CERN Bulletin

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THE MINIATURE ACCELERATOR

The image that most people have of CERN is of its enormous accelerators and their capacity to accelerate particles to extremely high energies. But thanks to some cutting-edge studies on beam dynamics and radiofrequency technology, along with innovative construction techniques, teams at CERN have now created the first module of a brand-new accelerator, which will be just 2 metres long. The potential uses of this miniature accelerator will include deployment in hospitals for the production of medical isotopes and the treatment of cancer. It's a real David-and-Goliath story.

Serge Mathot, in charge of the construction of the "mini-RFQ", pictured with the first of the four modules that will make up the miniature accelerator.

The miniature accelerator consists of a radiofrequency quadrupole (RFQ), a component found at the start of all proton accelerator chains around the world, from the smallest to the largest. The LHC is designed to produce very high-intensity beams at a very high energy, but its little brother is content to produce beams at low speeds, containing particles which, after travelling two metres, have an energy of 5 MeV. "When we took up the challenge of creating the first high-frequency compact RFQ accelerator, with the support of the Office for CERN Medical Applications, we knew that the technology was within our reach after all the years we had spent developing innovative solutions for Linac4," explains Maurizio Vretenar, head of the Linac4 project and coordinator of the small accelerator project.

From the start, the small accelerator was designed to be modular, compact and cheaper than its big brothers. "We carried out feasibility and beam dynamics studies for several months," adds Alessandra Lombardi from the BE department, who is in charge of the design of the RFQ. "The starting point was the idea of increasing the operating

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REPORT FROM COUNCIL

This week's Council meeting was dominated by discussions about the long-term, sustainable future of CERN. Key points are progress on the Medium-Term Plan, the successful LHC restart, and enlargement.

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NEWS

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A word from the DG

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REPORT FROM COUNCIL

The budget proposed by management for 2016 was well received, as were the measures to mitigate against the recent change in exchange rates. These items will be put to the vote in September. Discussions on CERN staff employment conditions were conducted in a constructive atmosphere this week, and will continue in future Council meetings. The Council also clearly voiced its congratulations for the smooth and successful start of LHC run 2, coming on top of a clear run of spectacular scientific and technological successes over recent years. In the current climate of austerity, these developments are a strong endorsement from the Council.

Nevertheless, it would be disingenuous of me to pretend that everything is rosy. There has been an air of unease at CERN over recent months, which was very clearly expressed this week by the Staff Association's gathering on Thursday morning, followed by a declaration read out to Council, and by messages from an elected group of CERN senior staff, known as the Nine, to the Management and the Council. The fact that both the Staff Association and the Nine chose to act shows clearly that their concerns are broadly shared among staff. Both stated clearly that they believe short-termism is posing a threat to CERN's long-term future.

I am confident, however, that we have reason to be optimistic. All of us: staff, the Management and the Council want a sustainable future for CERN. The challenge is to find one on which we can all agree. Set against a backdrop of uncertainties affecting many of our Member States, which inevitably weigh on Council delegations, this was never going to be an easy task. And it's one that the recent removal of the cap on the Swiss Franc to Euro exchange rate has only exacerbated. In such circumstances, we of course have to compromise today. The challenge is to do so without compromising the future. This week's meeting was a good start.

In other news, continuing interest in CERN from beyond our Member States was very much in evidence. The Council welcomed a delegation from Turkey for the first time as an Associate Member, approved Romania's transition from Candidate for Accession to Member State before the end of the year, and examined an application from India for Associate Membership. As soon as the complete file has been received from India, a fact-finding mission will be carried out according to standard procedures.

In conclusion, this was a constructive week in which the enlargement process took important steps forward, and a week that was dominated by discussions on how to secure a sustainable future for CERN. Although those discussions were lively, it was clear that the Council, Management and staff all have the same interest at heart: a long and successful future for CERN.

Rolf Heuer

THE MINIATURE ACCELERATOR

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frequency by a factor of 2 compared to the most recent RFQs, which would allow us to reduce the dimensions proportionally. But such a frequency had never been achieved before and posed a number of new challenges. At first it seemed impossible, but eventually, thanks to new beam dynamics and innovative ideas for the radiofrequency and mechanical aspects, we came up with an accelerator design that was much better adapted to the practical requirements of medical applications."

The RFQs used for physics are designed to produce high-intensity beams, but this "mini-RFQ" is able to produce low-intensity beams of just a few microamps that are stable beams (no significant losses) and are grouped at a frequency of 750 MHz. These specifications make the "mini-RFQ" a perfect injector for the new generation of high-frequency compact linear accelerators used for the treatment of cancer with particles (hadron therapy). In addition, its small size belies its remarkable power: the "mini-RFQ" accelerates beams to an energy of 2.5 MeV per metre, compared to less than one MeV per metre for a classic RFQ.

The construction of the first of the four 50 cm long modules that will make up the final accelerator has been successfully completed in CERN's workshops and in a few months' time the teams will be able to test all of the modules together. "With this first module, we have validated all of the stages of construction and the concept in general," explains Serge Mathot of the EN department, who is in charge of the construction of the "mini-RFQ". "At first, several stages in the construction process seemed very tricky, but thanks to the experience we gained from the brazing of the cavities for Linac4 and to the skills of CERN's technical teams, we were eventually able to obtain excellent results, even when faced with a new technological challenge."

The applications of this high-tech miniature accelerator go far beyond its use as an injector for hadron therapy. Thanks to its small size and light weight, the "mini-RFQ" could become the key element of a system able to produce radioactive isotopes on site in hospitals for use in medical imaging. This could avoid complications relating to the transportation of radioactive material and could also widen the range of isotopes produced for this purpose. Small but powerful and with many potential uses, the "mini-RFQ" will also be capable of accelerating alpha particles for advanced radiotherapy techniques, which many consider to be the new frontier in the treatment of cancer. And, to finish on a lighter note, its small size means that in principle it can be fairly easily transported, which would be particularly useful for the analysis of archaeological materials and objects.

Assembly of the four modules is planned for the start of next year.

Visit the vacuum brasing workshop!

