CERN Bulletin

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All new for NA62

A Large Angle Veto detector in place in the NA62 decay volume.

This week sees the start of the first run of the new NA62 experiment. This will be a unique opportunity for the collaboration to test its new beam, new detectors and new data acquisition system before the physics run in 2014. Speaking to the Bulletin, the NA62 technical coordinator Ferdinand Hahn shares the many challenges that the various teams faced to be on time for beam. Ready, steady, start!

With components from almost all the detectors in place downstream of the decay point of the mother particles – the kaons – and of the KTAG detector that tags the kaons before they decay, NA62 is ready for its first technical run. This unique run will test all the equipment as well as the trigger and the data acquisition systems. "This year, we will have about five weeks of beam from the SPS before the long shutdown of all the CERN machines," says Ferdinand Hahn, NA62 Technical Co-ordinator. "During that long shutdown, and before the restart of the injector chain, we plan to complete the installation of all the remaining detectors."

Once completed, the NA62 experiment will be CERN's flagship for the study of rare kaon decays, in particular that where the mother particle decays into a pion and two neutrinos. "Studying rare processes like those involving kaons allows us to make precise tests of the Standard Model as their theoretical predictions are very good," says Augusto Ceccucci, NA62 Spokesperson. "By measuring the rate of some of these decays, we will be able to determine a combination of Cabibbo-Kobayashi-Maskawa matrix elements independently. Discrepancies compared to expectations might be a signature of new physics."

(Continued on page 2)

From the Jura to Japan...

Fifty years ago, a week-long school for physicists took place in Saint Cergue, in the Jura mountains not far from CERN. Its focus was on using emulsion techniques, but its legacy was much more far reaching. Last week I was in Fukuoka, Japan, on the last day of a direct descendent – the first Asia–Europe–Pacific School of High-Energy Physics (AEPSHEP).

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News

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LHC Report: Production and small angles

The last two weeks have seen steady luminosity production. The total luminosity of ATLAS and CMS exceeded 19 fb^{-1}, while LHCb reached 1.8 fb^{-1} and ALICE, 6 pb^{-1}.

As reported in previous LHC reports, the continuous running with large beam intensities is resulting in beam-induced heating of certain elements, such as the synchrotron light monitor (BSRT), the ALFA detector and the injection kicker magnets. These first two elements had shown a sudden increase in temperature in the previous weeks - but only for the components that are on the counter-clockwise rotating beam. By making slight changes to the radiofrequency parameters, which affect the bunch length, the power spectrum of the beam was changed. This significantly reduced the observed heating of the BSRT and the ALFA detector.

Another improvement was recently made to the measurement process of the number of transverse oscillations of the beam in one turn, known as the "betatron tune". The frequency of the betatron tune is one of the most important machine parameters. It is finely adjusted by a feedback loop during the energy ramp and the squeeze process of the beams. The betatron peak can sometimes be difficult to find in the noisy beam spectrum – especially since the transverse damper, used to stabilise the beam, also flattens this betatron peak. In the new development the transverse damper strength was reduced on a few bunches. The tune measurement system was set up to measure the tune on one of these bunches, as it would have had a reduced damper gain. This has resulted in a much cleaner tune signal and a more reliable functioning of its feedback system.

A 24-hour special run, in which the beams were de-squeezed to larger than normal beam sizes, was also carried out in order to allow the ALFA and TOTEM experiments to perform measurements of low-angle proton-proton scattering. Read more about this run in: *The LHC, de-squeezed (page 3).*

Jan Uythoven for the LHC team

All new for NA62

(Continued from page 1)

The technical run will provide the NA62 collaboration with useful information about how the various detectors work together. Including a new beam dump, the experimental set-up extends over a total length of 270 metres, of which 85 metres are in vacuum. "Closing the huge vacuum tank turned out to be a great challenge and we owe much of the credit to our technician Tonio Goncalves Martins De Oliveira," says Ferdinand Hahn. "Because of some delays during the installation phase, the commissioning time for the new vacuum system was extremely short. However, colleagues from EN-MEF, TE-VSC and other technical units did an outstanding job to allow us to start up the whole system in time."

Although this run is by no means a test of the physics performance of the experiment, the collaboration expects to be able to reconstruct the tracks of the first kaons during these initial tests. "The KTAG detector will allow us to tag kaons and correlate them with the decay products that leave signals in the downstream detectors," anticipates Augusto Ceccucci, NA62 Spokesperson. "With a bit of luck, we will be able to reconstruct whole kaon decays."

