



CERN Bulletin

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FRÉDÉRICK BORDRY TAKES UP HIS NEW POSITION

For Frédéric Bordry, the former head of the Technology (TE) Department, the new year brings a new start as CERN's Director for Accelerators and Technology. As passionate and enthusiastic as his predecessor Steve Myers, he tells us all about the three key areas of his role.



Frédéric Bordry

Exploitation of the machines

"I'm taking on the role of Director for Accelerators and Technology at a crucial time for CERN. This year, we're going to restart all our non-LHC physics and the LHC injectors, which will allow us to restart the collider at 13 TeV energy next year."

LS1 is the priority for 2014. We still have a lot of work to do, but almost all the activities are well within schedule and we are sticking to

our philosophy that safety comes first, then quality and finally the schedule.

Since the diversity of research is a fundamental aspect of CERN, I would like to highlight that non-LHC physics is also one of my priorities, in particular ISOLDE and the future HIE-ISOLDE project, n-TOF and its new experimental area (EAR2), the AD and its upcoming ELENA upgrade, and the work in the North Area, especially for NA62. All of these experiments are essential because they

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A word from
the DG

A COLLABORATIVE ADVENTURE

At the start of a new year, I'd like to wish all of you and your families a happy, successful and peaceful 2014. It's a year that holds particular significance for CERN, as on 29 September it will be 60 years since the Organization was founded.

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A word from the DG

A COLLABORATIVE ADVENTURE

(Continued from page 1)

As CERN turns 60, it is still going strong, maintaining its underlying attraction of international collaboration for basic science. Since its foundation in 1954, it has grown steadily and this year begins well as we welcome a new Member State, Israel. CERN and Israel already have a long history of mutual collaboration and now we can look forward to increasingly fruitful scientific cooperation. Israel's accession brings the total number of Member States to 21, and other countries are in the stages leading up to becoming Members or Associates, while still others are expressing interest. CERN is becoming a global success, while retaining its original, European flavour.

This year's events for the 60th anniversary will celebrate the theme of international collaboration and, in particular, science for peace – a vision that lay at the heart of the founders' wish to provide, in the words of the CERN Convention, "for collaboration among European States in nuclear research of a pure scientific and fundamental

character". While the main celebration at CERN will take place on 29 September, events will take place throughout the year in the Member States, emphasising that CERN is a collaborative adventure.

The Convention also stated that "the results of [the Organization's] experimental and theoretical work shall be published or otherwise made generally available". This has always been an important feature of work at CERN, and this year starts with another important advance as the SCOAP3 open-access publishing initiative begins with the support of partners in 24 countries and the participation of 11 publishers of high-quality international journals.

What drives the huge collaborative effort at CERN is, of course, the science and the facilities – another key part of the Convention – that make it possible. We are now almost half way through LS1, the first long shutdown of the accelerator complex since the LHC started up for collisions in autumn 2009. The work of

maintenance and consolidation across the various accelerators and their supporting infrastructures has proceeded at full speed since beginning in March last year. Many goals have already been achieved – some ahead of schedule. While the LHC itself will not start running again until 2015, this year will see the restart of much of the complex, with experiments beginning to run again at the AD, ISOLDE, the PS and the SPS.

It's good to see such progress and I'm confident that it will continue while all those involved remember the by-words for LS1: "safety, quality, schedule". Safety is of course something that concerns us all, as we'll be reminded by the latest safety campaign.

There's much to look forward to in 2014 – let's make it another safe and successful year at CERN.

Rolf Heuer

FRÉDÉRICK BORDRY TAKES UP HIS NEW POSITION

(Continued from page 1)

contribute to the diversity of particle physics research."

Construction project

"In terms of CERN's short-term future, the special Council session for the approval of the European Strategy for Particle Physics, held in Brussels in May 2013, gave the go-ahead for a major construction project, the HL-LHC (High-Luminosity LHC), to begin in the next decade. It's an ambitious project as it will involve no less than 1.2 km of the accelerator and is designed to increase the LHC's integrated luminosity by a factor of ten!"

Future high-energy machines

"In addition to endorsing the HL-LHC construction programme, the European Strategy session also gave the green light for feasibility studies for two projects that will be fundamental for CERN's future: CLIC (Compact Linear Collider) and the FCC (Future Circular Collider), a circular machine with a circumference of around 100 km that would be capable of reaching an energy of 100 TeV.

We are aiming to present conceptual design studies for each of the two projects the next time the European Strategy for Particle Physics is updated, which is expected to happen in 2018 or 2019.

Of course, at some point, the scientific community will have to choose between the different options. The physics that emerges from the 13 TeV run of the LHC, starting in 2015, will show us what path to take and will give us an indication of which machine is better suited to answering the scientific questions that arise. That said, it's clear that we can't wait to get the results from the LHC before launching the study phase, which is why we are going to continue with both studies in parallel.

I also think that, in our modern world, we have to think about sustainable energy. Every new study carried out at CERN must include a chapter on energy demonstrating that it is possible to combine energy efficiency with performance. We are currently already looking for concrete solutions for saving and recovering energy in our existing accelerators.

I would like to conclude by saying that my mandate begins at a time when more than 1,000 people are working on the LS1 machine consolidation, construction and maintenance of the infrastructure, etc., and their safety is our priority. LS1 has started very well and we hope to continue in the same way to ensure that we can restart non-LHC physics in 2014 and LHC physics in 2015, paving the way for our future projects."

Antonella Del Rosso & Anaïs Schaeffer

LS1 REPORT: SETTING THE BAR HIGH

This week LS1 successfully passed an important milestone: the first pressure test of a complete sector, sector 6-7. The objective of this test was to check the mechanical integrity and overall leak-tightness of this section of the LHC by injecting it with pressurised helium.



The team in charge of the preparation and of the realisation of the pressure tests in sector 6-7.

"Given the scale of the work and of the operations carried out during 2013, particularly in the framework of the SMACC project and of the repair of the compensators of the cryogenic distribution line (QRL), we need to revalidate the integrity of the systems before the accelerator starts up again," explains Olivier Pirotte, who is in charge of the pressure tests (TE-CRG).

The pressure tests are performed over a single day after two weeks of intensive activity to prepare and specially configure the cryogenic instrumentation in the tunnel, and the pressure within a sector is increased in stages, as Olivier Pirotte explains: "We gradually increase the pressure by 5 bar every hour with a 10-minute pause before each new increase until we reach a pressure of 25 bar, which is 5 bar above the maximum operating pressure of the LHC. This generates substantial mechanical stress but it enables us to be sure that the sector is really robust. We monitor the operation from the cryogenic control room of each sector via pressure transmitters mounted on the accelerator's cryogenic circuits. They tell us whether the

pressure is stable or not: if the pressure does not decrease, it means there are no leaks and that everything is working properly."