The *Bulletin* would like to invite you to visit the vacuum brasing workshop (building 112-RA10) on **7 July at 2 p.m**. (**http://cern.ch/go/BNv7**) or **9 July at 10 a.m.** (**http://cern.ch/go/gt8p**). Please note that the visit is only open to CERN access-card holders and that registration is compulsory.

The visit will include:

- an introduction by the experts, approx. 15 minutes,
- a tour of the laboratory, approx. 15 minutes, and
- a few minutes for questions.

The number of participants is limited to **15** per visit, so don't hesitate to sign up! Once the maximum number of participants is exceeded you can still sign up and we will contact you if people drop out or if we organise another visit.

Antonella Del Rosso

LHC REPORT: START OF INTENSITY RAMP-UP BEFORE A SHORT BREATHER

The first Stable Beams on 3 June were followed, to the accompaniment of thunderstorms, by the start of a phase known as the "intensity ramp-up" which saw the LHC team deliver physics with 50 bunches per beam. Time was also taken for a special five-day run devoted principally to the LHCf experiment. This week (15-19 June) the beam-based programme of the machine and its experiments was stopped temporarily for regular maintenance work.

LHCf's Arm1 detector.

While the first stable colliding beams were delivered with only 3 nominal bunches per beam, the aim of last week's operations was to start the process of increasing the number of bunches in the beam with an ultimate 2015 target of ~2400 bunches per beam. The number of bunches is gradually increased in well-defined steps. At each step – 3 bunches per beam, then 13, 40 and, finally, 50 – the machine protection team requests 3 fills and around 20 hours of Stable Beams to verify that all systems are behaving properly. During each fill, checks are made of instrumentation, feedback response, beam loss through the cycle, machine protection systems, RF, beam induced heating, orbit stability, etc. A check list is completed and signed off by the machine protection panel before authorisation is given for the next step with increased intensity. Following this pattern, the LHC reached 50 on 50 bunches by the weekend of 13-14 June.

There was an extended hiatus in the intensity ramp-up during the week for a five-day special physics run devoted primarily to LHCf – the far forward experiment situated in the LHC around 140 m left and right of the ATLAS interaction point. Low luminosity and low pile-up conditions were required by LHCf and these were delivered at 6.5 TeV with a special de-squeezed optics with relatively large beam sizes at the interaction points of all experiments. The required data were successfully delivered to LHCf in a series of fills with up to 39 bunches per beam. ATLAS, CMS, LHCb and ALICE all took advantage of the special conditions to take data themselves.

Monday 15 June saw the start of a five-day technical stop. This is the first of three technical stops scheduled during the 2015 operating period, before a longer stop planned during the end-of-year holidays. A normal year of LHC operation includes five-day technical stops every ten weeks or so to allow the machine and the experiments to carry out maintenance work and other interventions. Following the restart this weekend, a week or so will be devoted to a scrubbing run aimed at reducing electron clouds by conditioning the surface of the beam pipes around the ring. This run will prepare the way for a three-week period of operation with 50 ns bunch spacing and an associated intensity ramp-up to the order of 1000 bunches per beam.

Mike Lamont for the LHC team

INNOVATION FOR A BETTER LIFE: IDEASQUARE TO HOST A PANEL DISCUSSION FOR THE 2016 MILLENNIUM TECHNOLOGY PRIZE

The one-million-euro Millennium Technology Prize promotes technological innovations that improve the quality of people's lives. A series of panel discussions are being held worldwide to draw attention to the themes of the prize and to promote nominations for high-calibre candidates for the 2016 award. For the first time, IdeaSquare has been chosen as one of the venues and CERN people are invited to take part. Save the date: 30 June, 3 p.m.

The Millennium Technology Prize was established in 2004 by the Technology Academy Finland (TAF), an independent foundation whose mission is "to promote innovations that improve the quality of people's lives in a sustainable manner". Awarded every other year, the prize has already recognised the work of seven great innovators who developed technological innovations to tackle the great challenges of mankind: learning, health and a clean environment.

The first prize was awarded to Tim Berners-Lee for the World Wide Web. Eleven years later, CERN's IdeaSquare has been chosen to co-host a panel discussion focusing on "Sensory and imaging technology in science, health and security". Moderated by Luke Collins, Editor of the Tech Design Forum, the panellists* will discuss the current and future potential as well as the societal impact of these breakthrough technologies.

The event is targeted at potential nominators for the Millennium Technology Prize, i.e. the academic and business community, including the CERN audience. The number of places available at IdeaSquare for the CERN audience is limited to 30. You are therefore invited to register by Monday, 22 June.

A webcast will also be available throughout the event and an informal drinks reception will be provided in Restaurant 2 after the discussion to allow an opportunity for all the participants to interact with the panellists and the members of the foundation.

**The panellists are: Professor Peter Dendooven, KVI-CART, University of Groningen, and Professor at the Helsinki Institute of Physics; Dr Andrea Cuomo, Executive Vice-President, ST Microelectronics; Dr Sergio Bertolucci, Director of Research and Computing, CERN.*

Antonella Del Rosso

MAPCERN LINKS TO GOOGLE STREET VIEW

CERN's online maps, MAPCERN, now have the added bonus of Google Street View, thanks to the new release of images of many CERN sites captured by Google.

New Street View images of CERN sites have been added to MAPCERN, see bottom-right-hand image in the screenshot above.

Google Street View, an integrated service of Google Maps introduced in 2007, links 360-degree panoramic photos into a virtual tour. CERN and Google began collaborating on this Street View project in 2010 and now these Street View images have been embedded into MAPCERN, accessible by clicking the "Street View" tab in MAPCERN's bottom-right-hand window.

If you need to locate a building at CERN, or plan an operation on some equipment, you can save time by using the Street View images to check out the area in advance. The CERN Meyrin site has been fully mapped, as well as the surfaces of the eight LHC points, BA2 and BA3.

New Street View images of CERN, including the Proton Synchrotron, are also available directly from Google Maps. This new release complements the first one that was made available in 2013 with images of the ATLAS, ALICE, CMS and LHCb underground experimental caverns as well as the LHC tunnel. The control rooms of several experiments, the CERN Computing Centre and the CERN Control Centre on the Prévessin site can also be directly accessed via Google Maps.

