

## UNOSAT JOINS THE FIGHT AGAINST EBOLA

Headquartered at CERN, UNITAR's UNOSAT programme examines global satellite imagery for humanitarian use. Whether they're providing maps for disaster response teams or assessing conflict damage to help reconstruction, their detailed reports are vital tools for aid workers. But how can satellite imagery help during a health crisis like the Ebola outbreak?



UNOSAT maps Liberia for potential Ebola Treatment Centre locations. Image copyright: Airbus Defence and Space 2014. Source: Space Charter. Image analysis: UNITAR-UNOSAT.

UNOSAT unites satellite data from space agencies and commercial operators worldwide in order to provide unbiased, objective maps and reports. Be it a natural disaster in Pakistan or a refugee crisis in Sudan, UNOSAT is - quite literally - an impartial observer of world events. The Ebola outbreak, however, was a special case: "The World Health Organization is mounting a substantial campaign in West Africa, building Ebola Treatment Centres and distributing personnel across the affected countries," says Einar Bjorgo, UNOSAT manager. "However outbreaks are arising in areas that are extremely remote and where information is limited and often outdated... that is where we

come in." UNOSAT is providing brand new, high-resolution maps - custom made for the WHO teams - which are directly accessible on their internal information systems.

"This is one of the many advantages of being based at CERN," explains Samir Belabbes, who is working on the UNOSAT Ebola efforts. "We can download all the satellite images here, process them from their raw data format, and then we put them on a CERN server that feeds an interface for WHO workers on the ground. They are able to access specific satellite maps straight off the interface - a great tool especially in areas where computing power and bandwidth are limited."



### BRINGING SCIENCE TO THE POLICY TABLE

"They shall beat their swords into plowshares, and their spears into pruning hooks. Nation shall not lift up sword against nation. Neither shall they learn war anymore." So says Isaiah 2:4, as transcribed on the famous wall in Ralph Bunche park, just the other side of 1st Avenue from the UN's New York headquarters, where we held a celebration of our 60<sup>th</sup> anniversary year on Monday 20 October. I used the quotation in my opening address, since it is such a perfect fit to the theme of 60 years of science for peace and development.

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# A word from the DG

## BRINGING SCIENCE TO THE POLICY TABLE

The event was organised with the United Nations Economic and Social Council, ECOSOC, in the framework of CERN's observer status at the UN, and although focused on CERN, its aim was broader. Presentations used CERN as an example to bring out the vital importance of science in general to the themes of peace and development.

The event was presided over by Martin Sajdik, President of ECOSOC, and we were privileged to have presentations from both the UN Secretary-General, Ban Ki-moon, who encouraged CERN to strengthen its engagement with the UN system, and the President of the UN General Assembly, Sam Kutesa, which is not a common occurrence! Introductory remarks were also given by the Permanent Representatives of France and Switzerland to the UN. The four keynote talks included former CERN Director-General Carlo Rubbia, who gave

a compelling account of the scientific endeavour. "Science is a wide community effort," he pointed out. "It depends on free exchange of ideas." His sentiment was echoed by South Africa's science minister, Naledi Pandor, who said that: "Scientific research at CERN and at the SKA telescope can draw nations together to share resources and skills."

Hitoshi Murayama went further. "Science is a true peace-maker," he said, "it can make differences between us disappear." As a CERN SPC member and Professor at both the University of Tokyo and the University of California, Berkeley, he should know! In his keynote address Kofi Annan set great store by the importance of science for development, especially in the developing world, and he paid tribute to CERN, saying that: "CERN is advancing boundaries of human knowledge, leading us to understand our universe", a theme picked up on by Fabiola Gianotti

as she opened the discussion to the floor with the words: "as CERN's history demonstrates, science promotes and produces knowledge, development, education and peace." As the event drew to a close, UNESCO Director General, Irina Bokova gave a glowing endorsement of CERN. "There are ideas that have completely changed the course of history," she said, "CERN was one of these."

The purpose of the event was to argue the case for science having a seat at the policy table, which is where it needs to be if we are to overcome the major challenges facing society today. If Martin Sajdik's closing words are anything to go by, I think we succeeded. "We have reaffirmed today," he said, "that science is a powerful force for good." Policy makers of the world: please take note!

Rolf Heuer

(Continued from page 1)

# UNOSAT JOINS THE FIGHT AGAINST EBOLA

UNOSAT launched its Ebola efforts by activating the Disasters Charter. "The Charter ensures that UNOSAT receives free satellite imagery from national and international space agencies in the event of a natural or technological disaster," says Einar. "The Ebola outbreak merited the activation of the Charter - a first for such a health emergency - and now satellites from every

continent are supporting the fight against Ebola."

After the immediate logistical support has been accomplished, UNOSAT will continue to collaborate with WHO teams in West Africa. "We will be following up on the construction of Ebola Treatment Centres, providing new images of the centres at WHO-requested

intervals," explains Einar. "This is a means for us to follow up on the centres once construction resources have been distributed." Without taking a step outside of CERN, the UNOSAT team will be keeping us up-to-date with the most remote parts of the outbreak area.

Katarina Anthony

(Continued from page 1)

### Find out more

Every year is a busy year for UNOSAT but, so far, 2014 has been especially eventful. Earlier this month, UNOSAT released a detailed damage report following the summer conflict in Gaza. This unbiased report has already been used by both sides of the conflict, and has aided in international reconstruction planning.

In addition to their Ebola initiative, UNOSAT teams are combing through satellite images of Ethiopia in search of potential locations for refugee camps. What areas have existing water resources? How can the sites be accessed by road? These are the questions the UN Refugee Agency is asking as they look for new sites with UNOSAT support.

Keep up to date with the latest from UNOSAT by following them on Twitter (@UNOSAT), or by visiting their (new!) webpage: [unitar.org/unosat](http://unitar.org/unosat).

### UNOSAT and CERN

The IT Department is the host to the United Nations Institute for Training and Research (UNITAR) Operational Satellite Applications Programme (UNOSAT), a UN entity. This partnership allows UNOSAT to benefit from CERN's IT infrastructure whenever the situation requires, allowing the UN to be at the forefront of satellite-analysis technology. Specialists in geographic information systems (GIS) and in the analysis of satellite data, supported by IT engineers and policy experts, ensure a dedicated service to the international humanitarian and development communities 24 hours a day, seven days a week.