After the last pressure increase to 25 bar, which takes one hour, the pressure is gradually lowered to 10 bar. "At this intermediate pressure, the vacuum teams take over to perform overall leak tests to check that the cryogenic circuits and the sector's insulating vacuum are leak-tight."

The team in charge of the operation feeds helium into the sector from three different sources depending on the requisite gas pressure: for the pressure increases from 0 to 10 bar, gaseous helium stocks kept at the surface are used; between 10 and 20 bar, the gas is distributed via the helium compressors; from 20 to 25 bar, the helium is delivered by a specially customised lorry fitted with helium batteries at a pressure of 200 bar (the gas is then depressurised to 25 bar). Naturally, once used, the helium is recovered and stored. It will later be liquefied to cool down the magnets.

Meanwhile, elsewhere...

The tests and activities scheduled during the end-of-year closure all went well, in particular: maintenance of the electrical substation of the Meyrin site, the emergency stop tests on the Meyrin and Prévessin sites and evacuation system tests.

The first wagon of the SMACC consolidation project train, which is responsible for opening the W sleeves, reached its destination. The train has now completed its work in sector 6-7 (which explains why it was possible to conduct pressure tests) and is about to wind up operations on sector 7-8.

As announced in the previous LS1 Report, the final operations on the injectors are currently going ahead according to schedule.

Anaïs Schaeffer

"AT CERN, THE INFRASTRUCTURES COME SECOND TO THE PEOPLE BEHIND THEM"

The daily responsibilities of Lluís Miralles Verge, Head of the GS Department since August 2013, range from overseeing the CERN "master plan" and the construction of new buildings and infrastructures to managing the Organization's roads and access to its different sites. However, he stresses that none of this is as fundamental to the smooth running of the Laboratory as the people behind the services concerned.

Lluís Miralles worked as an engineer with the ATLAS collaboration and with various Spanish institutions before arriving at CERN last year, so he was no stranger to the complexities of working in a scientific environment. That is not to say that CERN did not hold any surprises for him! "When I took up the post of GS Department Leader I quickly realised just how complex the day-to-day running of a laboratory like CERN can be," he says. "My department alone comprises experts in logistics, project management and computing, as well as doctors and firemen."

Maintenance and consolidation of the existing infrastructure are key components of the Department's activities. The Department's experts, as requested by the Management, are also working on new projects that could come to fruition at the Laboratory over the next few decades. "The possible future construction of new machines requires feasibility studies and impact studies since they would not just affect CERN but would possibly have implications for the whole local area", explains Miralles. "However, the impact on the landscape during the construction phase would be limited as the work would be done underground. The possible future expansion of the CERN site would be more of an issue but we have not reached that stage yet."

Firmly anchored in the present but also forward looking, the GS Department manages

the practical daily needs of CERN's personnel and users so smoothly that you may not even be aware of its presence. Every day, the Laboratory's thousands of users and personnel are able to enter the site, make use of the import/export service, receive their mail, witness renovation work under way in various buildings, plan their leave, obtain scientific publications and send requests for assistance to the Service Desk, from which they can expect a prompt response. Behind all these services are the 296 members of the GS Department...at CERN, the infrastructures come second to the people behind them. "CERN's strength lies in the professionalism of its personnel", says Miralles. "I appreciate the variety of opinions here and the freedom to express them. Sometimes, in my role as Department Leader, I'm obliged to come down in favour of one view over another, but the spirit of participation here at CERN is one of its defining features."

To help you find out more about this multi-faceted department, we will be delving into the nooks and crannies of its different services in a series of *Bulletin* articles. The first, to be published in the next issue, will take a look at the CERN hostel which, with its 565 rooms, is larger than any other hotel in Geneva or the Pays de Gex and is also the most overbooked!

Antonella Del Rosso



Lluís Miralles Verge.

A NEW "SOUNDING BOARD"

After Vincent Vuillemin's farewell last December, we are happy to introduce Sudeshna Datta-Cockerill, the new CERN Ombuds. Her mission is to help people find their own strategies to overcome issues in the working environment and to support them as needed.

Coming from the Human Resources department and, in particular, from the Diversity office, Sudeshna sees her new function as the CERN Ombuds as a natural evolution of the work she had been doing in her career. Sitting very comfortably in her welcoming office, we discuss her vision for

the future.

The Ombuds mission is very demanding. Why did you decide to accept the challenge?

Because I really value the role and believe in

the need for a function that aims to resolve workplace issues informally and help to prevent them from escalating into more formal grievance procedures. Back in my time as equal opportunities officer, I strongly recommended the creation of an Ombuds office at CERN and I was really happy to see



Sudeshna Datta-Cockerill.

it finally take shape. So, when I was asked to take it over, I accepted the job not only because I believe that I can bring my previous

experience in coaching and communication skills to the role but also because I know that it will be very satisfying if I am able to help people and the Organisation in this way.

In what way can the Ombuds help people?

The Ombuds is there for everybody regardless of contractual or hierarchical status. My role is to provide an impartial ear, to listen and to help people to gain a better perspective of the situation they are in and to identify ways in which they themselves can resolve the issues they face. Sometimes, just by verbalising a problem, one can really see aspects that one couldn't see before. Often, when we are in a difficult situation, we tend to think that there is only one way out of it. Coming to the Ombuds will offer people an opportunity to discuss their problems in a safe environment and to explore different options, or strategies by which to address them. It is up to them to decide on the specific action that suits their situation best and I will provide them with any support they may need. If requested, I can also speak to the other party or facilitate a discussion between them. In all cases, they may count on my treating their situation with

total confidentiality and impartiality. Another aspect of my role is to see whether there are any systemic themes or common situations that I can bring to the attention of the Management, of course in a completely anonymous way.

Working with the same positive and constructive attitude as her predecessor, the new Ombuds has started the year with quite a busy agenda. However, "availability" is a key word for Sudeshna and, therefore, she invites you to contact her by e-mail as soon as a problem arises. "The earlier the better," she confirms. "For anything that you perceive as a problem, just don't think that it is too small to come to the Ombuds." So, the Ombuds has changed but not the main messages. Also, as of the next issue you will find again the usual Ombuds Corner in the *Bulletin*.

Antonella Del Rosso

THE LAB OF FAME

For a third time, CERN is organising the Swiss heat of Famelab, the world's leading science communication competition that has already gathered over 5,000 young and talented scientists and engineers from all across the planet.

Besides their degrees, the scientists who participate in Famelab have another thing in common: their passion for communicating science.