"We're delighted that CERN opened its doors to Google Maps Street View allowing anyone, anywhere in the world to take a peek into its laboratories, control centres and its myriad of underground tunnels housing cutting-edge experiments" said Pascale Milite, an operations lead at Google.

CERN and Google hope to include more Google Street Views of CERN sites in the future.

Matilda Heron

WORKING TOWARDS COORDINATION OF DETECTOR DEVELOPMENT IN EUROPE

AIDA-2020, the largest EU-funded detector R&D project, kicked off at the beginning of June with a meeting at CERN. The aim of the project is to advance detector technologies beyond current limits by sharing the high-quality infrastructure provided by 52 partners from 19 countries.

Knowledge exchange between the various groups who are involved in developing innovative technological solutions for the next generation of detectors is the emphasis of the AIDA-2020 EU-funded project, which started on 1 May and will run for four years.

AIDA-2020 is the successor to AIDA, a four-year EU-funded programme that concluded at the end of January 2015, which successfully coordinated a joint European effort in detector R&D and significantly improved various key European research infrastructures, enabling advanced detector development for the high-energy physics community.

Highlights of AIDA's networking activities were the development of generic toolkits for detector description software in high-energy physics experiments and the technological exploration of new 3D interconnection processes between the sensors and electronics for future pixel detectors. The software tools are currently being used by the collaborations involved in designing detectors for the next generation of accelerators. Promising results were obtained with mature technology for some interconnection processes, paving the way for a smaller pixel size even if, for high-density interconnections, only proofs of principle have been demonstrated so far.

AIDA also established links with the European detector industry by organising a series of events with key experts from industry and academia. An interactive tool, called Collaboration Spotting, to analyse technologies using publications and patents, has been developed and is already being used by communities beyond high-energy physics. Under AIDA, the transnational access programme allowed more than 690 researchers to travel to European test-beam and irradiation facilities (CERN, DESY, JSI, UCL, KIT) to conduct their research. Finally, through its joint research activities, AIDA contributed to improving and equipping of irradiation and test-beam lines. A new beam-line characterisation infrastructure has been commissioned at Frascati (Italy) and is now available to users; a new proton irradiation facility, IRRAD, was designed and constructed in CERN's PS East Area and a new gamma irradiation facility, GIF++, recently constructed in CERN's North Area, has been equipped to welcome users. Additional equipment such as a new beam-tracking telescope, a gaseous detector facility with a solenoid magnet at DESY and electronics and mechanical infrastructure for high granularity calorimeter studies have been delivered. Prototypes of neutrino detectors have also been built.

AIDA-2020 will follow in AIDA's footsteps, increasing the cross-fertilisation between the various HEP projects (LHC, ILC, CLIC, FCC and neutrinos). Like its predecessor, AIDA-2020 will exploit the innovation potential of detector R&D by engaging with European industry for large-scale production of detector systems and by developing applications outside particle physics, e.g. for medical imaging. Aiming to maximise scientific progress in the field, AIDA-2020 will also build on the transnational access programme with new detector characterisation facilities. The scope is to offer a forum for HEP detector R&D in Europe and to ensure optimal use and coherent development with well-equipped test-beam and irradiation facilities for the testing of detector systems. Common software tools, microelectronics and data-acquisition systems will also be provided.

AIDA-2020 collaboration

Transnational access to CERN facilities under AIDA-2020

In the framework of the AIDA-2020 Transnational Access programme, CERN will provide access to four facilities: the **PS and SPS** for beam tests, and **IRRAD** and **GIF++** for irradiations, with the goal of enabling users from both academic and industrial sectors to carry out detector beam and irradiation tests.

The PS and SPS provide test beams in the energy range from 1 to ~350 GeV. Upstream of the physicist's test set-up, sophisticated beam-line equipment allows selection of the type, polarity and energy of particles as well as the beam intensity. The IRRAD irradiation facility located in the East Area of the PS offers the possibility of exposing materials to 24 GeV/c protons. The GIF++ facility in the SPS North Area combines a high-energy charged particle beam (mainly muons with a momentum up to 100 GeV/c) with a 14 TBq ^{137}Cesium source. The main purpose of this facility is to perform test-beam experiments of gas detectors in an intense gamma background field. The two independent irradiation zones make it possible to test real-size detectors and electronic components.

Besides particle physics, the CERN facilities could serve even larger user communities working on space applications, the development of radiation monitoring devices, plasma physics, fusion and meteorology.

More information about the CERN facilities can be found at: ***http://cern.ch/go/6hdZ.***

Information on how to apply to the AIDA-2020 Transnational Access can be found at: ***http://cern.ch/go/67Dq.***

RIBBON-CUTTING CEREMONY FOR BUILDING 774

On Friday, 12 June, the brand-new Building 774 on the Prévessin site was officially opened by Rolf Heuer, Director-General of CERN, and Stéphane Donnot, *sous-préfet* of Gex, together with Serge Moulon, deputy mayor of Saint-Genis-Pouilly, and Aurélie Charillon, mayor of Prévessin-Moëns and a member of the *Conseil départemental de l'Ain*.

Left to right: Serge Moulon, deputy mayor of Saint-Genis-Pouilly, Stéphane Donnot, sous-préfet *of Gex, Rolf Heuer, Director-General of CERN, and Aurélie Charillon, mayor of Prévessin-Moëns and a member of the* Conseil départemental de l'Ain.

"Thanks to its innovative architecture, this iconic building is the jewel in the crown of the French site," said Heuer. Prior to the ceremony, the Director-General had met the politicians to discuss relations between CERN and the French local authorities.

Located immediately opposite the CERN Control Centre, Building 774 houses the offices of the Control group and the management of the Beams (BE) department. It also includes laboratories, a 115-seat auditorium, two large meeting rooms and a reception area. The exterior is covered with solar panels based on CERN technology, providing heating for the building in the winter and cooling in the summer. The building will be the venue both for official visits and guided tours for the general public.