# LS1 REPORT: ALICE UPS THE ANTE

**SPS up and running... LHC almost cold... CCC Operators back at their desks... all telltale signs of the start of Run 2! For the experiments, that means there are just a few short months left for them to prepare for beams. The CERN Bulletin will be checking in with each of the Big Four to see how they are getting on during these closing months...**

It has been a long road for the ALICE LS1 team. From major improvements to the 19 sub-detectors to a full re-cabling and replacement of LEP-era electrical infrastructure, no part of the ALICE cavern has gone untouched. \* With the experiment set to close in early December, the teams are making finishing touches before turning their focus towards re-commissioning and calibration.

"Earlier this week, we installed the last two modules of the di-jet calorimeter," explains Werner Riegler, ALICE technical coordinator. "These are the final parts of a 60 degree calorimeter extension that is installed opposite the present calorimeter, covering 120 degrees of polar angle. In November, we will be installing the last transition radiation detectors; these will be the final pieces to go into the detector before we close the magnet doors."

### Double Down

For the next run, ALICE will be doubling the rate at which they write data to disk - a decision that has meant significant upgrades to its DAQ system. "Our readout rate has been increased from a few hundred Hz to 1 kHz," says Riegler. "With the lead-lead (Pb-Pb) collision rate in Run 2 foreseen at around 10 kHz, we will be saving one in ten events for analysis."

Along with this higher readout rate come customisations to ALICE's trigger parameters: "Selective triggers pick out events with specific characteristics, but in heavy ion physics, there is a lot that can be studied in the 'untriggerable' events," explains Riegler. "By increasing the readout rate, we will be

looking at more minimum bias data and so can extend our physics reach. By Run 3, where the Pb-Pb collision rate of the LHC should be 50 kHz, we plan to be writing all of that data to disk! This way ALICE can fully exploit all Pb-Pb collisions, specifically the production of short-lived mesons and baryons at low transverse momentum."

With operational efficiency a priority for Run 2, the detector and the online systems teams have worked to improve the software as well as the hardware. "After three years of operation, we came to know our detector very well," says Federico Ronchetti, ALICE run coordinator. "We have been redefining virtually all of the operating procedures to eliminate inefficiencies. For example, our DAQ system can now be engaged much faster than before and is able to perform automatic detector recovery in the event of an electronics hiccup or high voltage trip. In practice, the need to stop data acquisition to fix common errors is now much reduced."

### Inside Straight

ALICE will also be benefiting from improvements to the LHC's long straight sections. In order to improve the quality of the vacuum before and after the interaction point, several sections of the vacuum pipe were NEG coated and the injection protection collimators (TDI) were refurbished during the shutdown. Better vacuum means fewer unwanted beam-gas interactions, thus reducing potential background in ALICE.

However, at times events not arising from a beam-beam collision can prove very useful. Next month, during testing of the SPS-LHC

transfer line, secondary muons leaving the SPS beam dump will arrive at ALICE. These "splash" events, being in sync with the LHC clock, will be very useful to check the time alignment of the ALICE trigger detectors!

### Going All In

With installation almost complete, the task falls to the run coordinator to bring the systems in line: "We are presently carrying out technical runs, adding each subsystem as it comes online," says Ronchetti. "We currently have seven of the 19 subsystems integrated and expect a full global run by the end of the year."

\* Find out more about ALICE's LS1 Activities in the CERN Courier article: "ALICE looks to the Future" ([cerncourier.com/cws/article/cern/53084](http://cerncourier.com/cws/article/cern/53084)). For more information about the physics objective of Run 2, see the Bulletin article: "Physics at 13 TeV: ALICE - scratching the surface" (Bulletin 16-17/2014)

Katarina Anthony

### Meanwhile, elsewhere...

Maintenance of the cooling and ventilation systems is being carried out at Point 6. These works will wrap up in mid-November, completing a major update of the systems carried out over the Long Shutdown (read more in the Bulletin article "A breath of fresh air", Bulletin 21-22/2013).

Powering tests will soon be starting in sector 8-1, where ELQA tests were completed earlier this week. In sector 5-6, CSCM testing has been completed and ELQA testing will resume next week. In sectors 7-8 and 2-3, CSCM testing is ongoing. Cooling activities continue across the LHC, with two sectors having reached operating cryogenic conditions.

# A NEIGHBOURLY COLLABORATION

**CERN and its host territories in France have created a new partnership aimed at reinforcing and making permanent numerous projects for the people who live in the region.**

Over the last four years, CERN has developed a number of initiatives with its partners in Geneva and neighbouring France.

To formalise and improve the structure of this collaboration, CERN, the French government, the *Conseil général de l'Ain* and

the *Communauté de communes du Pays de Gex* have recently formed a quadripartite partnership. The CERN Director-General has been appointed Chair of the committee leading the partnership for this year. "Due to its geographical location, activities and aims, CERN has always placed great emphasis



on dialogue with its neighbours,” explains Friedemann Eder, Head of the Relations with the Host States Service. “The current Director-General wanted to boost dialogue and collaboration – an aim that the authorities in the Host States share – and this partnership is a perfect example.” The partnership covers the following four areas: knowledge and technology transfer, education and training, scientific tourism, and town, country and transport planning.

One of the flagship projects in the field of knowledge and technology transfer is the forthcoming opening of a business incubation centre on the Technoparc site in Saint-Genis-Pouilly. This facility will promote the creation of businesses based on CERN technologies. CERN will provide its technologies and technical know-how to entrepreneurs, while the local authorities will provide the premises, as well as material, administrative and financial assistance. “Three incubators have already been created under CERN’s aegis elsewhere in Europe: in the UK, the Netherlands and Norway,” explains Giovanni Anelli, Head of CERN’s Knowledge Transfer Group. “For the Technoparc at Saint-Genis-Pouilly, the proximity of CERN will

certainly help the process and increase the level of technical support that we are able to provide. I’m sure that we will have many proposals from entrepreneurs who would like to monetise CERN technologies.”