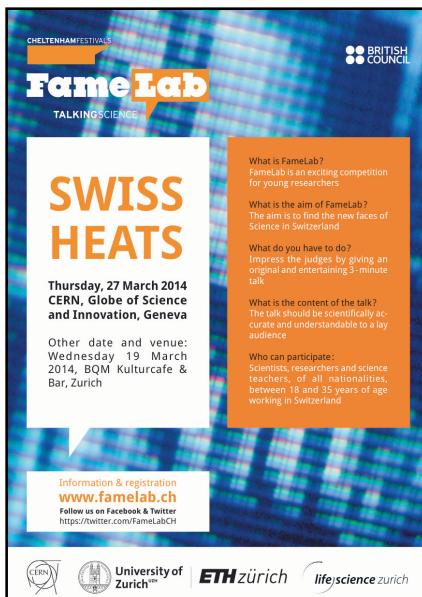
Coming from a variety of scientific fields, from medicine to particle physics and microbiology, the contestants have three minutes to present a science, technology, mathematics or engineering-based talk using only the props he or she can carry onto the stage; PowerPoint presentations are not permitted. The contestants are then judged by a panel of three judges who evaluate the content, clarity and charisma of their talks.

What's unique about Famelab is the fact that content is an important aspect of the performance. At the end of their presentation, contestants are often questioned about the scientific relevance of their talk and about their personal contribution to the research involved. In other words, Famelab is not just another talent show. Its magic formula truly helps real scientists reveal their communication skills. The result is an amazing collection of speeches that are inspiring, educational and accurate, despite their brevity.

So, do not hesitate to register* for the event that will take place at CERN on **27 March** in the Globe. This is your call for fame!

*Please read the eligibility criteria and the rules and regulations on www.famelab.ch.

Antonella Del Rosso



SAFETY AT YOUR SERVICE

You might think that only twelve people to man twelve different services, each needing several people could be a problem. Not for the DGS-SEE-SV Section! We can now reveal their magic formula.

From risk management to prevention and follow-up of accidents, from safety training to hunting for pollutants in buildings and providing safety input for calls for tenders, the DGS-SEE-SV's services underpin virtually every aspect of CERN's daily life.

"The section was set up in 2011 to meet the Organization's needs more effectively", explains François Angerand, head of the DGS-SEE-SV section. "For some activities, such as providing safety input for calls for tenders, our Section acts as an interface between the Departments and all the other services of the HSE Unit. In other cases, we ourselves provide direct support to the Departments."

"Safety" is synonymous with "prevention": the DGS-SEE-SV section's mission is precisely to provide professional specialised support to the CERN Departments with a view to

ensuring a high level of safety. "Our section is consulted to assist the Departments to assess the risks linked to specific activities at work sites or to provide accident-analysis support to the Departmental Safety Officers (DSO)", explains François Angerand. "We offer our support on safety issues whenever events are organised at CERN and, for instance, request the installation of temporary structures, or when new visits itineraries are being devised. Working conditions remain a priority but the section's staff also deals with the problems of noise and ODH (Oxygen Deficiency Hazard) and is particularly heavily involved in the drafting of CERN's own specific safety rules."

DGS-SEE-SV is also behind the redefinition and marking out of emergency evacuation routes at the PS and SPS prior to next year's restart of the machines. "We are working with the Territorial Safety Officers (TSO) to improve

the emergency evacuation routes and the emergency signage at these facilities," adds François Angerand. "To date, over 60% of the work has already been completed and our work is perfectly on schedule to be completed by the end of LS1."

A service has recently been set up with responsibility for communication of safety issues and environmental protection: DGS-SEE-SV writes and publishes the Safety Bulletins, sends targeted safety alerts whenever a safety issue arises and, with effect from this edition of the *CERN Bulletin*, will also coordinate the publication of safety messages in the new "Safely Yours" section of the *Bulletin*.

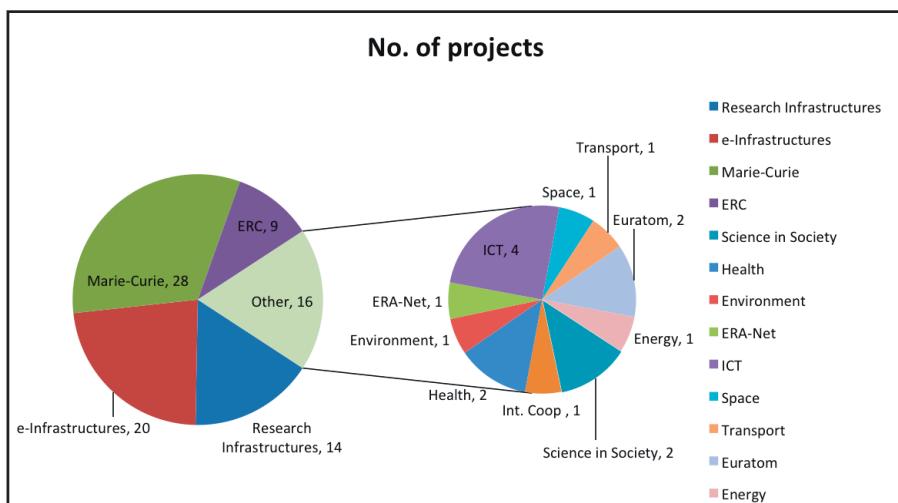
Antonella Del Rosso

EXPLORING HORIZON 2020: OPPORTUNITIES FOR CERN UNDER THE NEW EU FRAMEWORK PROGRAMME

December marked the end of the EU Framework Programme 7 (FP7), which ran between 2007 and 2013. During these seven years, CERN's involvement was very fruitful. The Organization participated in 87 EU projects - out of which CERN was the coordinating institute for 36 projects - with a corresponding European Commission (EC) funding of more than €110 million. This ranked CERN in the top 50 out of more than 15,000 FP7 participants.

CERN was primarily involved in the FP7 pillars: Research Infrastructures (14 projects), e-Infrastructures (20 projects), Marie Curie actions (28 projects) and ERC grants (9 projects). In terms of proposal success rate and received EU funding, CERN's involvement in the Marie Curie actions programme was the most successful. Half of the total EC funding received at CERN was obtained through Marie Curie actions to train and improve the mobility of scientists and engineers at different stages of their careers. All of CERN's departments were actively involved in FP7 projects.

On 1 January 2014, the EC launched Horizon 2020, the biggest-ever EU research funding programme with a total budget of nearly €80 billion over 7 years (2014-2020).



CERN's involvement in FP7 projects.

The three main pillars of this new framework programme are "Excellent Science", "Industrial Leadership" and "Societal Challenges".

The "Excellent Science" pillar aims to strengthen the EU's world-class scientific excellence and make the EU's research and innovation system more competitive. It includes: calls from the European Research Council, Future and Emerging Technologies, Marie Skłodowska-Curie actions, and Research Infrastructures including e-Infrastructures.

"Industrial Leadership" focuses on speeding up the development of technologies that will support businesses and innovation in areas such as ICT, nanotechnologies and new materials, advanced manufacturing, robotics, biotechnologies and space. The third pillar tackles "Societal Challenges" including health; agriculture, maritime and bioeconomy; energy; transport; climate action, environment, resource efficiency and raw materials; reflective societies; and security, which are all priorities identified in the Europe 2020 strategy.

