen Deficiency Hazard (ODH) sensors, but this is not the only way of triggering an alarm. "The Fire Brigade permanently monitors the evolution of safety conditions in the LHC tunnels," says Henrik Nissen, who is responsible for "Alarm Transmission" in the GS-ASE-AS Section. "If necessary, they can also trigger the evacuation sirens." Other types of detectors, such as for monitoring the emission of explosive or toxic gases, are also in place in certain specific areas.



A fire detection system using suction (via pipes indicated by arrows) was recently installed at Point 7 of the LHC.

Of course, the unique nature of CERN has also required the development of specially designed alarm systems. The GS-ASE-AS Section has therefore worked closely with the members of the four main LHC experiments to develop the so-called "Sniffer" systems, which are able to monitor both fire and gas in the very heart of the particle detectors. "We have

developed sensors equipped with pumps and long hoses," explains Henrik Nissen. "The hoses are inserted right into the heart of the particle detectors, where they continuously suck up air. This is then analysed by the sensor, which is located a few hundred metres away."

Transmission

Each type of alarm is connected to a detection unit, which is then connected to a transmission unit. From here, the information – for example, which type of alarm has been activated in which building – is transmitted to the Fire Brigade's Safety Control Room (SCR) and to the CERN Control Centre (CCC). "The information is transferred via two channels," explains Henrik Nissen. "The first channel is a basic electrical (wire) network which, by its very nature, ensures a very high level of reliability. The second channel is a computer network which, although it allows more

precise information to be transferred, is not as reliable as the first." All of the alarms essential for the safety of people and equipment (level 3 alarms), as well as vital technical alarms (for cryogenics, for example) always use both channels. This redundancy ensures that the information is transmitted whatever happens.

On the maintenance side, each of the 11,000 level 3 alarms is tested every year. This is a mammoth task which requires the expertise of seven people working full time in close cooperation with CERN's Fire Brigade.



Test platform for detecting gas (including ODH).



The Fire Brigade's Safety Control Room, which receives level 3 alarms.

Anais Schaeffer

Computer Security

IMPROVE SOFTWARE, AVOID BLUNDER

Recently, a severe vulnerability has been made public about how Apple devices are wrongly handling encryption. This vulnerability rendered SSL/TLS protection useless, and permitted attackers checking out a wireless network to capture or modify data in encrypted sessions.

In other words, all confidential data like passwords, banking information, etc. could have been siphoned off by a targeted attack. While Apple has been quick in providing adequate security patches for iOS devices and Macs, it is an excellent example of how small mistakes can lead to big security holes. Here is the corresponding code from Apple's Open Source repository. Can you spot the issue?

```

1 static OSStatus
2 SSLVerifySignedServerKeyExchange(SSLContext *ctx, bool isRsa, SSLBuffer signedParams,
3                                 uint8_t *signature, UInt16 signatureLen)
4 {
5     OSStatus err;
6     ...
7     if ((err = SSLHashSHA1.update(&hashCtx, &serverRandom)) != 0)
8         goto fail;
9     if ((err = SSLHashSHA1.update(&hashCtx, &signedParams)) != 0)
10    goto fail;
11    if ((err = SSLHashSHA1.final(&hashCtx, &hashOut)) != 0)
12    goto fail;
13    ...
14 fail:
15    SSLFreeBuffer(&signedHashes);
16    SSLFreeBuffer(&hashCtx);
17    return err;
18}

```

There you are!

The bug was introduced in line 10 most likely due to one copy/paste too many. While the "goto" in line 9 is executed only if the "if"-statement of line 8 is true, the additional "goto" of line 10 bypasses the subsequent security checks and the SSL connection is unverified. Such bugs are also not uncommon at CERN!

Security is an integral part of software in the same way as availability, functionality, maintainability and usability. More secure code means fewer interventions to fix and patch problems, thus increasing availability and improving maintainability. More secure code also means better control of user interfaces and user input, thus enhancing usability and functionality. Therefore, we strongly encourage you to perform in-depth testing of your software prior to deployment. Simply enable your compiler's warning ("gcc -Wall -Wextra -Werror" for C/C++ or "javac -Werror -Xlint:all" for Java) and check the settings of your favourite editor or development environment.

Do not hesitate to use several compilers on your code: "clang" is a good alternative to gcc that may help you to find problems, and has nicely coloured output. Compiler warnings can point you to suboptimal coding practices too. In addition, deploy one of our static code analysis tools. These tools are supposed to review your code quickly, looking for some common potential bugs and vulnerabilities (both security- and non-security-related), thus increasing the reliability and security of your programs. The same webpage also provides

recommendations on how to keep "secrets" secret and how to secure web applications, as well as a "Security Checklist".