Corinne Pralavorio

GOLD RUSH IN MOL AT THE 15TH ASCERI ATOMIADE

What initially began as a football tournament between German institutes involved in nuclear research has developed into ASCERI (Association of the Sports Communities of the European Research Institutes), which aims to contribute to a united Europe through regular sport meetings, bringing together members of public research institutes at the European level. The members come from over 40 research institutes spanning 16 countries.

CERN team going for Gold at the summer Atomiade!

One of the main sport events organised by ASCERI, the 15th Atomiade was held from 5 to 8 June 2015 (organisational committee JRC Geel) in Mol, in the Kempen region of Belgium. CERN participated by sending 40 athletes from 15 countries to compete in a variety of disciplines: Athletics, Basketball, Cycling, Mountain Bike Race, Canoeing/Kayak, S.U.P., Swimming, Table Tennis, Tennis, Triathlon, Volleyball.

The 1200 athletes from 36 European research institutes were housed in the fantastic SunParks centre, which was perfectly conducive to generating a fantastic team spirit among all of the athletes. Despite the fact that a couple of the clubs were nearly hit by last minute disasters which could have prevented them from taking part, they pulled through magnificently to claim gold in the tennis tournament and silver in the basketball tournament. Both teams were close to not having enough members to send a team.

The CERN male volleyball team claimed gold whilst the mixed volleyball team won bronze. There was success on the athletics track, where gold was won in both the 4 x 100m relay and the mixed relay, among a host of other medals. More gold and bronze medals were collected in the swimming pool, on the lake in the kayak and paddle board competition and also a well-deserved silver in the table tennis tournament, in fact every single CERN athlete managed to win at least one medal. In total, 13 Gold, 9 Silver and 4 Bronze were won by the CERN team.

There was great camaraderie between athletes, each supporting one another in the different disciplines, providing training tips and encouragement when competition was tough and sharing in the joy of our colleagues' success. An atmosphere of Fair Play prevailed and whilst the athletes fought with grit and determination to perform their very best, they were all extremely proud to represent CERN. All participants would like to thank the Staff Association and the CERN Administration for their support.

Chris Haen, Konrad Jende & Rachel Bray, Atomiade organizers and athletes for the CERN team

CAS ACCELERATORS FOR MEDICAL APPLICATIONS IN VÖSENDORF, AUSTRIA

The CERN Accelerator School (CAS) and MedAustron jointly organised a course on Accelerators for Medical Applications in Vösendorf, Austria between 26 May and 5 June 2015. The course was held at the Eventhotel Pyramide on the outskirts of Vienna, and was attended by 76 participants from 29 countries, coming from as far away as Canada, China, Lithuania, Thailand, Ukraine and Russia.

The intensive programme comprised 37 lectures. The emphasis was on using charged particle beams for cancer therapy and the programme began by covering the way in which particles interact with biological material, how this translates into the dose needed for treatment and how this dose is best delivered. The different accelerator options for providing the particles needed were then presented in some detail. The production of radioisotopes and how these are used for diagnostics and therapy was also covered, together with a look at novel acceleration techniques that may play a role in the field in future. A case study exercise, for which 10 hours were allocated, completed the programme. For this the students were divided into small groups and worked on a task to design a facility for hadron therapy, presenting their results on the final day.

Feedback from the students was very positive, praising the expertise of the lecturers as well as the high standard and quality of their lectures.

In addition to the academic programme, the students had the opportunity to take part in an excursion to the Benedictine Monastery at Melk, combined with a boat trip on the River Danube and a typical Austrian evening at a "Heurigen". An all-day visit to MedAustron, with talks in the morning and a tour of the facility in the afternoon, was also included in the programme.

Next year CAS will be organising a specialised course on "Free Electron Lasers and Energy Recovery Linacs" between 31 May and 10 June 2016, to be held in Hamburg, Germany in collaboration with DESY; an "Introduction to Accelerator Physics" course to be held in Turkey in the autumn and a second specialised course on "Injection and Extraction" to be held at CERN in early autumn.

Further information on forthcoming CAS courses can be found on the CAS website at: ***http://cern.ch/go/6GW6.***

CERN Accelerator School

EXCELLENT RESULTS FOR CERN RUNNERS

As in previous years, thirty or so runners from CERN took part in the *Tour du Canton de Genève*.

The men's team that won the corporate challenge prize in the Tour du Canton de Genève: (standing, left to right) Patrick Villeton, Phil Hebda, Mika Vesterinen, Steffen Doebert; (sitting, left to right) Guillaume Michet and Camille Ruiz-Llamas.

The Maxi Race team: (left to right) Sebastien Ponce, Alain Cauphy, Klaus Hanke and Christophe Biot.

The Laboratory was represented in the corporate challenge by five teams, one of which came first in the men's category. CERN's other teams also put in good performances, with one finishing fourth in the men's category and another seventh in the mixed category. Runners from CERN did well in the individual classifications too. All the results can be found at: **http://cern.ch/go/7Trm.**

Elsewhere, four CERN runners competed in the finals of the Annecy Maxi Race. The results of the race are available at: **http://cern.ch/go/xD6w**.

The competitors met up with the rest of the CERN Running Club for a barbecue on the Meyrin site to celebrate this successful end to the season.

Hervé Cornet, CERN Running club

Computer Security

"NEW_INVOICE.ZIP"

Thanks for reading this. But I wonder, what do you expect? Why did this generic title catch your interest? Of course, you might read our articles on a regular basis and it is the "Computer Security:" that brought you here. But still, was there anything else? You should stop reading here… unless you believe this text is meant for you. Or if you are curious. Or if you expect to learn something. Actually, that's it. "New_invoice.zip" taught more than 40 people at CERN a lesson… the hard way.

Image 1.

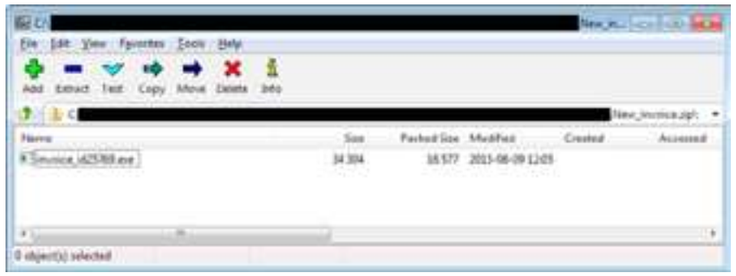


Image 2.