Horizon 2020 is completed with three other smaller components: the EIT (European Institute of Technology and Innovation), the Joint Research Centre of the EC and the EURATOM programme.

On 11 December 2013, the first Horizon 2020 calls were launched with some €15 billion earmarked for 2014-2015. Calls are also available in horizontal pillars, such as "Spreading Excellence and Widening Participation" and "Science with and for Society".

The earliest deadlines for some of the calls of potential relevance for CERN are as follows:

- **25 March 2014** – Call for ERC Starting Grants
- **9 April 2014** – Call for Marie-Curie Innovative Training Networks
- **15 April 2014** – Call for e-Infrastructure for Open Access
- **24 April 2014** – Call for Marie-Curie Research and Innovation Staff Exchange
- **20 May 2014** – Call for ERC Consolidator Grants

For the start of the new programme, the European Projects Office at CERN has launched a redesigned website to inform and advise CERN staff on the new Horizon 2020 programme. If you have an idea for an EU project and need detailed information about the available programmes and calls for proposals, please contact the CERN EU Office: EU.Projects@cern.ch.

As the Director-General declared in his New Year's speech, the participation of CERN in FP7 was a great success, and repeating this success in Horizon 2020 will be an extremely stimulating challenge.

Agnes Szeberenyi

WHEN CERN GOES OUT TO MEET PEOPLE

Giving lectures about high-energy physics and particle accelerators to the public is an activity that several people from CERN enjoy and pursue all around the globe. Sometimes, this happens on the moose and pony trails, as Pauline Gagnon recounts...

CERN is really a unique place and people want to hear more about what we do. With the internet, people are keeping abreast of the latest scientific developments and many crave the opportunity to meet scientists and find out more about what is going on at CERN. So do not hesitate to contact local colleges and astronomy clubs. Get yourself invited to talk about our research.

Last autumn, I gave a series of public lectures all around the province of Québec (Canada) and in the Shetland Islands (Northern Scotland). Both tours took me to remote areas where I was amazed to see the public interest for lectures in physics.

In Québec, one of my six stops was Chibougamau, a town of 7500 people (and probably as many moose) located roughly 900 km from Montréal. About 40 people attended each of the two conferences, one on the Higgs boson, the second on dark matter. This may seem small but the equivalent percentage of the population in a city would fill a stadium!

The audience was mostly composed of workers given that only nine science students were enrolled in the local college hosting the talk. These lectures also attracted many retired people who have time for new enthusiasm in physics.

In the Shetland islands, answering the invitation of a high-school physics teacher, I spoke to kids aged between 13-17 in six out of the seven high schools scattered over several islands. My journey took me over spectacular wind-swept landscapes where sheep and occasionally Shetland ponies grazed seemingly undisturbed by the relentless wind.

About 75 people turned up on a Saturday night at the Town Hall, some brought by their kids or grand-kids, others simply through curiosity to find out why their fellow countryman Peter Higgs had just been awarded the Nobel Prize in physics.

These two conference tours showed me the huge interest in CERN and particle physics.

Given that 63 countries contribute to CERN research programme, with scientists coming from 99 different countries, we have the potential to reach an incredible amount of people on all continents. There are also lots of resources on the International Particle Physics Outreach Group (IPPOG) page, including my slides.

So hit the trail and pick up some local delicacies along the way such as fromage en crottes (cheese curds) or puffin poo. Well worth the trip!

Pauline Gagnon

CERN, ACCELERATOR OF MOTIVATION

Have your dreams ever come true? My dream did, when I was lucky enough to be allowed into the world's largest particle physics laboratory and spend five whole days there.

I'm a pupil in my last year at the *Collège Jean-Jacques Rousseau* in Saint-Julien-en-Genevois and was on a work experience placement at CERN from 16 to 20 December last year.

I'm so happy I was chosen because working alongside physicists and engineers of all nationalities was like a dream come true.

The first thing that impressed me was the size of the site, its infrastructures and facilities but also the fact that I was working in a prestigious, world-renowned organisation. I spent lots of time looking at the map and

trying to find my way around... CERN's such a massive place!

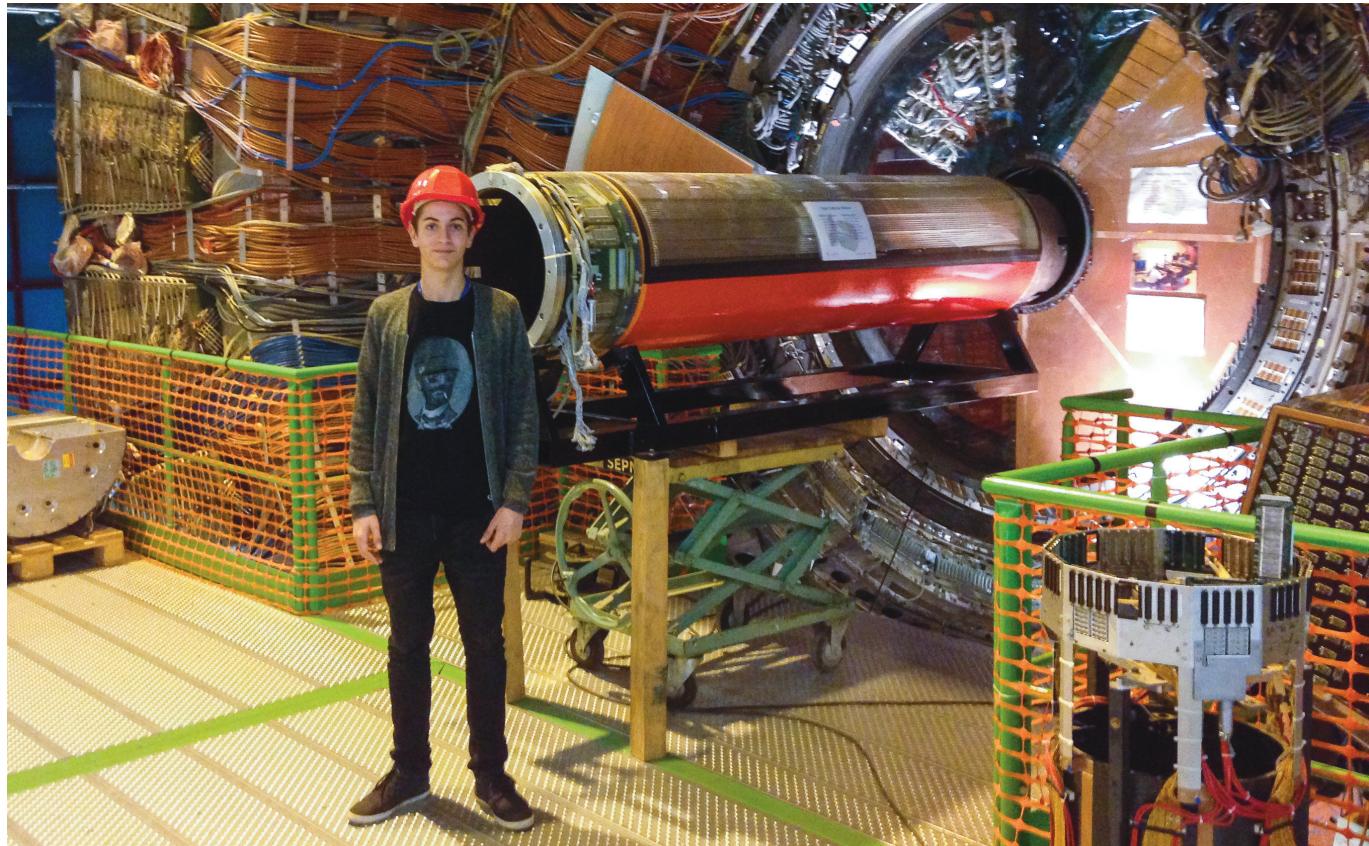
Thanks to the people who took time to see me, I learned that the people working at CERN have very different but complementary professions, ranging from technicians to physicists.