Many projects in the fields of education and training, the second theme of the partnership, have already emerged within local educational networks. The “Be a scientist” project, designed to improve understanding of the scientific process among pupils aged 9 to 12, will enter its fifth year in January, and continues to be a resounding success. More than 3000 schoolchildren from the *Pays de Gex*, the *Haute-Savoie* and the Canton of Geneva have taken part since 2011. Many other activities have been run in parallel, in particular lectures by Marie Curie Fellows for high school classes and other one-off collaborations connected with the schools’ own projects. “We hope to be able to ensure that these projects continue, as they have had a very positive impact for both the young people involved and for CERN,” explains François Briard, who has recently been made responsible for local communication at CERN. Under the partnership, visits to CERN by pupils of secondary schools in the *Département de*

*l’Ain* and lectures by scientists in schools will be organised more systematically.

On the tourism side, the partnership makes provision for an increased exchange of information between CERN and local tourist organisations. With around 100,000 visitors per year, CERN has become one of the region’s unmissable tourist attractions. Collaborations are already in place, such as the ‘Passport to the Big Bang’ circuit or the opening of slots for tours of CERN organised by the *Pays de Gex - La Faucille* tourist office. But such collaborations could be further reinforced, for example through the involvement of other tourist organisation partners.

Everyone at CERN is very interested in the introduction of more effective public transport and in the development of green transport routes. The local authorities have complete jurisdiction in this respect, but CERN is able to support projects that improve mobility on the cross-border routes, which are becoming increasingly congested.

Corinne Pralavorio

## CRISTAL-ISE YOUR PROJECT

**CRISTAL-ISE, a new version of the CRISTAL data tracking software developed at CERN in the late 90s, has recently been launched under an open source license. The potential for applications of this free software outside particle physics covers several areas, including medicine, where CRISTAL-ISE helps to monitor the progress of Alzheimer’s Disease.**

CRISTAL began as a collaboration between CERN, the University of the West of England (UWE) and the Centre National de la Recherche Scientifique (CNRS). “At the time of CMS’s construction, there was a need for software able to track the production of the almost 80,000 lead tungstate crystals for the Electromagnetic Calorimeter,” explains Andrew Branson, member of the CMS collaboration and Technical Coordinator of the CRISTAL-ISE project.

“We started to develop the software when we didn’t yet know the detector testing procedures to go through, the dimensions or even where the crystals were to be grown,” adds Zolt Kovács, now at UWE, who helped develop the software during his fellowship at CERN. “Therefore, we wanted to make sure that we were building a system that could change and evolve over time, and still be in place ten years later.”

The result was the first version of CRISTAL, where the acronym stands for Cooperative Repositories and Information System for Tracking Assembly Lifecycles. “It consists of a

core library (known as kernel) which manages objects called items, and applications that use that kernel,” explains Richard McClatchey (UWE), one of the co-inventors of the CRISTAL software and Project Coordinator of CRISTAL-ISE.

The CRISTAL-ISE Java application (i.e. version 3 of CRISTAL) allows any kind of information to be tracked and has a wide variety of potential usages in other fields, including medicine, manufacturing engineering, logistics and legacy system integration. A previous version has already been used at UWE (neuGRID and its follow-up neuGRID for you projects) where researchers are looking for biomarkers of Alzheimer’s disease. One way of recognising the onset of the disease is to look at the thinning of the brain cortex. “Taking Magnetic Resonance imaging (MRI) scans of the brain over time and measuring this thickness you can have an early biomarker of the onset of the disease and provide appropriate treatment to slow it down,” explains McClatchey. “The management of the MRI images and what clinicians have done with these images is captured in the CRISTAL-ISE system.”

An early version of the CRISTAL kernel was licensed in 2003 to a start-up company named Agilium, which took over the software and used it in the area of Business Process Management. Over a decade later, Cristal-ISE was released as open source thanks to funding from the EU Marie Curie programme. “CRISTAL-ISE is easier to use. It’s been brought up-to-date with new technology and is more modular,” concludes Branson. “The open source option allows other research projects or businesses to freely use the richer CRISTAL kernel and work on its source code to improve it and make it even more flexible.”

Rosaria Marraffino



CMS lead tungstate crystals produced in Russia.

## MYSTERY PHOTOS: CHALLENGE NO. 2!

**In the last issue of the Bulletin, we launched a public appeal for information to identify some CERN pictures that have recently been digitised by the CERN Library. The response has been huge. The story was picked up on many websites and discussion forums all over the Web, and hundreds of people sent in their suggestions. Time for a new challenge.**

Many thousands of CERN’s archived pictures are currently being scanned and uploaded to the CERN Document Server. While most of these pictures can be matched to existing historical information, many are harder to identify. Following the recent article in the last issue

of the Bulletin, we have received submissions in five different languages from a dozen countries. We would like to express our thanks to everyone who has contributed their answers.

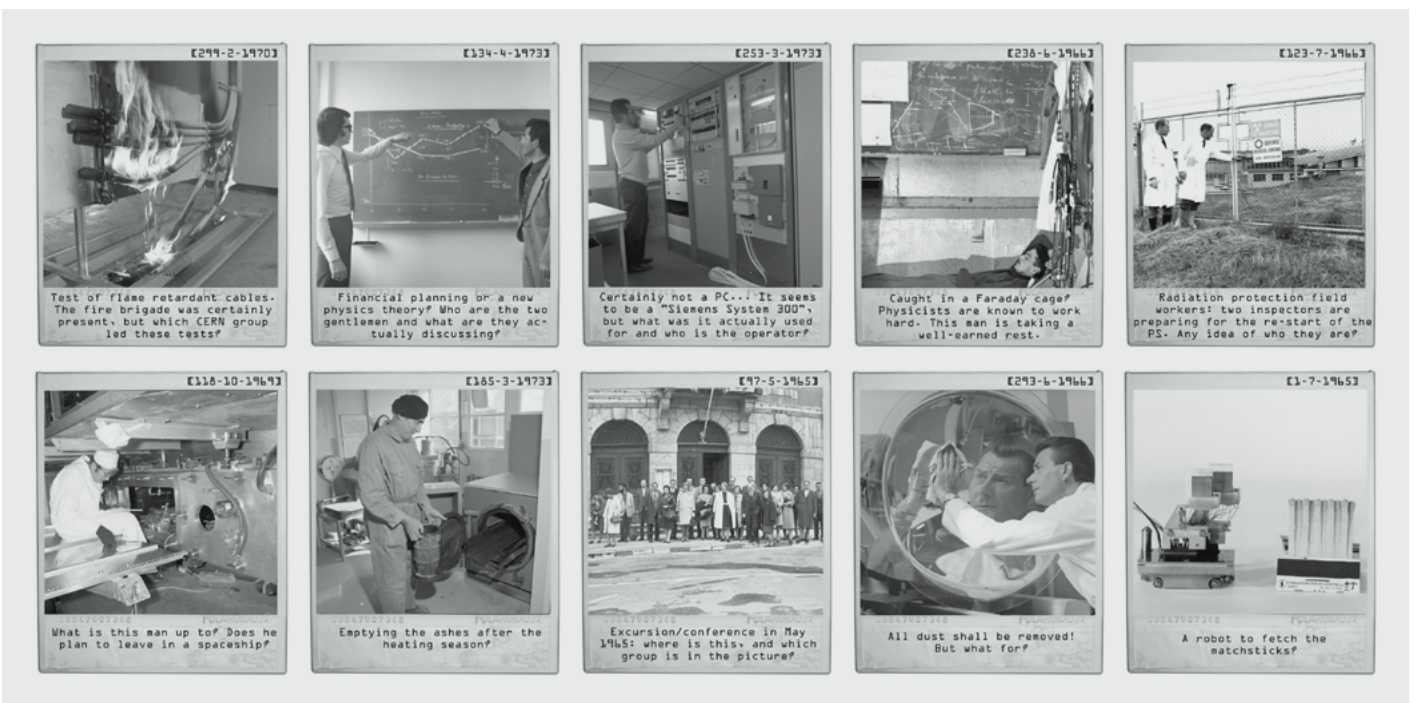
We have now identified all of the pictures