"New_invoice.zip" was the name of an attachment to a rather blunt e-mail sent directly to many of our dear colleagues. Others received the e-mail via mailing lists like "it-dep". The subject of the mail was "invoice" and its message read "Check the document" (see Image 1). The recipient list was vast and full of many different, not necessarily connected names. Clicking on the attachment "New_invoice.zip" revealed another file named "invoice_id25769.exe" (see Image 2) - a file that, if clicked on, infected your Windows computer.

Unusual? Unfortunately not. Sending and receiving invoices is common business in secretariats, in the procurement service, in the hostel and the CERN restaurants… But remember our repeated warnings about phishing e-mails with malicious content. This e-mail is a prime example. Still, more than 40 people clicked thrice in order to get at the juicy contents: first to open the mail, a second time in order to look at the attachment, and then to open (and execute) the "invoice_id25769.exe" programme. Game over: Windows PC infected. User password lost.

What could have prevented those people from clicking? First, many just opened the attachment out of curiosity: "It came from a colleague and I just wanted to know…", even if it was unusual. Neither were the brevity of the message text and its rather common subject line a hindrance to continue. Nor was the fact that this "invoice" was addressed to dozens of people. Why should all of them have gotten the same invoice? Another red alert missed.

Finally, the ".zip" file contained an ".exe" file. Do you know what an ".exe" is? No? So, why open it? ".pdf", ".doc", ".xls", ".ppt" or ".txt" will do, but never open ".exe"! ".exe" in an e-mail is a synonym for "infect my computer". And so, this "invoice" created a nice learning opportunity for more than 40 colleagues (and counting!). Their 40+ accounts and their 40+ Windows (office) PCs were blocked after their mail client started spamming the world with similar messages. 40+ Windows PCs were subsequently reinstalled and 40+ new passwords were created. 40+ people got annoyed and lost precious working time. Just because curiosity beat vigilance…

So, be prudent and be aware:

- If you aren't expecting such an e-mail, if it is none of your business - just ignore it;
- Is the message text reasonable? Does it ring a bell? Does it apply to you? Is it in your native language or a language you usually communicate in? Are there typos or factual mistakes ("Rolf Heuer, CERN President")?
- Check the recipient list. Was this an e-mail for you or is the mix of recipients weird? Why should you all get the same e-mail?
- Look at the attachments. ".zip" or ".exe" files are highly suspicious as they hide their real, malicious nature. And no, your anti-virus does not always protect you;
- If you are in doubt, contact the sender and cross-check before opening the attachment. Or check with us at **Computer.Security@cern.ch**;
- Be prepared. A malicious e-mail will infect your computer. Make sure that you have proper back-ups so you can easily re-install it from scratch at any time. Just like our poor colleagues were asked to do…

For further information, questions or help, check: ***https://security.web.cern.ch*** *or contact us at* ***Computer.Security@cern.ch***

Do you want to learn more about computer security incidents and issues at CERN? Follow our Monthly Report: ***https://cern.ch/security/reports/fr/monthly-reports.shtml***

Stefan Lueders,
Computer Security Team

MICHELE FERRO-LUZZI (1938 - 2015)

We have learned with great sorrow of the passing away, on 11 May, of Michele Ferro-Luzzi, an engineer well-known to many physicists working at CERN from the late 1960s to the early 2000s.

Michele was born in Rome in 1938. He attended primary and secondary schools in Asmara (Eritrea), where his family had moved to in 1939, and then he went to the University of Rome where he obtained a "*laurea*" in electronic engineering in 1962.

After completing his military service he was hired by CERN, in 1965, in the applied physics group, created by the Nuclear Physics (NP) Division Leader, Peter Preiswerk, to support physics teams in the design and construction of detectors, which were becoming more and more complex at that time.

Michele's primary interest was the design of particle beams. He became an expert in beam optics and in all kinds of beam components. For twenty-five years he was the best-known member of his group, involved in nearly all its activities, and always available whenever and wherever his help was needed.

Many secondary beams in the PS experimental halls were created by him. Among these, it is worth mentioning several beams of various energies produced at small angles from a South Hall internal target and also, in the East Hall, a system of secondary beams from the slow-extraction e3 proton beam. The splitting of e3 into three branches by means of a specially-designed iron septum magnet was an important achievement at the time. For many years Michele was responsible for all the test beams he had installed in the East Hall, which were intensively used for detector R&D projects.

He also designed the beam for the third muon g-2 experiment in 1974, and, three years later, the beam used by the Initial Cooling Experiment (ICE), which demonstrated antiproton cooling. His last and most elaborate beam designs were for the SPS: a long-path antiproton beam for the West Hall in 1980 and a similar one in 1981 for EHN2; these last designs could not be implemented.

During the 1970s and 1980s, Michele supervised the group's important contributions to the design and implementation of large experiment set-ups such as UA1 (1978), the NA4 muon spectrometer (1982) and finally Aleph and Delphi at LEP.

At the beginning of the 1990s, the CERN Directorate took the decision to centralise in a single mechanical service around the Central Workshop all the mechanics resources which had, until then, been distributed across many divisions. Michele was appointed to assist the leader of this large new service. One year later he was asked to take over this huge task himself.

In a short period of time, many changes in the service structure and a new style of work were adopted and a new working procedure was defined. Ten small, local mechanical workshops were closed and a new building had to be constructed. Contracts for outsourcing staff were reviewed, together with relations with service providers. Michele managed to ensure the best possible transition from the distributed old facility to the new one and, in the end, a labour force of about 160 man-years, including outsourcing, kept the whole service running smoothly and efficiently.

Michele was a delightful colleague, very much appreciated by his collaborators and by users of the services he supervised. In appreciation of his polite but friendly and unconventional manner, his young collaborators and trainees gave him the nickname "Luzzifer", a tribute to his humour and to his always surprising paradoxes.