I was amazed by their kindness and friendliness towards me. The people I met during my placement gave me an insight into their expertise and talked passionately and enthusiastically about their jobs. Thanks

to them, and even though the physics is very complicated, I was able to familiarise myself with CERN and get a better understanding of its missions and of the LHC's goals.

My time at CERN also made me want to do well at school, especially in physics and chemistry, so that one day I might be able to work in this kind of organisation and I will be the one passing on my knowledge to others. In other words: **Ecole = Motivation CERN?**

François Becler



François, in front of LEP's DELPHI detector, displayed in the LHCb cavern. François was given the opportunity to visit the experiment during his placement at CERN.

ISRAEL, CERN'S NEW MEMBER STATE

On Wednesday, 15 January 2014, the official Israeli Flag-raising Ceremony took place to mark the accession of Israel to Membership of CERN, bringing the Organization's number of Member States to 21.

See some pictures of the event:



Computer Security

THE END OF ENCRYPTION

Sigh! Pandora's box has been opened (once again). Recent documents leaked by whistleblower Edward Snowden have revealed that the NSA project "Bullrun" is intruding deeply into the confidentiality of our documents and the privacy of our lives.

In their continuous effort to kill privacy on the Internet, the US National Security Agency (NSA) and the British Government Communications Headquarters (GCHQ) have made significant progress in breaking almost every basic encryption protocol or have developed the means to bypass them. "US and British intelligence agencies have successfully cracked much of the online encryption relied upon by hundreds of millions of people to protect the privacy of their personal data, online transactions and e-mails." -The Guardian

So what's left? With "Prism" and "Tempora", our public communication on the Internet was already filtered and analysed (see our *Bulletin* article "Prison or "Prism"? Your data in custody"). "Bullrun" takes this to the next level and is said to be capable of analysing our private, encrypted communications. According to the New York Times, "the [NSA] has circumvented or cracked much of the encryption, or digital scrambling, that guards global commerce and banking systems, protects sensitive data like trade secrets and medical records, and automatically secures the e-mails, Web searches, Internet chats and phone calls of Americans and others around the world, the documents show".

The details of "Bullrun" programme are nicely summarised in a blog post by Prof. Matthew Green, a cryptographer and research professor at Johns Hopkins University:

- Tampering with national standards (NIST is specifically mentioned) to promote weak or otherwise vulnerable cryptography.

- Influencing standards committees to weaken protocols.
- Working with hardware and software vendors to weaken encryption and random number generators.
- Attacking the encryption used by the next generation of 4G phones.
- Obtaining cleartext access to a major internet peer-to-peer voice and text communications system (Skype?).
- Identifying and cracking vulnerable encryption keys.
- Establishing a Human Intelligence division to infiltrate the global telecommunications industry.
- And worst of all: somehow decrypting SSL connections.

And there is nothing we can do but watch how a new reality unfolds. Cryptography forms the basis for trust online. With these leaks, online trust has been destroyed. Perhaps if only nations do it, it might be OK, as this is intended for our own protection (isn't it?). However, although the details of "Bullrun" are still sparse, when the technology is leaked (and classified information always has a tendency to go "public" at some point) and attackers learn how the NSA broke or by-passed encryption, then the doors will be wide open for criminals. Online banking, online shopping and passwords would no longer be secure. Identity theft will become much easier. All our good advice about how to protect your data ("Jekyll or Hyde? Better browse securely") will become obsolete.

Like everyone else, CERN is also affected. As

we usually run standard IT technologies, there is little we can do... but a good start would be to phase out weak encryption protocols like DES, begin using 3072-bit (4096-bit!) RSA keys for public key encryption and eventually kill SSH version 1. Also, we should refrain from SSL and move our web pages, web sites and web services to TLS1.2 as there are already known weaknesses in them (see BEAST attack; or CRIME).

In addition, we can finally deploy multi-factor authentication to better protect sensitive computer services like accelerator controls, finance applications or important signature rights on EDH. Technology is ready to be used that requires you to log-in with not only your standard NICE password but also a second "one-time-password". This could be sent via SMS to your mobile phone – created on a USB-dongle ("Yubikey") or by the "GoogleAuthenticator" app – or just using a certificate installed on your CERN Access Card.

Of course, you can do more: if you want to take action, check out the Guardian's 5 tips to stay secure. Meanwhile, we should consider what data is really worth protecting and what can be made public. If less is marked "confidential", then we have less to worry about. Is "raw" data really worth protecting? Are meeting minutes really confidential? Can't your photo on your CERN access card just be published online? The new CERN Data Protection Policy (OC11) should be able to give guidelines on that.

Computer Security Team

Seminars

THURSDAY JANUARY 23, 2014

- 11:00 TH Journal Club on String Theory **Conformality Lost (NOTICE UNUSUAL TIME/DAY)** TH Common Room
- 14:30 ISOLDE Seminar **Exploring exotic nuclei within the MCAS framework** 26-1-022

FRIDAY JANUARY 24, 2014

- 11:00 Academic Training Lecture

Regular Programme **Renewable Energy Production (3/3) - CANCELLED** 80-1-001

- 14:00 Particle and Astro-Particle Physics Seminars **TBA** TH Conference Room

TUESDAY JANUARY 28, 2014

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

WEDNESDAY JANUARY 29, 2014

- 11:00 TH Cosmo Coffee **EPFL/CERN/UNIGE Discussion Sessions** TH common room
- 14:00 TH Theoretical Seminar **TBA**

AN ENCOUNTER WITH YOUR CIGARETTE BUTT... AT THE SEASIDE?