In addition, do not hesitate to contact us at Computer.Security@cern.ch for consultancy or a dedicated full-scale security audit, or check out our dedicated training sessions on secure coding, scheduled for Spring/Summer 2014:

- Developing secure software (4 heures)
- Secure coding in C/C++ (1 jour)
- Secure coding in Perl (1 jour)
- Secure coding in Python (1 jour)
- Securing Java Applications (1 jour)
- Securing Java and Web Applications (1 jour)
- Securing PHP Web Applications (1 jour)

Check out our website: <https://cern.ch/Computer.Security> for further information, answers to your questions and help, or e-mail Computer.Security@cern.ch.

If you want to learn more about computer security incidents and issues at CERN, just follow our Monthly Report: https://cern.ch/security/reports/en/monthly_reports.shtml

Computer Security Team

Ombuds' Corner

SIGNS OF OUR TIMES?

Do you get up in the morning and go online before getting your coffee? Do you sit down to meals with your mobile phone next to your plate? Do you get an awful feeling of complete disorientation and not knowing what to do with yourself when you disconnect from the Internet? As exaggerated as these actions may have seemed a few years ago, today they are familiar occurrences that are indeed the signs of our times.

"I connect, therefore I am" seems to be the new version of Descartes' famous saying. The technological possibility of 24/7 worldwide connectivity is now an everyday fact of life and we all enjoy having knowledge at our fingertips and the ability to communicate across the globe quasi-instantaneously.

In the work environment, this development has brought a flexibility and availability that has completely changed the way we work and interact with each other. This constant connectivity allows us to organise our lives differently, and we find ourselves working longer hours when we need to meet deadlines, and adjusting schedules both at work and at home to fit in the demands of the job.

Whereas this kind of flexibility is extremely important at times, and particularly during peak periods at work, we tend to forget that it can very quickly get transformed into an expectation of constant availability. When this happens it can become a workplace norm where, whether or not we are at work, we feel that work-related issues must be dealt with immediately, and that failure to do so might be perceived negatively.

Unspoken or implicit expectations such as these can make us feel as if being "offline" is a

waste of time and unproductive. If we switch off during a child's school play or a weekend of family festivity, we may feel guilty. And if a colleague or a member of our hierarchy chooses to have no access to e-mail during evenings or weekends, we might be tempted to consider this as a lack of commitment to the job or the role.

The heavy pressure from these unspoken norms can lead to behaviour which directly contradicts the work/life balance. Holidays and weekends are there precisely in order to ensure a break, a change of activity. Having some rest from the work routine allows us to return to work with renewed energy, thus leading to increased productivity and efficiency.

So what can we do to overcome the temptation to always be connected to our inbox? We could start by asking ourselves a few simple questions: is this an urgent issue that needs to be dealt with immediately? Can this late night e-mail wait for a response until tomorrow? Will there be any serious consequences if I switch off this evening? And equally importantly, if I don't switch off, how does this affect others? What unspoken expectations do my colleagues have about my availability?

And of course, for those of you who are managers, why not lead by example? Start by questioning some of your own habits with regard to constant connectivity... and then consider launching conversations in your teams in order to clarify your expectations of each other and create a working culture that is at once productive and efficient while remaining respectful of work/life balance.

Why not challenge some of these signs of our times and who knows... perhaps the next time you wake up at 2 a.m. and find yourself reaching out to check your e-mail, you will think twice about it ... and choose instead to stay 'offline' and wait to come into the office the next day fully rested, refreshed and ready to switch on again!

**"Until we can manage time,
we can manage nothing else."**

Peter F. Drucker

Sudeshna Datta-Cockerill

Take note

REMINDER OF THE CONDITIONS OF USE FOR CERN'S PICNIC AREAS

With summer on the way, we would like to remind you of some basic rules for the use of CERN's picnic areas..

Two picnic areas are available for the organisation of CERN events:

- the Meyrin barbecue area in the clubs area (9405-R-000);
- the Prévessin barbecue area located near to Building 972 (9401-R-000).

These areas can be reserved through Indico.

For all events taking place at weekends or on public holidays, a list of participants must be sent to the Fire Brigade (Fire.Brigade@cern.ch) and the Access Control Service (Access.Surveillance@cern.ch) for safety reasons. A request form has been created for this purpose.