We will forever cherish the memory of this dear colleague and friend. Our deep sympathy goes to his wife Anna-Laura and to his four children Anna-Sofia, Giovanni, Massimiliano and Sergio.

His friends and colleagues

Official news

STAFF RULES AND REGULATIONS - MODIFICATION N°9 TO THE 11TH EDITION

In accordance with CERN/3166 and recommendations made and decisions taken at the Finance Committee and Council meetings in March 2015, the following pages of the Staff Rules and Regulations have been updated with effect from 31 March 2015:

- Contents list, page iii
- Chapter I, General Provisions:
  - Section 3 (Conduct) - amendment on page 5
- Chapter II, Conditions of Employment and Association:
  - Section 1 (Employment and association) - amendment on page 14
  - Section 3 (Training) - amendment on pages 19 and 20
- Chapter III, Working Conditions:
  - Section 1 (Working hours) - amendment on pages 31 and 32
- Chapter VI, Settlement of Disputes and Discipline:
  - Section 1 (Settlement of disputes) - amendment on page 51

In addition, typographical errors have been corrected in the English version on page 12 (Articles R II 1.05 and 1.06) and page 78 (Annex R A 11, correction of the vertical axis definition).

The complete updated electronic version of the Staff Rules and Regulations is accessible via CDS.

Secretariat, Office of the Head of Human Resources
June 2015

FAMILY BENEFITS - OBLIGATION TO PROVIDE INFORMATION

Pursuant to Article R V 1.38 of the Staff Regulations, members of the personnel are reminded that they are required to inform the Organization in writing, within 30 calendar days, of any change in their family situation (marriage, partnership, birth of a child, etc.) and of the amount of any financial benefit of a similar nature to those stipulated in the Staff Regulations (e.g. family allowance, child allowance, infant allowance, non-resident allowance or international indemnity) to which they or a member of their family may be entitled from a source other than CERN.

The procedures to be followed are available in the Admin e-guide: **http://cern.ch/go/w7M7.**

Members of the personnel are also reminded that any false declaration or failure to make a declaration with a view to deceiving others or achieving a gain resulting in a loss of funds or reputation for CERN constitutes fraud and may lead to disciplinary action in accordance with Article S VI 2.01 of the Staff Rules.

Human Resources department
HR-Family.Allowance@cern.ch

DRIVING A CERN VEHICLE IN THE EUROPEAN UNION: NEW CUSTOMS REGULATION

On 1 May 2015, the European Union brought in a new regulation regarding "the temporary importation of means of transport intended to be used by a natural person resident in the customs territory of the Union".

This regulation also applies to vehicles belonging to or rented by CERN, but does not necessitate any modifications to the provisions of Operational Circular No. 4 regarding the use of these vehicles. The *Direction régionale des douanes du Léman* (Léman regional customs directorate) has informed the Organization that members of the CERN personnel and contractors' personnel may present their CERN access card instead of the contract of employment specified in the European regulation in the event of inspection by the customs authorities.

In this context, we would like to remind you of the following provisions of Operational Circular No. 4:

• Paragraph 10 ("Use of vehicles for private purposes (e.g. for transporting family members or for shopping) is prohibited in all circumstances, including in the context of standby service");

• Paragraph 24 ("Members of a contractor's personnel are not authorised to use a vehicle for travel between their place of residence and the place of work");

• Paragraph 22 ("Use of a vehicle for travel between the place of residence and the place of work must be authorised by the head of the department to which the member of the personnel is assigned");

• Paragraph 25 ("Except in the case of travel as specified in § 22, the driver must be in possession of a job order in order to drive a vehicle outside the permitted driving area");

• Paragraph 34 ("When making use of the vehicle, the driver must be in possession of the following documents:
a) his or her CERN access card,
b) a valid driving licence,
c) the documents for the vehicle (registration document, insurance "green card", etc.),
d) a valid identity document (identity card, national passport or other travel document recognised in Switzerland and France) with the necessary visas where required (drivers are also recommended to be in possession of their legitimation documents issued by the Host States),
e) any additional authorisations (cf. Article III, § 22 to 31)").

Relations with the Host States service
www.cern.ch/relations
Tel.: 72848 / 75152

OFFICIAL NEWS RELATING TO CERN SAFETY RULES

The CERN Safety Rules listed below have been published on the HSE website and entered into force on the 9 June 2015:

• Safety Regulation SR-M "Mechanical equipment": **http://cern.ch/go/t6mX** (version 2) cancels and replaces SR-M (version 1) and the corresponding provisions of General Safety Instruction GSI-M3 "Special Equipment" (version 1).

• General Safety Instruction GSI-M-1 "Lifting equipment and accessories": **http://cern.ch/safety-rules/GSI-M-1_ENv2.htm**; this GSI-M-1 (version 2) cancels and replaces GSI-M1 (version 1).
— Specific Safety Instruction SSI-M-1-1 "Slings and lifting chains": **http://cern.ch/safety-rules/SSI-M-1-1_EN.htm**;
— Specific Safety Instruction SSI-M-1-2 "Cranes, bridge cranes, gantry cranes and power-driven hoists": **http://cern.ch/safety-rules/SSI-M-1-2_EN.htm**;
— Specific Safety Instruction SSI-M-1-3 "Non-fixed load-lifting accessories": **http://cern.ch/safety-rules/SSI-M-1-3_EN.htm**;
— Specific Safety Instruction SSI-M-1-4 "Manually powered lifting equipment": **http://cern.ch/safety-rules/SSI-M-1-4_EN.htm**;
— Specific Safety Instruction SSI-M-1-5 "Mobile elevating work platforms, suspended platforms, mast-climbing platforms and rail-dependent storage and retrieval equipment": **http://cern.ch/safety-rules/SSI-M-1-5_EN.htm**;
— Specific Safety Instruction SSI-M-1-6 "Elevating work platforms such as lifting tables, vehicle lifts and tail lifts": **http://cern.ch/safety-rules/SSI-M-1-6_EN.htm**;
— Specific Safety Instruction SSI-M-1-7 "Forklift trucks": **http://cern.ch/safety-rules/SSI-M-1-7_EN.htm**.