It takes about 12 years for a cigarette butt to decompose in the environment. In less time, it could travel from CERN to the Mediterranean via the Nant d'Avril and the Rhône. So if you throw a cigarette butt or any other small piece of rubbish down the rainwater drain by the entrance to your building, you might just meet up with it again at the seaside during your next holiday.

It's surprising but true: rainwater drains have no filter system to keep out the small objects like cigarette butts and cable ties which we often find lying around on the ground. At CERN there are two water drainage networks: one for waste water, which is sent to water treatment plants before flowing out into our rivers, and one for rainwater, collected on roofs and car parks, which is not treated and flows directly into waterways.

"When we are carrying out environmental monitoring, we often find cigarettes and other small items of rubbish in the rainwater drains," says André Dziewa, a member of the Environment Section of the HSE Unit. "This issue is addressed during the training for Territorial Safety Officers (TSO). Sometimes people ask us how to tell the difference between a waste water drain and rainwater

drain. The rule is simple: a drain with an open grid is always connected to the pipes for rainwater, which flows directly into the rivers."

Something else which you should know: the same applies to water used for washing cars. We should avoid washing our cars with chemical products other than at designated sites such as car wash stations, as otherwise polluted water ends up in the river.

On its website, the World Health Organization says that around 954,000 tonnes of cigarette filters, which are mostly non-biodegradable, are produced each year by the tobacco industry. Most of these then end up in the street, in waterways or in green spaces. Reason enough for us to find the nearest ashtray!

Antonella Del Rosso



This picture was taken on the Meyrin site. Take a look under the grid... Photo: André Dziewa.

Official News

EXTENSION OF THE PRE-RETIREMENT PROGRAMMES

Following a recommendation by the Standing Conciliation Committee at its meeting on 5 December 2013 and approval by the Director-General, please note that:

- the Progressive Retirement Programme has been extended by one year, from 1 April 2014 until 31 March 2015;
- the Scheme of Part-Time Work as a Pre-retirement Measure has also been extended by one year, from 1 January 2014 until 31 December 2014.

Further information is available from the following sites:

https://cern.ch/admin-eguide/retraite/proc_pTp_fr.asp

https://cern.ch/admin-eguide/retraite/proc_pTp_fr.asp

Human Resources Department
Tel. 79257/73903

OFFICIAL HOLIDAYS IN 2014 AND END-OF-YEAR CLOSURE 2014/2015

(Pursuant to Articles R II 4.38 and R II 4.39 of the Staff Regulations)

Official holidays in 2014 (in addition to special leave during the annual closure):

- Wednesday, 1st January (New Year)
- Friday, 18th April (Good Friday)
- Monday, 21st April (Easter Monday)
- Thursday, 1st May
- Thursday, 29th May (Ascension day)
- Monday, 9th June (Whit Monday)

- Thursday, 11th September ("Jeûne genevois")
- Wednesday, 24th December (Christmas Eve)
- Thursday, 25th December (Christmas)
- Wednesday, 31st December (New Year's Eve)

Annual closure of the site of the Organization during the Christmas holidays and day of special leave granted by the Director-General:

The Laboratory will be closed from Saturday, 20th December 2014 to Sunday, 4th January 2015 inclusive (without deduction of annual leave). The first working day in the New Year will be Monday, 5th January 2015.

Human Resources Department
Tel. 73903/79257

TO ALL MEMBERS OF PERSONNEL IN RECEIPT OF REMUNERATION FROM CERN

In 2014 net monthly remuneration will be paid into individual bank accounts on the following dates:

- Friday 24 January
- Tuesday 25 February
- Tuesday 25 March
- Friday 25 April
- Monday 26 May
- Wednesday 25 June
- Friday 25 July
- Monday 25 August
- Thursday 25 September
- Friday 24 October
- Tuesday 25 November
- Thursday 18 December

Finance, Procurement
and Knowledge Transfer Department

ANNUAL ADJUSTMENTS TO 2014 FINANCIAL BENEFITS

In accordance with recommendations made by the Finance Committee and decisions taken by Council in December 2013, no adjustments have been made to basic salaries

and stipends, subsistence allowances or family benefits as at 1 January 2014.

HR Department

HEALTH INSURANCE FOR "FRONTALIERS"

The French government has decided that, with effect from 1 June 2014, persons resident in France but working in Switzerland (hereinafter referred to as "frontaliers") will no longer be entitled to opt for private French health insurance provision as their sole and principal health insurance.

The right of choice, which was granted by the Bilateral Agreement on the Free Movement of Persons between Switzerland and the European Union and which came into force on 1 June 2002, exempts "frontaliers" from the obligation to become a member of Switzerland's compulsory health insurance scheme (LAMal) if they can prove that they have equivalent coverage in France, provided by either the French social security system (CMU) or a private French insurance provider. As the latter option of private health insurance as an alternative to membership of LAMal will be revoked under the new French legislation that will come into force on 1 June

2014, current "frontaliers" who have opted to subscribe to a private French insurance provider will be obliged to become members of the CMU. Those who have opted for membership of LAMal will be able to retain it, and future "frontaliers" will have the choice between membership of LAMal or the CMU.

Please note that this measure does not concern members of the CERN personnel who are insured by the CERN Health Insurance Scheme (CHIS), as they do not have "frontalier" status.

The CERN Director-General has requested clarifications from France, via its Permanent Mission in Geneva, as to whether spouses and partners of members of the CERN personnel insured with the CHIS and having the status of "frontaliers" will be able to continue to use the CHIS as their sole and principal insurance provider without being a member of the CMU. The Organization is also in contact with international organisations in Geneva and the French Association of International Civil Servants regarding this matter.

The HR Department will inform the personnel as soon as clarifications are received and, in the meantime, the latest information is available on the CHIS website.

HR Department

Take note

SAFETY AND COMMUNICATION, A WINNING COMBINATION

Since 2013, in line with its mission to support CERN's proactive communication policy in matters of safety, the HSE unit has been following an annual plan for disseminating information on occupational health and safety and environmental protection.

Safety information designed to underline the importance of prevention is published through a variety of channels:

- Announcements in the *CERN Bulletin*,
- Safety bulletins, notably outlining lessons to be learned in the wake of accidents/incidents occurring at CERN,
- Safety alerts calling for immediate action, sent by e-mail to the services concerned,
- Prevention campaigns on the CERN site,
- Poster campaigns in well frequented public areas.

Please heed all prevention messages and apply them in your everyday life. Also, we

will be pleased to receive any information or suggestions you may have on safety matters.

If you have questions about the HSE unit's communication activities, please send us an e-mail at the following address: safety.communication@cern.ch

For all safety-related questions, please contact: hse.secretariat@cern.ch

HSE Unit

2014 EUROPEAN SCHOOL OF HIGH-ENERGY PHYSICS

Dear Colleagues,

I would like to draw your attention to the 2014 European School of High-Energy Physics. Details can be found at:

<http://physicschool.web.cern.ch/PhysicSchool/ESHEP/ESHEP2014/>

The School will be held in the Netherlands from 18 June to 1 July 2014. PLEASE NOTE THAT THE DEADLINE FOR APPLICATIONS IS 14 FEBRUARY 2014.