Antonella Del Rosso

The history of kaons at CERN

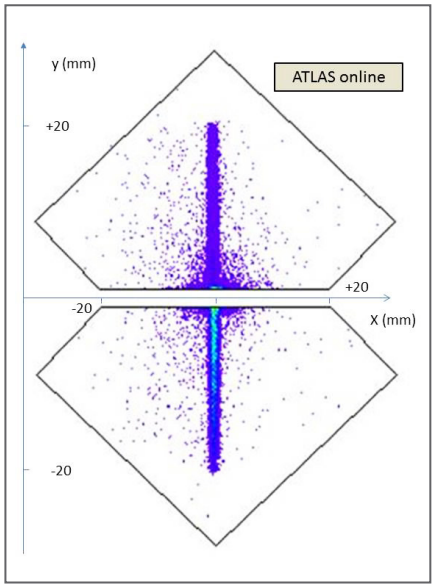
Kaons are particles made of quarks, one of which is the strange quark. There are charged (K^+ and K^-) and neutral kaons. The neutral kaons come in two types: a short-lived one (K^0_S) and a long-lived one (K^0_L).

CP-violation was first observed in kaon decays at the US Brookhaven laboratory by Christenson, Cronin, Fitch and Turlay in 1964 with their Nobel prize-winning experiment. They showed that long-lived neutral kaons occasionally decay into two pions, a CP-violating process. Sakharov outlined his three conditions soon after, and in 1973, Japanese physicists Kobayashi and Maskawa showed how to incorporate CP-violation into the theoretical framework of electromagnetic and weak forces. Their work pointed the way to CERN's NA31 and Fermilab's E731 experiments and their successors, NA48 and KTeV.

NA48, the predecessor of NA62, is best known for establishing direct CP-violation in the two pion decays of the neutral kaons about a decade ago. A first extension (NA48/1) studied K^0_S rare decays while a second extension (NA48/2) focused on the search for CP-violation and the study of $\pi\pi$ scattering in charged kaon decays.

The LHC, de-squeezed

Rare processes like the Higgs production require maximizing the number of proton collisions. This is done by squeezing the beams to very small sizes. However, interesting physics processes also happen when beams are not squeezed at interaction points. Last week, a dedicated run showed that the LHC is a record-breaking machine also with de-squeezed beams.



This figure shows an online hit map of one of the ALFA detectors. The narrow elliptical shape is the typical signal produced by elastically scattered protons. The removal of the background (central bulge) is a challenge for both experiments.

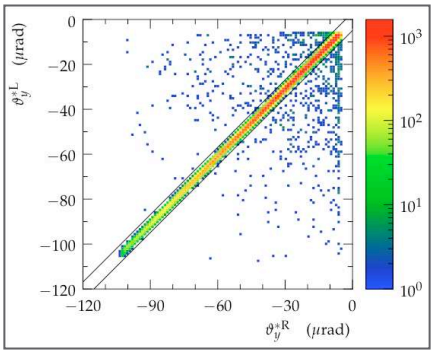
The beam squeezing parameter is known by experts as beta-star (ß*): the smaller the ß*, the stronger the squeezing. To obtain as many collisions as possible in the heart of the experiments, the ß* at full energy is 0.60 m – that is, beams are squeezed to very small beam sizes. This maximizes the rate of proton collisions as required for rare processes like Higgs production. However, squeezing to a small beam increases the angular beam divergence such that elastic proton-proton scattering at small angles cannot be observed.

The elastic proton-proton cross-section had been measured in **previous dedicated runs** at the LHC, resulting in a determination of the total proton-proton cross-section using the optical theorem. To observe the contribution of electromagnetic interaction (also known as "Coulomb scattering") and its interference with the nuclear component to the elastic proton-proton cross-section, scattering angles of the order of 5 microradians have to be reached. Since the Coulomb scattering cross-section is theoretically known, its measurement also gives access to an independent determination of the absolute luminosity of the LHC.

For this recent special run, a new record value of ß*= 1000 m was reached, making the beams at interaction points 1 and 5 almost parallel. The angular divergence of the beams at the interaction points was reduced by a factor of 40 compared to low-beta (high-luminosity) operation. These special settings allowed the ALFA and TOTEM experiments to measure proton-proton scattering angles down to the microradiant level. The experiments' Roman Pots were moved as close as 0.87 mm to the centre of the beam, which contained 3 bunches of 10^{11} protons each. At that distance the beam halo is intense and has to be reduced by an optimized collimation procedure that allows a reduction of the halo background by a factor of 1000. This configuration enabled data-taking in good conditions for about one hour and, for the first time, **ALFA** and **TOTEM** were able to measure the elastic scattering in the Coulomb-Nuclear Interference region.

For future runs at 13 TeV, optics with beta values around 2 km will have to be developed. This will require the installation of additional quadrupole power cables in the LHC tunnel.

Antonella Del Rosso



In this TOTEM plot, the correlation between the reconstructed scattering angles of the two outgoing protons demonstrates a dominance of elastic events.