highlighted in the last issue of the Bulletin and we are updating the records accordingly. You can see them all on : [https://cds.cern.ch/yourbaskets/display\\_public?bskid=22420](https://cds.cern.ch/yourbaskets/display_public?bskid=22420). To see a complete list of matched albums that we have checked so far. <http://cern.ch/go/g8JC>

Some people went further than our challenge set, digging into the archives and submitting suggestions for other pictures. Some of these are below, along with some of our recent favourites:



Now we would like to ask again for help identifying the following pictures. Like last time, we have put some (semi-serious) captions to get you started, but we really want to find out the truth about these pictures:



Can you help us with any of the pictures above? If you think you know what they show, please email us ([photo.archive@cern.ch](mailto:photo.archive@cern.ch))

This digitisation project is a joint effort between the Collaboration and Information Services Group (IT-CIS) and the Scientific Information Service (GS-SIS).

Alex Brown, Jens Vigen



# PRESIDENT OF ECUADOR VISITS CERN

On Friday, 24 October, Dr. Rafael Correa Delgado, President of the Republic of Ecuador, visited CERN.



President Correa Delgado in the ATLAS cavern.

Visiting Geneva to deliver a lecture at the UN, Ecuadorian President Rafael Correa Delgado seized the chance to have a short but intense visit of the Laboratory.

The President was met at LHC Point 1 by the Director for Research and Scientific Computing Sergio Bertolucci, who gave him an introduction to CERN's activities. He was also introduced to the Director for Accelerators and Technology, Frédéric Bordry, and Department Heads José Miguel Jiménez (TE), Livio Mapelli (PH) and Roberto Saban (EN).

President Correa Delgado also met with

Martijn Mulders, co-organisier of the CERN Latin America School of High-Energy Physics, which will be held in Ecuador from 4 to 17 March 2015.

Shortly after that, he visited the ATLAS experimental cavern which he toured with ATLAS Collaboration Spokesperson David Charlton and Fernando Monticelli of the ATLAS Collaboration.

As is tradition, before leaving an hour later, the President signed the CERN guest book.

Rosaria Marraffino

## Behind the scenes of GS

### MAPPING THE FUTURE OF CERN

**Focus on the Future Accelerator Studies (FAS) section at CERN who carry out the civil engineering studies for the Laboratory's future scientific facilities.**

The Future Accelerator Studies (FAS) section co-ordinates the civil engineering and infrastructure studies for large-scale future physics projects. These include projects due to complete in a couple of years such as AWAKE, but also projects planned for ten years' time such as the High Luminosity LHC (HL-LHC) or even longer term projects such as the Future Circular Collider (FCC), for which approval is still pending. "CERN needs to be able to study the feasibility and assess the risks of future projects, even though they are not all fully approved," explains John Osborne, Head of the FAS section, which also includes two fellows and one technical student. "Our small team works closely with other groups across CERN and with external companies to provide studies from a civil engineering point of view."

Looking at both overground and underground technical facilities, the FAS section participates in the conceptual design phase preceding the start of construction. "The hardest part is understanding the requirements and coming up with something feasible and financially viable," says Osborne. "Finding a compromise between physicists and engineers can sometimes be challenging," he adds.

For example, the FAS section has studied

many different design proposals for the HL-LHC project. It is planned that the LHC will start at a higher luminosity in 2023 and the number of collisions is expected to increase by a factor of 5 to 10. New caverns have to be built in order to house cryogenic equipment and power converters. The FAS section has studied alternatives for the power converters; this equipment could also be installed on the surface. A series of vertical ducts would house superconducting links, which would transport electricity from the power converters to the magnets in the tunnel. "Even though the studies we work on provide a lot of information, the decision-making process is not easy," says Osborne. Finding a solution for the transport of electricity for the HL-LHC is a prime example of this. Although pipes may be a more financially viable option, drilling a series of pipes 40 cm in diameter down to a depth of 100 m is far from being a well-established technology. Indeed, work could potentially start during the next long shutdown in 2018, less than four years away, which in civil engineering terms doesn't leave much time to decide!

The FAS team has also started to study the civil engineering needs of the Future Circular Collider (FCC), a project for a very large collider, 80 to 100 km in circumference and operating at a much

higher energy than the LHC. The preparatory work for the study aims to evaluate the feasibility of such a machine from a civil engineering perspective. An engineering consultant developed a software tool for CERN, which helps with the conceptual design studies for the tunnel from a geotechnical point of view. The tool is a dynamic web-based GIS application and integrates numerous existing geological data sources, incorporating the geological, tunnelling and particle collider system constraints in a user-friendly digital environment. "This tool is essential for us to see whether a location is physically possible for the FCC," says Osborne. "We can adjust the size of the tunnel, its depth and its circumference, to see what geology we would need to dig through."