The lectures will cover a broad range of HEP topics at a level suitable for students working towards a PhD in experimental particle physics.

Note that, as indicated on the web pages, one or two students from developing countries could be considered for financial support.

Nick Ellis, on behalf
of the Organising Committee

CERN SCHOOL OF COMPUTING: SECOND THEMATIC SCHOOL NEXT SPRING

tCSC2014 continues the concept prototyped last year. It aims to complement the existing portfolio of CSC events: the historical main

summer school, organised since 1970, the inverted CSCs (iCSCs) organized since 2005, and the special schools, as organised in 2006 in Bombay.

Shorter, smaller, focused are the three distinguishing features of the **thematic CSC (tCSC)**. But, though different from the main CSCs, the tCSCs maintain the same guiding principles:

1. Academic dimension on advanced topic
 2. Theory and practice
 3. Networking and socialisation

The second thematic CSC will take place in Split, Croatia, from 16 to 20 June. All applicants are welcome, including former and future CSC participants in the main summer school. The theme is **“Future high-throughput scientific computing”**, covering:

1. Data-oriented design: Designing for data, data-intensive applications, vectorization.
 2. Memory programming: Memory effects in hardware, choosing data structures, non-uniform memory.
 3. Programming for Concurrency: Expressing parallelism pragmatically, resource protection and thread safety.
 4. Efficient computing: Architecture refresher (big and small cores), accurate and efficient floating point, compilers: their strengths and weaknesses, advanced performance monitoring and tuning.

Applications will be accepted until **31 January 2014**.

Alberto Pace, CSC Director

Lift conference: 5-7 February

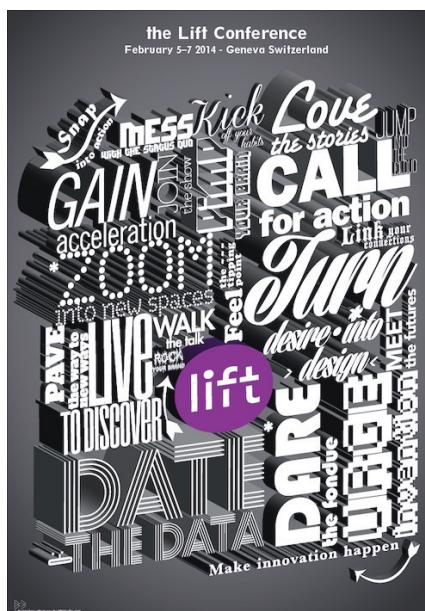
Since 2006, Lift Events explores the business and social implications of new technologies through the organization of international event series and open innovation programs in Europe, Asia and America. The next conference will be held on 5-7 February in Geneva.

The Lift Conference is one of the leading conferences on innovation in Europe and a key annual meeting for individuals and organizations wishing to understand and anticipate trends and innovation.

Held every year in February in Geneva (5-7 February 2014), the Lift Conference is a three-day event consisting of talks, interactive workshops, exhibitions, and discussions bringing together over 1'000 participants from all society's sectors and industries in a dynamic and informal environment with the aim to learn, connect, share and leverage innovation opportunities.

Extraordinary speakers will take to the stage at Lift14: Porter Erisman, former VP of Alibaba.com turned film director, the creative director of the New York Times R&D Lab Alexis Lloyd will discuss innovation strategies, and Fabio Gramazio - world-class architect using robots to re-connect architects to how buildings get built - will discuss their integration in the future of work. Juval Dieziger - co-founder of one of Berlin's most ambitious urban concepts Holzmarkt - will present in the session on Counter Culture Inspiring Industries alongside David Pescovitz, co-founder of Boing Boing who will tell us how they grew from a small print fanzine to one of the most popular blogs on the web, attracting over 5 million monthly visitors.

For more information about the LIFT conference, visit <http://liftconference.com>.



(Image: © Lift Conference)

12th Industrial Exhibition “Germany at CERN”: 28 and 29 January 2014

The Federal Ministry of Education and Research (BMBF) together with CERN, will hold the 12th Industrial Exhibition "Germany at CERN". More than 50 German companies will present their latest products and services often specifically developed for CERN, to the scientists and buyers of CERN, establishing contacts and providing information about future purchasing opportunities.

Heated tent adjacent to Restaurant 1
Tuesday 28 January 2014 from 11 a.m. to
5.30 p.m.
Wednesday 29 January 2014 from 9 a.m.
to 5 p.m.

On 28 January, MinDir Dr. Karl Eugen Huthmacher, Director for Provision for the

Future - Basic and Sustainability Research within the Federal Ministry of Education and Research, and CERN Director-General Professor Rolf D. Heuer will open the exhibition. This will be followed by a tour of the exhibition. Individual meetings between the company representatives and CERN staff can be organised either in the booths in the tent adjacent to Restaurant 1 or in conference rooms B, C and D next to the Council Chamber in the Main Building.

CERN staff requiring detailed information concerning the programme, the participants and their profiles and how to get in contact with exhibitors, are requested to contact their department secretariat or visit: www.germanyatcern.de.

During the evening reception at the Globe of Science and Innovation, exhibitors and invited CERN employees will be able to continue to exchange ideas.

The catalogue of exhibitors and their profiles will be available prior to the event.

Exhibition organised by:

>>> **Federal Ministry of Education and Research, Germany**
Unit 713 - European Research Organizations
Bundesministerium für Bildung und Forschung
Referat 713 - Europäische Forschungsorganisationen
53170 Bonn

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A detailed programme and catalogue will be available in due course:

- from your Department secretariat,
 - from the CERN Reception (Building 33),
 - at the exhibition itself.