(Continued from page 1)

From the Jura to Japan...

That first small school in 1962 was the precursor to the annual European Schools of High-Energy Physics, which are organised jointly by CERN and the Joint Institute for Nuclear Research (JINR) in countries that are a member state of either (or both) of the organisations. They led in turn to the CERN–Latin-American School of High-Energy Physics, first held in Brazil in 2001.

The aim of these schools is not only to give young particle physicists the opportunity to learn from leading experts in the field, but also to nurture from the start communication among researchers from different regions. CERN and JINR began collaborating on joint schools as long ago as 1970, helping to break down barriers at a time when the "iron curtain" still divided Europe. The first CERN–Latin-American School marked the beginning of renewed contact and collaboration between Europe and Latin America.

Now, a similar initiative is linking Europe, Asia and the Pacific-region, building on the successful France–Asia Particle-Physics School. Having seen the first AEPSHEP school in action, I can vouch for its excellent atmosphere and success in bridging cultures and in providing a valuable opportunity for networking. With the usual emphasis at CERN schools on exercises, the students were able leave with a much greater proficiency in their chosen field of particle physics.

These schools are also equally important for the countries that hold them. From Armenia to Argentina, Portugal to Peru (in 2013), and now Japan, the events highlight the role of a country in the global scientific endeavour. For AEPSHEP, the next port of call is India in 2014, and I, for one, am greatly looking forward to it.

Rolf Heuer

CERN, Europe and the world of education

In addition to introducing young people to the fields of science and engineering, CERN's Education Group is also an active partner in several European projects aimed at improving the tools used to teach science. With its wealth of experience, the Laboratory is a key player in these initiatives.

After the construction of a cloud chamber, participants in the CERN teacher programme observe particle trajectories.

CERN's Education Group has a long tradition of organising training courses and visits for students and teachers from all over the world. More recently, it has been involved in two European projects in partnership with universities, schools and various institutions in the field of science education. The **Pathway** and **Discover the Cosmos** programmes aim to promote science-learning through the pooling of teaching resources and expertise, and the creation or strengthening of networks that connect researchers, teachers and students.

The EU's Pathway project, which began in the winter of 2010, focusses on the development of science teaching by inquiry. "In this context, we provide everyone who takes part in our training projects with the tools and skills required to build cloud chambers for cosmic-ray detection or to analyse real LHC data," explains Mick Storr, who is responsible for teacher programmes and head of the visits service in the Education Group, and represents CERN in the Pathway project. Pathway brings together teachers, scientists, science-education researchers, teaching-tool designers and policy-makers, and has also contributed to changing the way CERN's mini-travelling exhibition is used. "The travelling exhibition has been installed in Greece for a whole year now and has turned into a stimulating meeting point where researchers, teachers and students converge to give talks, act as tour-guides or perform new, physics-related activities" explains the Education Group's Angelos Alexopoulos. "It has clocked up more than 25,000 visitors to date! Pathway and its partners have helped us enhance the impact and attractiveness of the exhibition by demonstrating that a simple tool, when used by motivated and well-prepared people, can be a powerful vector of knowledge transmission."

More recently, the Education Group has added another EU-supported project to its portfolio. "Discover the Cosmos" aims to develop e-science through the shared use of tools developed in the field of information technology. Resources and programmes developed in particle physics and astronomy are collected on a single digital portal to help teachers develop activities and tools for themselves. In this framework, CERN and the LHC experiments make real data available together with the software needed to view it. Mick Storr concludes: "In short, what the EU projects do is bring disparate activities together to boost their impact. As a partner in these projects, we share our experience, teaching tools and resources with the other participants, and in return we gain better visibility and improve our own practice."

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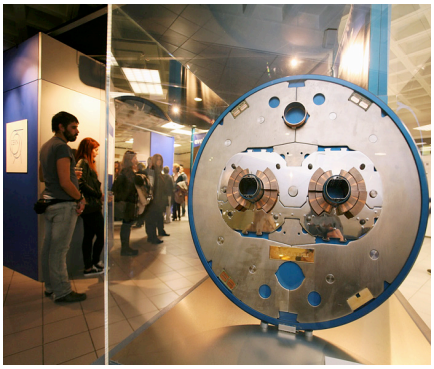
** The term e-science refers to the new scientific practices and worldwide data exchange which have resulted from the use of electronic networks, high-speed computers and the Internet.*



View of the CERN mini-travelling exhibition installed in Greece for a whole year. Image: **Ellinogermaniki Agogi.**

A German format for pupils' training

Every year CERN welcomes thousands of pupils from schools worldwide for a half-day visit to the Laboratory. However, since 2011 about ten selected students from Germany have been given the opportunity to experience CERN in much greater depth. They are fully sponsored by the German Ministry of Education and supported by an organising structure at TU Dresden - the Dresden University of Technology - led by Michael Kobel. It's an investment that's paying off in Germany.