• General Safety Instruction GSI-M-2 "Standard pressure equipment": **http://cern.ch/safety-rules/GSI-M-2_ENv2.htm**; this GSI-M-2 (version 2) cancels and replaces GSI-M2 (version 1).
— Specific Safety Instruction SSI-M-2-1 "Pressure vessels": **http://cern.ch/safety-rules/SSI-M-2-1_EN.htm;**
— Specific Safety Instruction SSI-M-2-2 "Simple pressure vessels": **http://cern.ch/safety-rules/SSI-M-2-2_EN.htm**;
— Specific Safety Instruction SSI-M-2-3 "Safety accessories for standard pressure equipment": **http://cern.ch/safety-rules/SSI-M-2-3_EN.htm**;
— Specific Safety Instruction SSI-M-2-4 "Metallic pressurised piping": **http://cern.ch/safety-rules/SSI-M-2-4_EN.htm**;
— Specific Safety Instruction SSI-M-2-5 "Vacuum chambers and beam pipes": **http://cern.ch/safety-rules/SSI-M-2-5_EN.htm**;
— Specific Safety Instruction SSI-M-2-6 "Transportable pressure equipment": **http://cern.ch/Safety-rules/SSI-M-2-6_EN.htm**.

• General Safety Instruction GSI-M-4 "Cryogenic equipment": **http://cern.ch/safety-rules/GSI-M-4_EN.htm**; this GSI-M-4 cancels and replaces Safety Instruction IS47 "The use of cryogenics fluids (1998)".

• General Safety Instruction GSI-M-5 "Lifts": **http://cern.ch/safety-rules/GSI-M-5_EN.htm**.

These CERN Safety Rules apply to all persons under the Director-General's authority.

Reminder: All CERN Safety Rules are available on the website: **http://www.cern.ch/safety-rules**, or, for mechanical Safety Rules, via the following link: **http://cern.ch/go/DKR8.**

HSE Unit

Take note

SUMMER RESTAURANT OPENING TIMES

• **Restaurant No. 1**: Open as usual in July and August. Open from 7 a.m. to 10 p.m. on Thursday, 10 September (*Jeûne genevois*).

• **Restaurant No. 2**: Open as usual in July and August. Closed on Thursday, 10 September (*Jeûne genevois)* and Friday, 11 September. The Brasserie (table service) will be closed from Monday, 4 August to Friday, 11 September.

• **Restaurant No. 3**: Open as usual in July and August, but closed on Saturday, 1 August; Saturday, 15 August; Thursday, 10 September (*Jeûne genevois*); and Friday, 11 September.

• **Snack bar in Building 54**: Closed from Monday, 4 August to Friday, 11 September.

• **Snack bars in Buildings 13, 30 and 6**: Closed on Thursday, 10 September (*Jeûne genevois*) and Friday, 11 September.

TRAFFIC MODIFICATIONS ON ROUTES RUTHERFORD, DEMOCRITE AND FERMI

The GS Department would like to inform you that **until the end of December**, the construction of Building 245 will result in the following traffic modifications:

1. Traffic on Route Rutherford will be partially restricted in front of the construction site,
2. Traffic on Route Democrite will be one-way towards Route Rutherford.

Also, please note that due to construction work in front of Building 377, Route Fermi will be closed **from Wednesday, 10 June until Friday, 7 August.**

Thank you for your understanding.

CERN ACCELERATOR SCHOOL: INTENSITY LIMITATIONS IN PARTICLE BEAMS | 2-11 NOVEMBER

Registration is now open for the CERN Accelerator School's specialised course on Intensity Limitations in Particle Beams, to be held at CERN between 2 and 11 November 2015.

This course will mainly be of interest to staff in accelerator laboratories, university departments and companies manufacturing accelerator equipment.

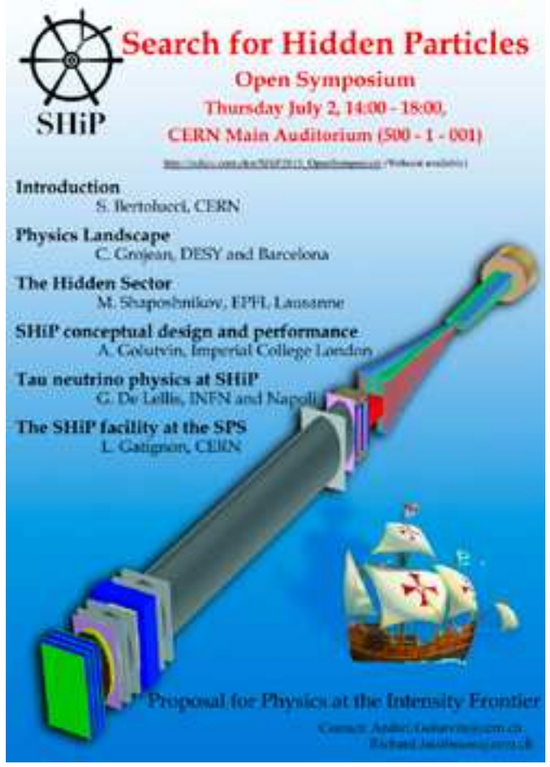
Many accelerators and storage rings, whether intended for particle physics experiments, synchrotron light sources or industrial applications, require beams of high brightness and the highest possible intensities. A good understanding of the possible limitations is required to achieve the desired performance.

The programme for this course will cover the interaction of beams with their surroundings, with other beams and further collective effects. Lectures on the effects and possible mitigations will be complemented by tutorials.