The section is also working on linear collider projects: CLIC and the ILC. Osborne is on a committee to help find the most suitable location for the ILC. He recently went to northern Japan, which is the most likely candidate for hosting this collider. The ILC will study collisions of electrons and positrons and carry out a programme of ultra-precise electroweak measurements of the Z-boson, study the top quark in great depth and study the self-coupling of the Higgs boson at its highest centre-of-mass energy.

Sophie Louise Hetherington

## Computer Security

### JOIN THE CERN WHITEHAT CHALLENGE!

**Over the past couple of months, several CERN users have reported vulnerabilities they have found in computing services and servers running at CERN. All were relevant, many were interesting and a few even surprising. Spotting weaknesses and areas for improvement before malicious people can exploit them is paramount. It helps protect the operation of our accelerators and experiments as well as the reputation of the Organization. Therefore, we would like to express our gratitude to those people for having reported these weaknesses! Great job and well done!**

Seizing the opportunity, we would like to reopen the hunt for bugs, vulnerabilities and insecure configurations of CERN applications, websites and devices. You might recall we ran a similar initiative ("Hide & Seek") in 2012 where we asked you to sift through CERN's webpages and send us those that hold sensitive and confidential information. Quite a number of juicy documents were found and subsequently removed. However, if we probe deep, we have to apply due care. Not all our applications are robust and resilient enough to withstand vulnerability scanning and penetration testing. It is of the uttermost importance that random testing of CERN applications, websites or devices does not stop them from working, delete their contents or render them broken. Therefore, a bit of training and coordination is needed.

**Enlist with us and join the CERN WhiteHat Challenge!** In order to prepare you, we are planning to hold a half-day work-shop on vulnerability scanning, penetration testing

and proper ethics early in the Autumn this year. The only prerequisites are programming skills and/or knowledge of system/service administration. Once you have followed and completed the workshop, you will be eligible to conduct penetration tests on CERN applications, websites and devices of your choice. All you will need to do is suggest your favourite area that you would like to test... We will coordinate with the corresponding service manager in order to get a suitable time window or test instance. Once ready, you are "go" to try your vulnerability assessment and penetration testing skills on real applications and live devices. This setup will make your challenge a win-win for everyone: your engagement as a security tester, and the security and robustness of the area you've tested! If you are interested in becoming an official CERN WhiteHat, sign up by sending an email to [Computer.Security@cern.ch](mailto:Computer.Security@cern.ch) with subject "Make me a CERN WhiteHat".

However, please note: the academic curiosity and the perseverance of a nerd shall be

your only motivation for this challenge. As compensation, we offer full kudos, a good book on security matters, a letter of appreciation to be sent to your supervisor, and a mention of your findings in our Monthly Report. Of course, such an activity also looks good in your CV. However, we do not and will not provide financial compensation (and have even turned down such requests in the past). If you want to make some money, it is better to look for bugs and weaknesses in Google (earn \$100 to \$20,000), Facebook (\$500 flat), Microsoft (rewards up to \$100,000), or elsewhere. But note that such an activity against third parties is your personal business and must NOT be conducted from the CERN network (as it violates the CERN Computing Rules).

Check out our website <https://security.web.cern.ch> for further information, answers to your questions and help, or e-mail [Computer.Security@cern.ch](mailto: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/fr/monthly-reports.shtml>

Stefan Lueders, Computer Security Team

## Ombud's Corner

### DO YOU BELIEVE IN GHOSTS?

**"Ghosting" is the common term used to describe situations when a piece of work is done by somebody but credited to somebody else. Ghosting often occurs in creative fields, such as writing texts, music, developing graphic charters or translating. Let's celebrate Halloween this year by acknowledging the contributions of all the CERN ghosts who work tirelessly behind the scenes in all areas of the Organization.**

"Ghosting" is a recognised job with international professional associations, particularly in the field of text writing. The role requires strict anonymity, good reciprocal trust and understanding between the people involved, and the professional flexibility to be able to adapt to different situations and different styles of expression as needed.

At CERN there are many ghosts: you can find them in the Translation and Minute-

writing service, whose members also provide valuable editing and proof-reading skills; in the Communications group with its team of writers, graphic designers, photographers and video editors; and of course also in the various collaborations, working groups and meetings where a few individuals take on the responsibility of producing proposals, minutes and reports on behalf of the collective community. These ghosts require a specific set of skills that are not just a question of writing, drawing or taking pictures,

but rather draw extensively on professional expertise that has been developed through study or years of practice.

The notion of ghosts in organisations can be further extended in some cases to include a substantial part of the role of an administrative assistant who drafts correspondence or prepares PowerPoint presentations on the basis of just a few key elements. Here too, the competence of these ghosts, together with their understanding of the context, should not be underestimated, and due consideration should be given for sufficient lead-time to meet deadlines.

Sometimes the work is correctly credited, while at other times the signature simply does not exist or is different from the one specified in the by-line. Ghosting is not an incorrect practice but



rather a win-win agreement between the parties involved. The “ghost” works behind the scenes on the clear understanding that the role is known to be vital and appreciated in the wider sense.

The level of involvement of ghosts can vary from being a simple source of inspiration to one of doing most of the actual work. In either case, do not be afraid of “ghosts” – indeed, if you are required to do some creative work and do not

feel sufficiently confident to do it, do not hesitate to ask for the help of a ghost! In the same way, if you are possessed with ‘ghostly’ talents, do not hesitate to offer your services to your colleagues! Collaborating with such ghosts at work should not be perceived as a frightening encounter – on the contrary, there is clear evidence that it is actually a golden opportunity to pool resources and make the most of the diverse types of talent that exist in the work environment.

So now do you believe in ghosts? Can you really let this Halloween pass without acknowledging them and appreciating their contributions?

As a reminder, all previous Ombud’s Corners can be accessed in the Ombud’s blog: [ombuds.web.cern.ch](http://ombuds.web.cern.ch).

*Sudeshna Datta-Cockerill*

## Library

### SCIENTIFIC INFORMATION SERVICE - SERVICE INTERRUPTION

**Techniques de l’Ingénieur has been part of the selection of databases offered by the Scientific Information Service for the last five years.**

Unfortunately, as a consequence of budget reductions, and after careful consideration of all available options, we have to end this subscription. It will be still possible to purchase

access to individual chapters via the Library services. ([http://cds.ch/ill/purchase\\_request\\_step1](http://cds.ch/ill/purchase_request_step1)).