"Netzwerk Teilchenwelt" is a project that involves 23 German universities, the DESY Laboratory, several schools and, of course, CERN. Launched in 2010 with a contribution from the German Ministry for Science and Research of about 1 million euros over three years, the project has so far involved over 4,000 students and 500 teachers. "Thanks to this project, both pupils and teachers are being exposed to contemporary physics topics that are not usually included in school curricula," says Sascha Schmeling from CERN's Physics Department, one of the originators of the project. "The result has been extremely positive, as pupils and teachers alike are enthusiastic about the experience. The project has also been successful in encouraging science at a higher level, as a significant number of participants have decided to go in for STEM (science, technology, engineering and mathematics) disciplines at university."

Under the programme, each year ten 14 -18 year-old students come to CERN for two weeks to carry out their own research projects. Their selection is a long process that starts long before they arrive at CERN. "Firstly, pupils take part in dedicated masterclasses, then some of them are selected to become tutors in these masterclasses," explains Anne Glück, executive coordinator of "Netzwerk Teilchenwelt" in Dresden. "After that, selected participants are chosen for a four-day shadowing experience at CERN. Finally, only those students who have passed all the steps of the selection process and have a valuable research project can apply for the last part of the programme: two weeks at CERN, where they interact directly and in depth with scientists, who help them carry out their individual projects," adds Gerfried Wiener, coordinator of the network's activities at CERN.

The training project is only in its third year, but 15 of its student research projects on particle physics have already received prestigious awards in Germany. "Teachers are enthusiastic about this initiative and are very happy to come to CERN themselves for one week in the framework of their participation in the programme," confirms Sascha Schmeling, who is echoed by one of the teachers who visited this year: "We were offered the perfect mix of lectures, visits and group discussions. The time just flew by and I am highly motivated to incorporate the new findings into my teaching courses immediately!"

The German teachers who participated in the "Netzwerk Teilchenwelt" project, at CERN last week.

This year's students were kept busy. "We spent a lot of time exploring CERN's experiments, including LEIR and the AD," says Patricia Breunig. "These were often related to our research, giving us a lot of useful information that we could incorporate in our projects." The students also revelled in certain experiences that could only happen at CERN: "One morning over breakfast, we were joined by a nice man we'd met in the cafeteria," says Unai Fischer. "We spoke to him about a bit of everything: physics, politics, education… it turns out that he was the Nobel Prize winner Jack Steinberger." Now that's certainly a story to take back home!

Antonella Del Rosso

Alexandre Savoy (left) and Liridon Agushi (right) at the 2012 UGI award ceremony, 1 November.

Successful apprenticeships

The 2008-2012 group of CERN apprentices has every right to be proud: as their stay at the Laboratory ends, all four have received diplomas. Well done!

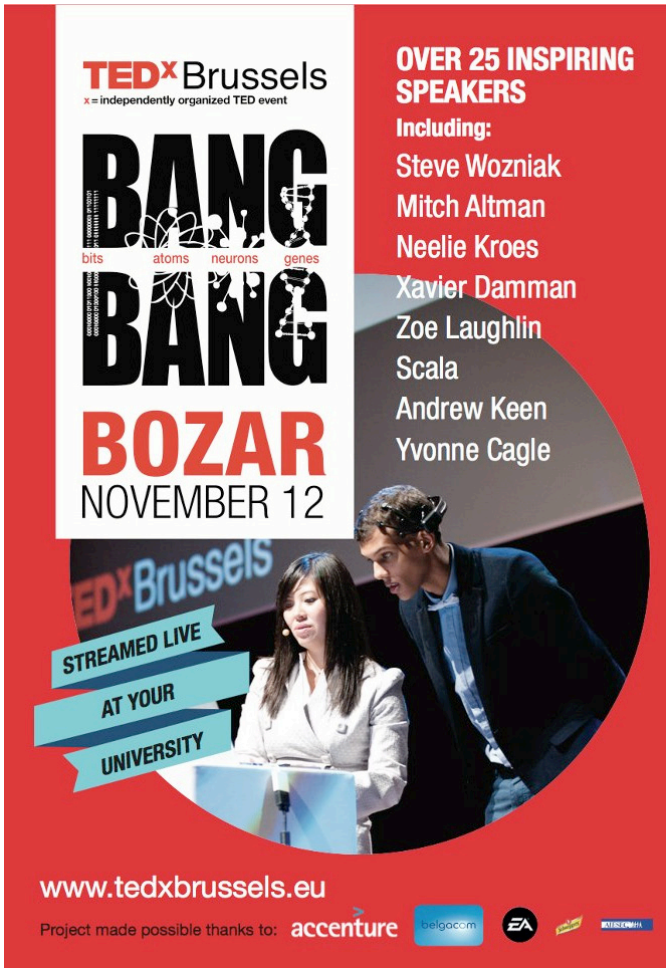
This year, four young CERN apprentices - Floriane Stauffer, Alexandre Savoy, Laurent Deillon (physics lab technicians) and Liridon Agushi (electronics technician) - received their diplomas, the Certificat Fédéral de Capacité (CFC). During their 2008-2012 apprenticeship under the supervision of Jean-Marc Bouché, who is responsible for the training of technical apprentices in the HR Department, they were trained by CERN professionals with qualifications in many different areas.