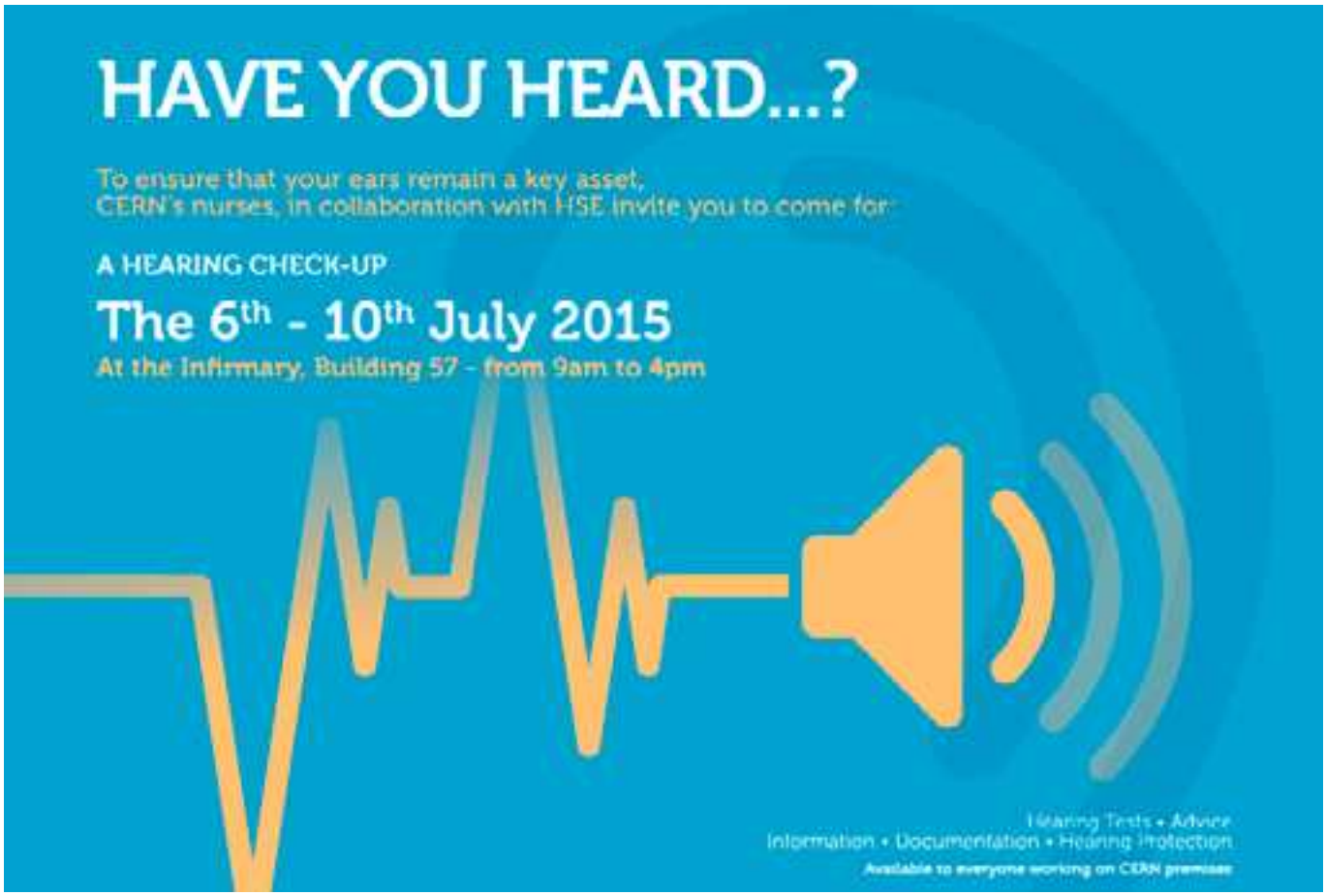
Further information can be found at:

• **http://cern.ch/go/WC9H**
• **http://cern.ch/go/c8SM**

SYMPOSIUM | SEARCH FOR HIDDEN PARTICLES | 2 JULY



GET YOUR HEARING CHECKED AT THE CERN INFIRMARY | 6-10 JULY



Seminars

WEDNESDAY JULY 01, 2015

08:30 Monthly induction **HR INDUCTION PROGRAMME - 1st Part** Filtration Plant
09:00 Summer Student Lecture Programme Course **DG' Presentation** Main Auditorium
10:15 Summer Student Lecture Programme Course **Particle World (3/3)** Main Auditorium
11:15 Summer Student Lecture Programme Course **Theoretical Concepts in Particle Physics** (1/5) Main Auditorium

THURSDAY JULY 02, 2015

09:15 Summer Student Lecture Programme Course **Theoretical Concepts in Particle Physics (2/5)** Main Auditorium
10:15 Summer Student Lecture Programme Course **Introduction to Accelerator Physics (1/5)** Main Auditorium
11:00 Summer Student Lecture Programme Course **Phenomenology of the Standard Model (1/3)** Main Auditorium
11:15 A&T Seminar **Reaching for the stars - New developments in ground-based astronomy** Kjell Johnsen Auditorium
14:00 ISOLDE Seminar **Investigating Atomic and Nuclear Properties of the Heaviest Elements**

FRIDAY JULY 03, 2015

09:15 Summer Student Lecture Programme Course **Theoretical Concepts in Particle Physics (3/5)** Main Auditorium
10:15 Summer Student Lecture Programme Course **Introduction to Accelerator Physics (2/5)** Main Auditorium
11:00 Detector Seminar **Active Pixel Sensors** Salle Anderson
11:15 Summer Student Lecture Programme Course **Phenomenology of the Standard Model (2/3)** Main Auditorium
14:00 CERN Computing Seminar **Anomaly Detection using the "Isolation Forest" algorithm** IT Amphitheatre

MONDAY JULY 06, 2015

09:15 Summer Student Lecture Programme Course **Theoretical Concepts in Particle Physics (4/5)** Main Auditorium
10:15 Summer Student Lecture Programme Course **Introduction to Accelerator Physics (3/5)** Main Auditorium
11:15 Summer Student Lecture Programme Course **Phenomenology of the Standard Model (3/3)** Main Auditorium

TUESDAY JULY 07, 2015

09:15 Summer Student Lecture Programme Course **Theoretical Concepts in Particle Physics (5/5)** Main Auditorium
10:15 Summer Student Lecture Programme Course **Introduction to Statistics (1/4)** Main Auditorium
11:15 LHC Seminar **Seminar on ATLAS results** Main Auditorium
11:15 Summer Student Lecture Programme Course **Introduction to Accelerator Physics (4/5)** Main Auditorium