List of exhibitors

company	e-mail address	field of activity
Andreas Junghans Anlagenbau, Frankenberg	www.ajunghans.de	special constructions in SS
apra-norm Elektromechanik GmbH, Mehren	www.apra.de	electromechanics
ARCA-Regler GmbH, Tönisvorst	www.arca-valve.de	automatic flow control
AUTOMESS GmbH, Ladenburg	www.automess.de	automation and measuring technics
Babcock Noell GmbH, Würzburg	www.bng.bilfinger.com	magnets
Barat Ceramics GmbH, Auma-Weidatal	www.barat-ceramics.com	ceramic components
Beckhoff Automation GmbH, Lübeck	www.beckhoff.com	automation
Berthold Technologies GmbH & Co.KG, Bad Wildbad	www.berthold.com	sensors, detectors and instrumentation
Boston Server & Storage Solutions GmbH, Feldkirchen/München	www.boston-itsolutions.de	server & storage solutions
CIS Forschungsinstitut fuer Mikrosensorik und Photovoltaik GmbH, Erfurt	www.cismst.de	micro sensors
Cryotherm GmbH & Co KG, Kirchen	www.cryotherm.de	technical and liquified gases
Eckert & Ziegler Nuclitec GmbH, Braunschweig	www.ezag.com	x-ray and medical technics
ELMA Electronic GmbH, Pforzheim	www.elma.de	electrotechnics
el-spec GmbH, Geretsried-Gelting	www.elspec.de	HF coaxial cables, connectors
eltherm GmbH, Burbach	www.eltherm.com	thermo-electro technics
EPLAX GmbH, Bremen	www.eplax.de	regulated power supplies
ET System electronic GmbH, Altlußheim	www.et-system.de	system electronics
Fraunhofer-Institut für Mikroelektronikschaltungen/Systeme IMS, Duisburg	www.inhaus-duisburg.de	micro-electronic circuits and systems
FRIATEC AG, 68229 Mannheim	www.friatec.de	oxide ceramics
FuG Elektronik GmbH, Schechen	www.fug-elektronik.de	electronic, power supplies
GUTH Spezial, Salach	www.guth-meditec.de	technics for medical application
HAMEG Instruments GmbH, Mainhausen	www_bloc.hameg.com	measuring instruments
Heinrich Thulesius GmbH & Co.KG, Bremen	www.thulesius.de	cables, wires and accessories
Heinzinger electronic GmbH, Rosenheim	www.heizinger.com	electronics, power supplies
Hositrad Deutschland, Regensburg	www.hositrad.com	vacuum products
HSR Vakuum GmbH, Oestrich-Winkel	www.hsrvakuum.de	vacuum products
iseg Spezialelektronik GmbH, Radeberg / OT Rossendorf	www.iseg-hv.de	special electronics
Isotope Technologies Dresden GmbH, Dresden	www.isotope-td.de	isotope technology
Janz Tec AG, Paderborn	www.janztec.com	mechanical engineering and plant construction
JL GOSLAR GmbH, Goslar	www.jlgoslar.de	radiation protection and semi-final products
KETEK GmbH, München	www.ketek.de	semi-conductor and clean room technics
KNF NEUBERGER GmbH, Freiburg	www.kfn.de	membrane pumping systems
Kniel System-Electronic GmbH, Karlsruhe	www.kniel.de	power supplies, electronics
KRAFTANLAGEN HEIDELBERG GmbH, Heidelberg	www.ka-heidelberg.de	plant construction, engineering and technical services
Mantis Deposition GmbH, Mainz	www.mantisdeposition.com	coating systems, UHV- components
MIKROMAT GmbH, Dresden	www.mikromat.net	tooling machines
MT Mechatronics GmbH, Mainz	www.mt-mechatronics.de	mechatronics
MTH Metalltechnik Halsbrücke GmbH & Co KG, Halsbrücke	www.mth-kg.de	metal working technics
Oerlikon Leybold Vacuum GmbH, Köln	www.leybold.com/leyboldvacuum	vakuum pumps and measuring technics
Pentair Equipment Protection, Schroff GmbH, Straubenhardt	www.pentairequipmentprotection.com	electronic housing, racks, power supplies
Pepperl + Fuchs GmbH, Studen, SCHWEIZ	www.pepperl-fuchs.com	automation, industrial sensors
Pfeiffer Vacuum GmbH, Asslar	www.pfeiffer-vacuum.de	vakuum pumps and measuring technics
Physik Instrumente (PI) GmbH & Co.KG, Karlsruhe	www.pi.ws	laboratory instruments
PI miCos GmbH, Eschbach	www.pimicos.com	ultra-high precision positioning components/systems
Powerbridge Computer Vertriebs GmbH, Burgwedel	www.powerbridge.de	computer sales and distribution
PTW- Freiburg, Physikalisch-Technische Werkstätten, Freiburg	www.ptw.de	dosimetry, x-ray measurements
Radio Frequency Systems (RFS), Hannover	www.rfsworld.com	RF-systems
Reuter Technologie GmbH, Alzenau	www.reuter-technologie.de	vacuum components
RI Research Instruments GmbH, Bergisch-Gladbach	www.research-instruments.de	laboratory instruments
SIEMENS Schweiz AG, Zürich, SCHWEIZ	www.siemens.com	industry sector
SIS Struck Innovative Systems, Hamburg	www.struck.de	electronics for physics and related fields
SOMMER Fassadensysteme - Stahlbau - Sicherheitstechnik GmbH & Co.KG, Doeblau	www.sommer-hof.de	Cladding systems, steel structures and security technics
Studsvik GmbH & Co. KG, Pforzheim	www.studsvik.de	industrial services
transtec AG, Tuebingen	www.transtec.de	complex IT solutions, hardware, storage & networking
VACOM Vakuum Komponenten und Messtechnik GmbH, Jena	www.vacom.de	vacuum components
VacuTec Meßtechnik GmbH, Dresden	www.vacutec-gmbh.de	vacuum measuring technics
WESGO Ceramics GmbH, Erlangen	www.wesgo.de	industrial and oxide ceramics;ceramic components
W-IE-NE-R Plein & Baus GmbH, Burscheid	www.wiener-d.de	industrial and nuclear elektronics, automatic controls
Witzenmann GmbH, Pforzheim	www.witzenmann.de	compensations bellows

Training

ENGLISH AND FRENCH COURSES

If one of your New Year's resolutions is to learn a language, there is no excuse anymore!

You can attend one of our English or French courses and you can practise the language with a tandem partner!

General and Professional French Courses

The next session will take place from **27 January to 4 April 2014**.

These courses are open to all persons working on the CERN site, and to their spouses.

Oral Expression

This course is aimed at students **with a good knowledge of French** who want to enhance their speaking skills.

Speaking activities will include discussions, meeting simulations, role-plays etc.

The next session will take place from **27 January to 4 April 2014**.

Writing professional documents in French

These courses are designed for non-French speakers with a **very good standard of spoken French**.

The next session will take place from **27 January to 4 April 2014**.

Cours d'anglais général et professionnel

La prochaine session se déroulera du **3 mars au 27 juin 2014**.

Ces cours s'adressent à toute personne travaillant au CERN ainsi qu'à leur conjoint.

Pour vous inscrire et voir tout le détail des cours proposés, consultez nos pages web : <http://cern.ch/Training>.

Oral Expression

The next session will take place from **3 March to 27 June 2014**.

This course is intended for people with a good

knowledge of English who want to enhance their speaking skills. There will be an average of 8 participants in a class.

Speaking activities will include discussions, meeting simulations, role-plays etc. depending on the needs of the students.

Writing Professional Documents in English – Administrative

Writing Professional Documents in English – Technical

The next session will take place from **3 March to 27 June 2014**.

These courses are designed for people with a good level of spoken English who wish to improve their writing skills. There will be an average of 8 participants in a class.