Every year, the Geneva Industrial Union (**UIG**) awards its prizes for the best apprentices who graduate in mechatronics. This year, CERN got two of the prizes. Alexandre Savoy and Liridon Agushi are the happy UIG 2012 prizewinners for their excellent results. Our congratulations to them!

Anaïs Schaeffer

TEDxBrussels broadcast live at CERN

In order to give you a taste of a TEDx event, the team of TEDxCERN will show the live webcast of TEDxBrussels at the CERN main restaurant on November 12th from 2 p.m to 7 p.m. Come and discover the event, in preparation for TEDxCERN, which will take place in May next year.



This year the theme for TEDxBrussels is Bits, Atoms, Neurons, Genes (BANG BANG). The digital world and the real world are interconnected like never before. You can send off online for a personal genome read-out and control physical objects with your mind. Computer thinking is driving medicine, music and play. With brain-computer interfaces now used in nuclear power stations and bio hackers doing lab biology in their garages, BANG BANG is a concept whose time has come. BANG BANG means the evolving mesh of ideas and practices, a rich mix of citizens, scientists and culture. Among the speakers are Steve Wozniak, Mitch Altman, Neelie Kroes, Xavier Damman, Zoe Laughlin, Scala, Andrew Keen and Yvonne Cagle.

About TEDxCERN

TEDxCERN will take place on 3 May 2013 under the theme "Multiplying Dimensions". Going beyond particle physics, the first TEDxCERN will provide a stage for the expression of science in multiple dimensions and disciplines, unveiling a world in which physics intersects with other multi-dimensional disciplines and thought. **www.tedxcern.ch**

About TED

TED is a nonprofit project devoted to Ideas Worth Spreading. It started out (in 1984) as a conference bringing together people from three worlds: technology, entertainment and design. The two annual TED conferences, in Long Beach/Palm Springs and Edinburgh, bring together the world's most fascinating thinkers and doers, who are challenged to give the talk of their lives (in 18 minutes or less). **www.ted.com**

About TEDx

TED includes the TEDx programs, which gives communities, organisations and individuals the opportunity to stimulate dialogue through TED-like experiences at the local level. TEDx events are planned and coordinated independently.

Claudia Marcelloni, TEDxCERN organizer

CERN Library Bibliothèque

The 'long tail' Library

News from the Library

"The term 'long tail' has gained popularity in recent times as describing the retailing strategy of selling a large number of unique items with relatively small quantities sold of each usually in addition to selling fewer popular items in large quantities. The long tail was popularized by Chris Anderson, who mentioned Amazon.com, Apple and Yahoo! as examples of businesses applying this strategy." *

If we leave the business environment and move to the world of libraries, we still see this "long tail". Usually, only a small portion of a library's book collection accounts for the majority of its loans. On the other hand, there are a variety of "niche information needs" that might not be met, as libraries cannot afford to build up huge collections of documents available just-in-case.

However, the networked environment of today's libraries can offer a solution. Online networks of libraries can help discovery (that is, help find where a book is), but also help to provide a lending service between libraries. The CERN Library can thus meet your needs when our collections do not include the document you are looking for. Thanks to an efficient and cost-effective network of libraries, you can have books and articles (the latter, usually, as a PDF) delivered to you. The loan and article delivery service is free of charge. As usual, your feedback is welcome: **library.desk@cern.ch.**

CERN Library

**Wikipedia on the "long tail".*

Computer Security
Sécurité informatique

… and thank you for your mobile data!

Do you recall our Bulletin articles "Smartphone lost - Privacy gone" and "Your privacy is paramount"? In an interesting twist, we recently learned of a senior CERN staff member who returned his old smartphone to the CERN Telecom Service in exchange for a new phone. Guess what came with it? All his e-mails and plenty of personal data. Privacy, anyone?

Indeed, today's smartphones clone your personality into the digital world. Like a personal digital butler, it stores all the e-mails and messages between you and your family, friends, peers and colleagues; it contains photos and videos of the top moments of your life; and it holds your favourite music, movies and zillions of other bits of personal information stored in the apps of your choice (like GPS information on your jogging routes, a vault of your passwords, access to your Facebook or Twitter profiles, bank access information, and flight and hotel bookings). Your phone might also be used for making payments in shops.