The same services must be informed of events organised on weekdays, but a list of participants is not required in this case.

LAUNCH OF THE "MICE PROCUREMENT" WEBSITE FOR YOUR FUTURE EVENTS

The number of MICE (Meeting, Incentive, Conference and Event) requests is on the increase and our hotel offer is constantly being developed..

The MICE Office has decided to create a dedicated website in order to offer the best possible service to its users. This site

is accessible from the FP webpage (MICE Procurement) using your NICE login. It gives you access to the list of the establishments which have a contract with CERN, grouped by geographic area/star rating, and all related information.

The establishments listed on this website can accommodate your local events, organised by CERN or in partnership with an institution. They were selected following a market survey and as a result of a price enquiry in accordance with CERN's Purchasing Rules.

We offer a number of standard packages, but we will try to respond to any specific requirements.

On the same site you can also access a longer list of hotels (also accessible via the GS website) for which prices and conditions have been negotiated for all CERN staff.

The MICE Office team, managed by Fatima Najeh and represented by Hiba Gerster and Fleur Zroumba, will be happy to answer any questions you might have and are available to pass on the knowledge and experience of other users to serve the needs of everyone at CERN!

The MICE Office team



Please see the image below for the answers to the questionnaire.

If you have any questions regarding the Safety Day, please contact: safety.communication@cern.ch.

And again, thank you to all the participants!

HSE Unit

GRAN SASSO SUMMER INSTITUTE 2014

GRAN SASSO SUMMER INSTITUTE 2014 HANDS-ON EXPERIMENTAL UNDERGROUND PHYSICS AT LNGS

22. SEPTEMBER - 03 OCTOBER 2014
LABORATORI NAZIONALI DEL GRAN SASSO, ASSERGII, ITALY

HANDS-ON ACTIVITIES WILL FOCUS ON THE FOLLOWING TOPICS:

- Dark matter - CRESST, DAMA, DARK SIDE, XENON
- Neutrino double beta decay - CUORE, CERMI, LUCIFER
- Neutrino oscillations - BOREXINO, ICARUS, OPERA
- Nuclear astrophysics - LUNA
- Low radioactivity measurements - STELLA
- Geodesy and general relativity - GINGER



The TE Department reminded CERN personnel that specially adapted equipment, material and/or premises are available to allow them to work with chemicals in complete safety. The GS/FB Group demonstrated that they are ready to assist whenever necessary.

93 people also participated in a competition and the prize winners have been announced below.

A big thank you to all participants and volunteers who made this an enjoyable and successful event!

HSE Unit

4TH ANNUAL SAFETY DAY: FULL OF COLOUR!

On Thursday 10 April, more than 240 people took part in the 4th annual Safety Day, organised on the occasion of the World Day for Safety and Health at Work. The HSE Unit, in partnership with the Fire Brigade (GS/FB) and the TE and BE Departments, organised various stands and activities connected with this year's theme, chosen by the International Labour Organization: "Safety and health in the use of chemicals at work". *produits chimiques au travail*.

The stands, set up at lunchtime in all three of CERN's restaurants as well as in the entrance hall of Building 500, were designed to:

SAFETY DAY PRIZE COMPETITION: RESULTS AND ANSWERS

The three winners of the Safety Day Prize Competition are...

- 1st Prize: Fernando LEITE PEREIRA smoke detector
- 2nd Prize: Thomas DE BORTOLI water filter jug
- 3rd Prize: Matti KALLIOKOSKI safety goggles

CERN INVITES ITS NEIGHBOURS TO CELEBRATE ITS 60TH ANNIVERSARY Saturday 24 and Sunday 25 May from 10am to 6pm



Discover the fantastic research that's being performed right on your doorstep
Cessy underground visits to see the CMS detector, activities on the surface
including demonstrations, workshops and lectures (open to all)
Echenevex, Ferney-Voltaire: underground visits to see the LHC accelerator and the LHCb detector
FREE EVENT
Booking required for underground visit
Visits can be booked at partner town halls and tourist offices
cern.ch/voisins