Furthermore, we are considering ending our subscriptions to Web of Science and Springer Materials (the Landolt-Börnstein database) during the course of 2015.

We thank you for your understanding and welcome your feedback to [library.desk@cern.ch](mailto:library.desk@cern.ch)

### COLIN RAMM (1921 - 2014)



*Colin Ramm, CERN 1963.*

**One of the CERN’s pioneering figures, Colin Ramm, passed away on 23 June.**

Colin was born in Perth, Western Australia, and gained a first-class honours degree in physics at the University of Western Australia in 1942. In 1947 he went to Birmingham University, where Europe’s first proton synchrotron was being built to produce an energy of 1 GeV and where he obtained his doctorate in 1951.

In 1954, Colin joined CERN’s Proton

Synchrotron Division as leader of the magnet group, which became responsible for the whole of the synchrotron’s magnet system. The magnet group – which became the Nuclear Physics Apparatus Division in 1961 – then turned towards helping to make the PS usable for experiments, and a number of projects took shape under Colin’s leadership: a heavy-liquid bubble chamber, magnets and lenses for guiding secondary beams, electrostatic separators, a high-energy antiproton beam, scanning apparatus for bubble-chamber photographs, a fast beam-ejection system, and finally an enhanced neutrino beam.

The Ramm chamber – with a volume of 500 litres – was at the time the largest heavy-liquid chamber in the world operating in a magnetic field. Completed in 1960, it was used in CERN’s first neutrino experiments. The electrostatic separators built by Colin’s division gave CERN some of the world’s highest-energy beams of separated particles, as well as leading to research into the basic principles of high-voltage breakdown. However, the enhanced neutrino beam quickly became the Division’s main preoccupation. A group under Berend Kuiper and Günther Plass was already working on a proposal for extracting protons from the

synchrotron, when it became obvious that with the ejected beam a greater pion flux could be obtained in the experimental areas. Simon van der Meer came up with the idea of a magnetic horn, to concentrate the pions so that an even larger number of neutrinos from their decays would be directed towards the detectors.

Colin returned to Australia in 1972 when invited to become the first full-time Dean of the Faculty of Science at the University of Melbourne. After retiring as Dean in 1983, he joined the School of Physics, and after a gap of almost 30 years, he returned to teaching, one of his first loves. He retired in 1988.

He leaves behind a daughter and a son, who went on to practise one of Colin’s great interests – marine science.

*His friends from Melbourne and CERN*

Extracted from the obituary in CERN Courier, November 2014 (p.41).

### LOUIS DICK (1921 - 2014)



*Louis in his office, a veritable archaeological wonder with strata of documents corresponding to various eras of physics.*

**Louis Dick, a CERN experimental physicist of international renown, passed away on 14 July.**

Born in Geneva on 27 April 1921, Louis obtained a physics degree at ETH-Zurich in 1946 before moving to the Institut du Radium in Paris, where he joined the group led by Frédéric and Irène Joliot-Curie. He took a leave of absence in 1957 to go to CERN, where he remained until well beyond his retirement in 1986.

In the late 1950s and early 1960s, Louis worked at CERN’s Synchrocyclotron (SC) and later on studies at the Proton Synchrotron (PS). When the first polarised proton target arrived at CERN from Saclay in 1963, Louis proposed using it for studies of spin effects in pion-proton elastic scattering at the PS, and between 1964 and 1966 sizeable spin effects were found. Louis and his collaborators then continued these studies with higher beam intensities, a new detector, and a new polarised target developed at CERN by Michel Borghini and his group.

At the end of the 1970s, in a CERN-Lausanne-Michigan-Rockefeller collaboration, Louis proposed the UA6 experiment. Installed at the Super Proton Synchrotron in 1983, UA6 included a magnetic spectrometer and an electromagnetic calorimeter and made important measurements on, for example, the distribution of gluons in the proton, as well as cross-sections for proton-proton and proton-antiproton elastic scattering in the “forward” region.

In 1986 Louis reached CERN retirement age, but continued to work as a visiting scientist with INFN/Milan. He remained very active, taking part in lively discussions of possible new projects and detector concepts.

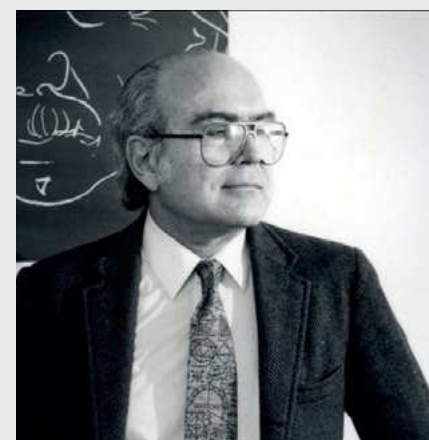
An experimentalist full of original ideas, Louis had great competences in detectors, which he always tried to push to their ultimate performance. He tended to favour unconventional experiments, not fashionable among theorists, and pursued his ideas even when not immediately accepted. One important trait was the attention he paid to the young people around him, supporting many of them, and encouraging technicians to broaden their competences through university evening courses. Lastly, his CERN office was a veritable archaeological wonder with strata of documents corresponding to various eras of physics.

Louis will be sorely missed by those who worked with him or even had only occasional physics discussions with him. Much sympathy goes to his wife Line, to his two daughters Anne-Fabienne and Emmanuelle, and to their families.

*His colleagues and friends*

Extracted from the obituary in CERN Courier, November 2014 (p.42).

### LOUIS DICK (1921 - 2014)



*Bruno Zumino in 1985. (Image credit: Lawrence Berkeley National Laboratory.)*

**Bruno Zumino died in Berkeley, California, on 21\* June, aged 91. His name is mainly associated with the formulation of supersymmetry in four-dimensional space-time.**

Zumino graduated in physics at the University

of Rome in 1945 and worked in Göttingen and then at New York University, where he became Chair of the Physics Department. In 1968, he joined the Theory Division at CERN, staying until 1981. It was here that he did his pioneering work with Julius Wess of Karlsruhe in which they formulated the first supersymmetric four-dimensional quantum field theory – the Wess–Zumino model – in 1974. Today supersymmetry is a strong candidate for physics beyond the Standard Model and provides some candidate particles for dark matter. In 1976, two years after its formulation, supersymmetry was combined with the gravitational force, giving birth to supergravity and stunning developments that include superstring theory and “M”-theory.