But what about when your phone becomes obsolete? Physical destruction is of course the most obvious choice (and we encourage you to have a look at the **CERN Data Destruction Policy**). But still, "obsolete" for you does not mean "worthless" for someone else. Thus, you might wish to pass it on to a colleague or to the CERN Telecom Service. If it is your personal smartphone, you might give it to your family or friends or sell it on eBay. But before you do, think twice!

Remember to wipe your phone beforehand! Reset it to the factory settings, and remove its SIM card. The CERN Telecom Service **provides details** on how to do this with all major CERN phone brands. Also note that there is a possibility to **wipe your mobile phone remotely** if it gets lost or stolen. It's even better if you always protect your smartphone against unauthorised access by locking it with a PIN code or swiping pattern. And while you're at it: what about your laptop(s)?

For further information, please check our web site or contact us at: **Computer.Security@cern.ch.**

Computer Security Team

Official news

ADMINISTRATIVE CIRCULAR No. 25 (REV. 3) - Special provisions for the fire and rescue service governing working and rest time

Administrative Circular No. 25 (Rev. 3) entitled "Special provisions for the Fire and Rescue Service governing working and rest time", approved by the Director-General following discussion at the Standing Concertation Committee meeting of 28 September 2012 and entering into force in October 2012, is available on the intranet site of the Human Resources Department: **http://cern.ch/hr-docs/admincirc/admincirc.asp**

This Circular is applicable to staff members of the Fire and Rescue Service It cancels and replaces Administrative Circular No. 25 (Rev. 2) entitled "Shift work – Special provisions for the Fire and Rescue Service" of April 2003.

This new version takes into account the new organisation of the Fire and Rescue Service, members of which will henceforth not exclusively perform their functions in the context of shift work, but also during reference working hours and during stand-by duty. Additionally, applicable limits regarding working and rest times and a general changeover time added to the hours worked in the context of shift work have been introduced in the circular. The Consultative Board specific to the Fire and Rescue Service was also suppressed.

Department Head Office
HR Department

Take note

Registrations open for ISOTDAQ 2013

The 4th edition of the International School on Trigger and Data Acquisition (ISOTDAQ 2013) will be held in Thessaloniki, Greece, from 1 to 8 February.

The target audience is Physics and Engineering MSc and PhD students as well as practising scientists with an interest in Trigger and Data Acquisition.

The school provides an up-to-date overview of the basic instruments and methods used in high energy physics DAQ systems, spanning small experiments to the very large ones at the LHC. As in previous years (see here and here) half of the time will be dedicated to lectures that will be given by experts from CERN and other institutes. The other half of the programme is a comprehensive set of hands-on exercises that will allow the students to work on real DAQ hardware in small groups under the supervision of experienced tutors.

Applications are accepted until 1 December.

Markus Joos on behalf of the organizers

CERN - Latin-American School of High-Energy Physics | Arequipa, Peru | 6-19 March 2013

The CERN – Latin-American School of High-Energy Physics targets particularly at students in experimental HEP who are in the final years of work towards their PhDs.

However, it is anticipated that some post-doctoral students in experimental HEP, and some students in phenomenology, including some Masters students, will also be accepted. It should be noted that some pre-knowledge of the subjects is necessary in order to be able to profit fully from the lecture courses.

Demand for admission to the CERN – Latin-American Schools of High-Energy Physics exceeds the number of available places, so a competitive selection is made based on information provided on the application form and the letter of recommendation from the candidate's professor or supervisor.

The application deadline is: 16 November 2012

Safety Training - places available in November - December 2012

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

Conduite de chariots élévateurs (Driving of Forklifts) in French
08-NOV-12 to 09-NOV-12, 8.30 – 17.30,
22-NOV-12 to 23-NOV-12, 8.30 – 17.30,
10-DEC-12 to 11-DEC-12, 8.30 – 17.30,
With the possibility to have the handouts in English

Conduite de plates-formes élévatrices mobiles de personnel (PEMP) (Driving of Cherry-pickers) **in French**
05-NOV-12 to 06-NOV-12, 8.30 – 17.30,
19-NOV-12 to 20-NOV-12, 8.30 – 17.30, *With the possibility to have the handouts in English*

Echafaudages - Réception, conformité (Scaffolding – Reception and conformity) **in French**
20-NOV-12 to 21-NOV-12, 9.00 – 17.30, (outside CERN, Bourg-en-Bresse)

First-Aiders – basic course
19-NOV-12, 8.15 – 17.30, in French
05-DEC-12, 8.15 – 17.30, in French
17-DEC-12, 8.15 – 17.30, in French