PINT OF SCIENCE | 20-21 MAY | GENEVA

VIOLIN & PIANO RECITAL | 30 MAY AT 7 P.M. | MAIN AUDITORIUM

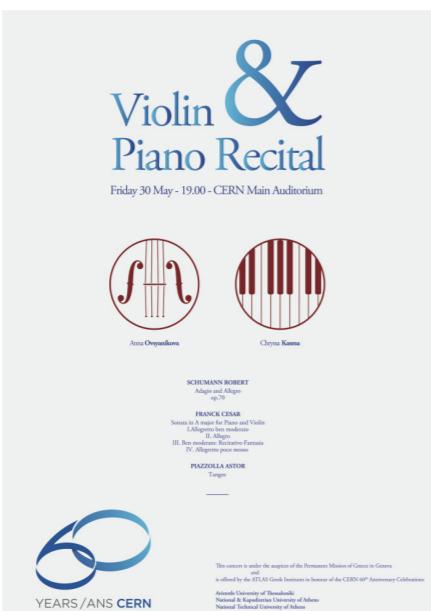
Pint of Science

Invites you to have a pint with scientists from UN, UniGE and CERN

TUE WED
20 21 May
From 20:00



Sponsored by
EuCARD² [www.pintofscience.ch](#)



CERN RELAY RACE | 5 JUNE | TAKE PART!



Public lecture

22 May 2014, 7.30 p.m | Globe of Science and Innovation

"The impact of computing at CERN on society"

Bob Jones

Reservation is essential.
More information on [www.cern.ch/cern60](#)



CERN RELAY RACE | 5 JUNE | GET READY!

In anticipation of the CERN relay race, the Medical Service would like to remind all participants that preparing for this sporting activity is essential - even though it is a short event.

- Progressive and regular training.
- Adequate nutrition and hydration.

Advice and information is available at the infirmary in Building 57.

PUBLIC LECTURE | "SCIENCE AND SOCIETY" BY BOB JONES | 22 MAY

Public lecture: "Science and society: the impact of computing at CERN on society" by Bob Jones

22 May at 7.30 p.m.
Globe of Science and Innovation

Lecture in English, translated in French.
Entrance free.
Limited number of seats.

Reservation essential:
[+41 22 767 76 76 or cern.reception@cern.ch](mailto:cern.reception@cern.ch)

Everyone should adapt their physical activity to match their fitness levels, bearing in mind that the aim of this race is not necessarily to achieve great success but to participate in a collective sporting event.

In the framework of the "Move! Eat better" campaign and for the third successive year, a 2.4 km route is open to walkers, both beginners and experts.

Before, during and after this event, test yourself with a pedometer, available from the CERN infirmary!

CERN Medical Service

Seminars

TUESDAY MAY 20, 2014

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

WEDNESDAY MAY 21, 2014

- 14:00 TH Theoretical Seminar **Theoretical interpretation of top quark measurements** TH Conference Room

THURSDAY MAY 22, 2014

- 11:00 Collider Cross Talk **Top mass theory systematics** TH Conference Room
- 14:00 TH BSM Forum **Warped flavor, 126 GeV scalar and the 100 TeV Collider** TH common room
- 19:30 Globe **Science and society: the impact of computing at CERN on society** 80-1-001

FRIDAY MAY 23, 2014

- 11:00 Detector Seminar **Development of a large SciFi tracker for LHCb** Salle Curie
- 14:00 Particle and Astro-Particle Physics Seminars TBA TH Conference Room

TUESDAY MAY 27, 2014

- 14:00 TH String Theory Seminar TBA TH Conference Room
- 14:00 Computing Seminar **Scientific Workflows at Fermilab Using On-demand Services in the Cloud** IT Amphitheatre

Official news

- within the fenced part of the CERN site, irrespective of the person and item concerned,
- outside the fenced part of the CERN site if CERN is the owner or custodian of the item concerned.

3. Who must make the declaration?

In principle, the loss or theft of property and serious events must be declared by the persons directly concerned.

However, the following special rules apply in the case of the loss or theft of property belonging to or registered to the Organization:

- if a member of a contractor's personnel becomes aware of the loss or theft of such an item, the contractor must immediately inform the CERN manager responsible for the operational or technical aspects of the contract, who must make the declaration,

- the rule under a) above does not apply to the CERN access cards and CERN vehicle stickers, for which declarations must be made by the contractor's representative,

- declarations concerning the loss or theft of CERN keys must be made by the holder of the key in all cases. Where the holder of

the key is employed by a CERN contractor, he must immediately inform the CERN manager responsible for the operational or technical aspects of the contract.

4. When, to whom and how?

In the case of an event presenting an immediate danger, the Fire Brigade must be informed immediately (Meyrin site, Building 65, Tel. 74444 in emergencies, open every day of the week, 24 hours a day).

- The loss or theft of an item of property must be declared immediately via the Service Portal or the Service Desk (Meyrin site, Building 55, tel.: 77777, open on weekdays from 7.30 a.m. to 6.30 p.m., service-desk@cern.ch).