In 1982, Zumino became a faculty member at the University of California, Berkeley, and was Emeritus Professor from 1994. Survived by his wife Mary K Gaillard and three stepchildren, he leaves an enormous legacy and will be remembered for his achievements by future generations.

Extracted from the obituary by Sergio Ferrara, CERN Courier November 2014 (p.43) and based, with permission, on the obituary first published by the Italian Physical Society, in *Il Nuovo Saggiatore* 30 87 (2014).

*\*Because Zumino died around midnight, there was initial confusion about the date of his death. He died on the 21st, not the 22nd, as originally stated.*



## Take note

### WRIGHT COLLOQUIUM | LES SECRETS DU SOLEIL | 10-14 NOVEMBER

### CERN LIBRARY | EDOARDO AMALDI PRESENTS "THE ADVENTUROUS LIFE OF FRIEDRICH GEORG HOUTERMANS, PHYSICIST (1903-1966)" | 11 NOVEMBER

The physicist Friedrich Houtermans (1903-1966) was an important promoter and proponent of the development of physics in Berne. He introduced a number of activities in the field of elementary particles, with a special focus on the physics of cosmic rays, and made important contributions in applied physics.

CERN, Building 567,  
R-021 and R-029  
01.09.2014 - 30.09.2014  
from 4.00 to 6.00 p.m.

This biography of Houtermans was written by Edoardo Amaldi and was almost finished just before his unexpected death in 1989. The editors have only corrected typographical errors and introduced minimal text changes in order to preserve the original content. Additionally they have collected and included previously unpublished pictures and memories from Houtermans' students and collaborators.

The text is the result of a thorough and intensive study of Houtermans' life and character carried out by Edoardo Amaldi. It is more than a biography, since the figure of Houtermans is set in a historical period in Europe between the two world wars. This book will be of great interest to historians and historians of science.

The book will be presented by the editors, together with Ugo Amaldi.

**Tuesday, 11 November 2014 at 4 p.m.**  
**in the Main Auditorium**  
<https://indico.cern.ch/event/349746/>

\*Coffee will be served from 3.30 p.m.\*

"The adventurous life of Friedrich Georg Houtermans, physicist (1903-1966)", by E. Amaldi, edited by S. Braccini, A. Ereditato and P. Scamporrì, 2014, Springer, ISBN 9783642328541.

### ACADEMIC TRAINING LECTURES | INSTRUMENTATION | 12-14 NOVEMBER

Instrumentation (1, 2 & 3) by Rhodri Jones (CERN)

Wednesday 12, Thursday 13 and Friday 14  
November  
from 11:00 to 12:00  
at CERN (40-S2-A01 - Salle Anderson)

Description: The LHC is equipped with a full suite of sophisticated beam instrumentation which has been essential for rapid commissioning, the safe increase in total stored beam power and the understanding of machine optics and accelerator physics phenomena. These lectures will introduce these systems and comment on their contributions to the various stages of beam operation. They will include details on: the beam position system and its use for real-time global orbit feedback; the beam loss system and its role in machine protection; total and bunch by bunch intensity measurements; tune measurement and feedback; diagnostics for transverse beam size measurements, abort gap monitoring and longitudinal density measurements. Issues and problems encountered along the way will also be discussed together with the prospect for future upgrades.

### PUBLIC CONFERENCE | PAST, PRESENT FUTURE: LHC AND FUTURE POSSIBILITIES | MICHELANGELO MANGANO, LUCIE LINSEN AND GÜNTHER DISSERTORI | 20 NOVEMBER

Public conference "Past, present future: LHC and future possibilities" by Michelangelo Mangano, Lucie Linssen and Günther Dissertori.

Thursday, 20 November, 7.30 p.m. in the  
*Globe of Science and Innovation*

Talk in English with simultaneous interpreting  
into French.  
Entrance free. Limited number of seats.  
Reservation essential: +41 22 767 76 76 or  
[cern.reception@cern.ch](mailto:cern.reception@cern.ch)  
Webcast at [www.cern.ch/webcast](http://www.cern.ch/webcast)

### DISRUPTION - ACCESS CARDS SERVICE

We would like to inform you that between 10 November and 15 December 2014, the access

cards service in Building 55 will be disrupted, as the GS Department has decided to improve the facilities for users of this building. During the work, you will find the registration, biometric registration and dosimeter exchange services on the second floor of Building 55 and the vehicle sticker service on the ground floor along with the access cards service.

We thank you for your understanding and apologise for any inconvenience caused.

### THE 2014 FRENCH HEALTH CAMPAIGN REMINDS US THAT "FLU MUST BE TAKEN SERIOUSLY"

The fact is that 5-10% of the global adult population and 20-30% of children worldwide catch the flu every year. The illness can lead to hospitalisation and death, mainly in people who are considered high-risk (infants, the elderly, and those with chronic illnesses). According to the WHO, every year, flu epidemics are responsible for approximately three to five million cases of serious illness and for 250,000 to 500,000 deaths worldwide.

Vaccination is the most effective way of avoiding the illness and any serious consequences and protecting those around you. Safe and effective vaccines are available and have been used for more than 60 years.

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

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

NB: The Medical Service cannot provide this vaccination service for family members or retired members of the personnel, who are advised to visit their GP.

For more information, see the advice issued for 2014:

- The "seasonal flu" flyer by the Medical Service
- Recommendations of the Swiss Federal Office of Public Health (OFSP) (in English).

Medical Service

## Training

### SAFETY TRAINING: PLACES AVAILABLE IN NOVEMBER AND DECEMBER 2014

Places are available in the forthcoming Safety courses. For updates and registrations, please refer to the Safety Training Catalogue: <https://cta.cern.ch>

## Official news

### NEWS FROM CHIS

#### New contract between CERN and UNIQA

Following a competitive call for tender, the consortium UNIQA Switzerland and UNIQA Austria has been awarded the contract for providing third-party administrative services for CERN's Health Insurance Scheme. The contract will enter into force on 1st January 2015 for an initial period of 5 years, renewable by CERN for a further period of 5 years.