Habilitation ATEX niveau 1 (ATEX habilitation, level 1) **in French**
15-NOV-12, 9.00 – 17.30

Habilitation ATEX niveau 2 (ATEX habilitation, level 2) **in French**
08-NOV-12 to 09-NOV-12, 9.00 – 17.30

Habilitation électrique personnel non électricien (electrical safety for non electricians) **in English**
22-NOV-12 to 23-NOV-12 (1.5 days), 9.00 – 17.30 and 9.00 – 12.30

Habilitation électrique personnel électricien basse tension (electrical safety for electricians in low voltage)
12-NOV-12 to 14-NOV-12, 9.00 – 17.30
in French
19-NOV-12 to 21-NOV-12, 9.00 – 17.30
in English

Habilitation électrique personnel électricien basse et haute tension (electrical safety for electricians in low and high voltage) **in English**
05-NOV-12 to 08-NOV-12, 9.00 – 17.30

Habilitation électrique personnel réalisant des essais en laboratoire ou en plate-forme d'essai (electrical safety for electricians in laboratory and test beds) **in English**
10-DEC-12 to 12-DEC-12, 9.00 – 17.30

Laser Experts
in English
03-DEC-12 to 04-DEC-12, 9.00 – 17.30

Magnetic Fields
23-NOV-12, 9.30 – 12.00, **in French**
30-NOV-12, 9.30 – 12.00, **in English**

Montage d'échafaudages et de tours d'accès (Scaffolding – assembly) **in French**
22-NOV-12 to 23-NOV-12, 9.00 – 17.30, (outside CERN, Bourg-en-Bresse)

Self-Rescue Mask Training
01-NOV-12, 8.30 – 10.00, in French
06-NOV-12, 10.30 – 12.00, in French
13-NOV-12, 10.30 – 12.00, in French
20-NOV-12, 10.30 – 12.00, in English
22-NOV-12, 8.30 – 10.00, in French
27-NOV-12, 10.30 – 12.00, in French
04-DEC-12, 10.30 – 12.00, in French
06-DEC-12, 8.30 – 10.00, in English
11-DEC-12, 10.30 – 12.00, in French
20-DEC-12, 8.30 – 10.00, in French

Pontier-élingueur (Driving of Cranes) **in French**
07-NOV-12 to 08-NOV-12, 8.30 – 17.30
28-NOV-12 to 29-NOV-12, 8.30 – 17.30
With the possibility to have the handouts in English

R**ecyclage – Conduite de plates-formes élévatrices mobiles de personnel (PEMP)** (Refresher course for driving of cherry-pickers)
07-NOV-12, 8.30 – 17.30, in French
20-NOV-12, 8.30 – 17.30, in French
21-NOV-12, 8.30 – 17.30, in French
30-NOV-12, 8.30 – 17.30, in French

Recyclage - Habilitation électrique personnel électricien basse tension (electrical safety refresher course for electricians in low voltage) **in English**
13-DEC-12 to 14-DEC-12 (1.5 days), 9.00 – 17.30 and 9.00 – 12.30

Recyclage - Habilitation électrique personnel électricien basse et haute tension (electrical safety refresher course for electricians in low and high voltage)
01-NOV-12 to 02-NOV-12, 9.00 – 17.30,
in English
08-NOV-12 to 09-NOV-12, 9.00 – 17.30,
in French

Recyclage - Habilitation électrique personnel non électricien (electrical safety refresher course for non electricians)
09-NOV-12, 9.00 – 17.30, **in English**

Recyclage – Pontier-élingueur (refresher course for driving of cranes)
19-NOV-12, 8.30 – 17.30, **in French**
21-NOV-12, 8.30 – 17.30, **in French**
With the possibility to have the handouts in English

Refresher course Self-Rescue Mask Training
06-NOV-12, 8.30 – 10.00, in French
08-NOV-12, 10.30 – 12.00, in English
13-NOV-12, 8.30 – 10.00, in French
15-NOV-12, 10.30 – 12.00, in French
20-NOV-12, 8.30 – 10.00, in French
22-NOV-12, 10.30 – 12.00, in English
27-NOV-12, 8.30 – 10.00, in French
29-NOV-12, 8.30 – 10.00, in English
04-DEC-12, 8.30 – 10.00, in French
06-DEC-12, 10.30 – 12.00, in English
11-DEC-12, 8.30 – 10.00, in French
13-DEC-12, 8.30 – 10.00, in English
18-DEC-12, 8.30 – 10.00, in French
20-DEC-12, 10.30 – 12.00, in English

Risques liés aux interventions en espace confiné (Confined Spaces)
04-DEC-12, 9.00 – 17.30, **in French**