- Serious events must be declared immediately, preferably via the Service Portal or the Service Desk (Meyrin site, Building 55, tel.: 77777, open on weekdays from 7.30 a.m. to 6.30 p.m., service-desk@cern.ch). In exceptional circumstances, such declarations may also be made to the Fire Brigade.

- The loss or theft of a Swiss legitimization card must be declared using the special form.

Once the declaration has been made, the persons concerned should contact the following services, where applicable, to arrange for the replacement of the lost or stolen items:

- *CERN access cards and CERN vehicle stickers*: Registration Service (Meyrin site, Building 55/1, open weekdays from 7.30 a.m. to 4.30 p.m.);
- *CERN keys*: Locks and Keys Service (Meyrin site, Building 55/2-001, locks.keys@cern.ch, open weekdays from 8.30 a.m. to 12.30 p.m. and from 1.30 p.m. to 5.30 p.m.).
- *CERN mobilephones*: Labo Telecom (Meyrin site, Building 2, open weekdays from 8.00 a.m. to 6.00 p.m.).
- *Legitimation documents* (Swiss/French cards): Cards Office (Meyrin site, Building 33/1-024, open weekdays from 8.30 a.m. to 12.30 p.m.) or Users Office (Meyrin site, Building 61, open weekdays from 8.30 a.m. to 12.30 p.m. and from 2 to 4 p.m., closed on Wednesday mornings).
- *CERN bicycles*: Physics Department Bicycle Service (Meyrin site, Building 124, open weekdays from 8.30 a.m. to 11.30 a.m. and from 1.30 p.m. to 4.30 p.m.).

5. Declarations to external authorities

The Relations with the Host States Service is responsible for reporting incidents to the competent authorities if they occur within the fenced part of the CERN site and concern items belonging to or registered to the Organization.

In all other cases, it is the responsibility of the person(s) concerned to take the necessary steps with the competent authorities of the State on whose territory the incident has occurred.

The theft of CERN access cards and CERN vehicle stickers must be reported to the

competent authorities of the country in which the theft has occurred.

It should be noted that declarations concerning documents issued:

- by the Swiss Federal Department of Foreign Affairs (cf. paragraph 4, letter above) must be sent by post to the Geneva Police (Commissariat de Police, 19, boulevard Carl-Vogt, CH-1211 Genève 8); a copy of the declaration must be attached to the application for a replacement document, which is drawn up by the Cards Office or the Users Office, as appropriate;
- by the French Ministry of Foreign Affairs must be made in person to a French gendarmerie, preferably the one in Thoiry; a copy of the declaration must be attached to the application for a replacement document, which is drawn up by the Cards Office or the Users Office, as appropriate.

N.B.: Submission of the above-mentioned declarations does not exempt the person(s) concerned from complying with the other regulations in force, in particular the obligation to inform their hierarchical superiors.

6. Examples

- a) Loss of a wallet on the fenced part of the CERN site:
 - the person concerned must declare the loss through the Service Portal or to the Service Desk (tel. 77777 ; Service-desk@cern.ch),
 - the person concerned may report the incident to the police or gendarmerie of the country in which the loss has occurred.
- b) Theft of a CERN laptop during a journey outside the CERN site:
 - the member of the personnel concerned

must declare the theft through the Service Portal or to the Service Desk (tel. 77777 ; Service-desk@cern.ch) and,

- the person to whom the computer was registered at the time of the theft must report the incident to the police or gendarmerie of the country in which it occurred.

c) Disappearance of copper cables at one of the LHC points:

- the member of the personnel responsible for the equipment must declare the disappearance via the Service Portal or the Service Desk (tel. 77777 ; Service-desk@cern.ch) and,
- the Relations with the Host States Service will report the disappearance to the police or gendarmerie of the country in which the LHC point concerned is located.

d) Loss of a CERN key:

- the loss must be declared via the Service Portal or the Service Desk (tel. 77777 ; Service-desk@cern.ch) and,
- an application for a new key must be submitted to the Locks and Keys service (Building 55).

e) Theft of a special French residence permit ("titre de séjour"):

- the theft must be declared to the Thoiry gendarmerie (Ain) or the nearest gendarmerie or police station and,
- an application for a replacement must be submitted to the Cards Office or the Users Office, depending on the status of the member of the personnel concerned.

Relations with the Host States Service
<http://www.cern.ch/relations/>

relations.secretariat@cern.ch

Tel.: 72848