This means that the Third-Party Administrator of the CHIS remains the same as before. While the services remain essentially the same, certain improvements are foreseen under this new contract. Some of these will impact the members directly and positively, while others will improve the supervision of the Scheme by CERN's administration. More details will be provided in the next CHIS Bulletin.

#### Approved Hospitals in Geneva: new in 2014

In 2014, CERN has concluded new agreements with the following care providers in Geneva:

- Clinique des Grangettes – approved from January 2014 to end 2015
- Clinique la Colline – approved from July 2014 to end 2016

We remind you that the choice of establishment, of sector of care and of type of room- have an important impact on the reimbursement rates of in-patient treatment (hospitalisation). The table overleaf provides a summary.

The complete and up-to date list of Approved Providers in Switzerland is available on the CHIS website: <http://cern.ch/chis>

For more information, do not hesitate to contact the UNIQA Office by mail [uniqua@cern.ch](mailto:uniqua@cern.ch) or by phone 72730.

\*FCA : Frais à Charge de l'Assuré / Costs borne by the insured member, French acronym FCA.

#### New Information Note on Ex Gratia Payments

The Information Note IN5 describing the procedure to request an ex gratia payment (see CHIS Rules, Art. VII 4.06) has been published and is now available on the CHIS website: <http://cern.ch/chis>

The CHIS Information Notes specify the application of the CHIS Rules and they also provide useful guidance. Members of the CHIS are thus invited to take due note of the information they contain.

Type of establishment	Sector of care	Reimbursement rate	Maximum FCA*	Payment of invoice	Additional cost
Public hospital	Public sector	100 %	0 CHF	By Third-Party Administrator	Any supplement for a single-bed ward is at the expense of the Member
	Private or semi-private sector	According to general rule	3000 CHF (included in yearly FCA*)	By Third-Party Administrator	
Private hospital	Approved: <ul style="list-style-type: none"><li>• In Switzerland : any hospital that has concluded a tariff agreement with CERN</li><li>• Outside Switzerland : any hospital that has a tariff agreement with the national security scheme and applies similar tariffs to CHIS members</li></ul>				
	Not approved				

# CHIS – LETTER FROM FRENCH HEALTH INSURANCE AUTHORITIES “ASSURANCE MALADIE” AND “FRONTALIER” STATUS

**Certain members of the personnel residing in France have recently received a letter, addressed to themselves and/or their spouse, from the French health insurance authorities (*Assurance Maladie*) on the subject of changes in the health insurance coverage of “frontalier” workers.**

It should be recalled that employed members of personnel (MPE) are not affected by the changes made by the French authorities to the frontalier workers’ “right to choose” (*droit d’option*) in matters of health insurance (see [cern.ch/chis](http://cern.ch/chis) for more details), which took effect as of 1 June 2014, as they are not

considered to be frontalier workers. Associated members of the personnel (MPA) are not affected either, unless they live in France and are employed by a Swiss institute.

For the small number of MPAs in the latter category who might be affected, as well as for

family members who do have frontalier status, CERN is still in discussion with the authorities of the two Host States regarding the health insurance coverage applicable to them.

We hope to receive more information in the coming weeks and will keep you informed via the CHIS web site and the CERN Bulletin.

HR Department

## SUBSIDISED ENERGY PRICES IN FRANCE: TPN – TARIF DE PREMIÈRE NÉCESSITÉ (“BASIC NEEDS” ELECTRICITY PRICE) AND TSS – TARIF SPÉCIAL DE SOLIDARITÉ (SPECIAL SOLIDARITY PRICE FOR NATURAL GAS)

Some members of the CERN personnel residing in France have once again received a letter informing them that they are eligible for the “TPN” and/or “TSS” subsidised energy prices (see Bulletin No. 08-09/2014).

At the beginning of the year, the Organization contacted the French authorities, who confirmed that these subsidies are **not applicable to members of the CERN personnel**.

The Organization therefore asks the members of

its personnel who receive such a letter to call the freephone number (numéro vert) provided\* to say **that they do not wish to benefit from these subsidised energy prices**.

The Organization would like to remind the members of its personnel that, notably in line with the Code of Conduct, they are expected to refrain from unduly seeking to obtain such social benefits or subsidies and, where necessary, to take the necessary steps to relinquish them.

The French authorities and the Organization are working closely to ensure that these letters are no longer sent to the members of the CERN personnel.

\*From France: 0 800 333 123 for the TPN and 0 800 333 124 for the TSS.

Human Resources Department  
Hr-Head.Office@cern.ch

## Seminars

### MONDAY NOVEMBER 10, 2014

**14:00 TH Journal Club on String Theory TBA**  
TH common room

### TUESDAY NOVEMBER 11, 2014

**11:00 EP Seminar Celebrating Quarkonium: The First Forty Years** Main Auditorium  
**14:00 TH String Theory Seminar**  
Holographic aspects of gravity in four and three dimensions TH Conference Room

### WEDNESDAY NOVEMBER 12, 2014

**11:00 Academic Training Lecture Regular**  
Programme LHC Beam Instrumentation: Beam Position and Intensity Measurements (1/3) Salle Anderson

**14:00 TH Theoretical Seminar Signals from Natural SUSY**

### THURSDAY NOVEMBER 13, 2014

**11:00 Academic Training Lecture Regular**  
Programme LHC Beam Instrumentation: Beam Profile Measurements (2/3) Salle Anderson  
**14:00 TH BSM Forum TBA** TH common room  
**14:00 TH BSM Forum Perturbative Unitarity Constraints on Higgs Portals** TH common room

### FRIDAY NOVEMBER 14, 2014

**11:00 Detector Seminar Micro Pattern Gas Detectors** Salle Bohr  
**11:00 Academic Training Lecture Regular**

**Programme LHC Beam Instrumentation: Beam Loss and Tune Measurements (3/3)**  
Salle Anderson

**14:00 Particle and Astro-Particle Physics Seminars** Four dimensions are enough TH Conference Room

### MONDAY NOVEMBER 17, 2014

**10:30 Academic Training Lecture Regular**  
Programme Beyond the Standard Model (1/2) Salle Anderson  
**11:30 TH Cosmo Coffee TBA** TH common room

### TUESDAY NOVEMBER 18, 2014

**10:30 Academic Training Lecture Regular**  
Programme Beyond the Standard Model (2/2) Salle Anderson