Safety in cryogenics, level 2
13-NOV-12, 9.00 – 12.00, **in English**
27-NOV-12, 9.00 – 12.00, **in French**

Radiological Protection
02-NOV-12, 8.30 – 12.30, in English
09-NOV-12, 13.30 – 17.30, in French
13-NOV-12, 13.30 – 17.30, in English
20-NOV-12, 13.30 – 17.30, in French
27-NOV-12, 13.30 – 17.30, in English
07-DEC-12, 8.30 – 12.30, in French
11-DEC-12, 13.30 – 17.30, in English
21-DEC-12, 8.30 – 12.30, in French

Use of fire extinguisher – live exercises
02-NOV-12, 10.30 – 12.30, in French
07-NOV-12, 10.30 – 12.30, in French
09-NOV-12, 10.30 – 12.30, in French
14-NOV-12, 10.30 – 12.30, in French
16-NOV-12, 10.30 – 12.30, in French
21-NOV-12, 10.30 – 12.30, in English
23-NOV-12, 10.30 – 12.30, in French
28-NOV-12, 10.30 – 12.30, in English
30-NOV-12, 10.30 – 12.30, in English
05-DEC-12, 10.30 – 12.30, in French
07-DEC-12, 10.30 – 12.30, in French
12-DEC-12, 10.30 – 12.30, in French
14-DEC-12, 10.30 – 12.30, in French
19-DEC-12, 10.30 – 12.30, in French
21-DEC-12, 10.30 – 12.30, in French

Utilisation des équipements de protection respiratoire (Use of respiratory protective equipment) **in French**
08-NOV-12, 8.30 – 12.00

Working at heights - Using a harness to prevent falling from a height
06-NOV-12, 9.00 – 17.30, **in French**
13-NOV-12, 9.00 – 17.30, **in French**
16-NOV-12, 9.00 – 17.30, **in English**

Seminars

THURSDAY 8 NOVEMBER

COLLIDER CROSS TALK

11:00 Supersymmetric contributions to Z'decays

GENANRO CORCELLA (INFN, LABORATORI NAZIONALI DI FRASCATI)

CERN (4-2-011 – TH COMMON ROOM)

A&T SEMINAR

14:15 CLIC - a Linear Collider at CERN exploring the Terascale.

STEINAR STAPNES (CERN)

CERN (30-7-018 - KJELL JOHNSEN AUDITORIUM)

CERN COLLOQUIUM

16:30 ICTP: A Successful Model of International Scientific Collaboration

DR. FERNANDO QUEVEDO (ICTP - TRIESTE (IT))

CERN (500-1-001 - MAIN AUDITORIUM)

FRIDAY 9 NOVEMBER

CONFERENCES & WORKSHOPS

09:00 CERN Theory Group Retreat, 2012

HOLIDAY INN, THOIRY-STGENIS

BE SEMINAR

14:00 Zertifikatskurs Bilinguales Lehren und Lernen

PH FREIBURG (KG 3 /124)

12 TO 16 NOVEMBER

WRIGHT COLLOQUIUM 2012

18h30 Public conferences - Molecular architecture

DR RODERICK MACKINNON, PROF. TAKUZO AIDA
PROF. ANDREW B. HOLMES, PROF. DAVID LEIGH
DR VENKATRAMAN RAMAKRISHNAN

UNI DUFOUR (24 RUE GENERAL DUFOUR)
More information at: www.colloque.ch

MONDAY 12 NOVEMBER

EP SEMINAR

11:00 Searches for Particle Dark Matter with gamma-rays.

JAN CONRAD (STOCKHOLM UNIVERSITY)

CERN (500-1-001 - MAIN AUDITORIUM)

TUESDAY 13 NOVEMBER

TH STRING THEORY SEMINAR

14:00 TBA

ALBRECHT KLEMM (BONN UNIVERSITY)

CERN

WEDNESDAY 14 NOVEMBER

TH COSMO COFFEE

11:30 TBA

DR. FEDERICO PIAZZA (PARIS CENTER FOR COSMOLOGICAL PHYSICS AND APC)

CERN (4-2-011 - TH COMMON ROOM)

TH THEORETICAL SEMINAR

14:00 TBA

PROF. BENJAMIN GRINSTEIN (UNIVERSITY OF CALIFORNIA SAN DIEGO)

CERN (4-3-006 - TH CONFERENCE ROOM)

ISOLDE SEMINAR

14:30 Beta-nu angular-correlation measurements with LPC trap

DR. ETIENNE LIENNARD

CERN (26-1-022)

MONDAY 3 DECEMBER

JOHN ADAMS LECTURE

14:30 The Role of Superconducting Magnets for High Energy Physics

DR. LUCIO ROSSI, CERN
COUNCIL CHAMBER, CERN