CERN Bulletin

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The rainbow school of physics

The participants to the first African School of Fundamental Physics and its Applications photographed with some of the school's organizers.

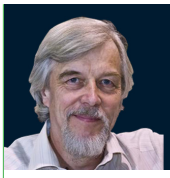
Students from 17 African countries took part in the first African School of Fundamental Physics and its Applications (ASP2010), which took place this month in South Africa. The school, organized by several physics laboratories including CERN, not only met but in some cases far exceeded the students' expectations. Their enthusiasm made the organizers' efforts worthwhile.

The first ASP received a great deal of interest in the African community and the organizers had a hard time selecting between the very motivated applicants. "The participating students were selected to come from various backgrounds and education levels", says the head organizer, Christine Darve. "At the school the students, lecturers and organizers shared the same dynamism and this allowed everybody to build durable networks in a physics world without borders," she continues enthusiastically.

The students were informed by their local universities about the possibility of participating in ASP2010. "Mr Mwiinga, a lecturer in the department of physics of my university, asked interested students around the department and he instructed them how to go about the application process", confirms Gift I Sichone, a graduate student from the University of Zambia. "He also helped me in writing up the motivation letters."

The experience was extremely valuable for all the participants, with some of them going as far as saying that it changed their life. "The school has far exceeded my expectations", enthuses Ekua Mensimah, the only participant from Ghana. "Not only was I exposed to the beauty of physics, but I also

(Continued on page 2)



A word from the DG

Nurturing talent in Africa

The first African School of Physics draws to a close tomorrow, and I'm proud that CERN has been a part of it. From an initiative launched by Fermilab scientist, Christine Darve, the African School of Physics has grown to involve institutes and universities from all over Europe and the United States.

(Continued on page 2)

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A word from the DG

(Continued from page 1)

Nurturing talent in Africa

It's being hosted by South Africa's National Institute for Theoretical Physics, NITheP, at Stellenbosch, and has attracted 150 applicants from all over the continent and beyond for the 65 places available. That alone makes it a success, even before NITheP Director Frederik Scholtz uttered his words of welcome nearly three weeks ago.

When I show people the map of where CERN's users come from, it's gratifying to see it spanning the world, and in particular to see southern hemisphere countries starting to join the global particle physics family. Africa, however, remains notable more for the number of countries that are not involved than for those that are. What this school has brought home very clearly is that there is the talent and the will in Africa to engage in advanced scientific education, and indeed with fundamental physics in general. Already at CERN, we have 51 African scientists involved with our programmes, with 18 of them coming from African institutes. This year we also welcomed our first Summer Students and Doctoral Students from Morocco. It's a start, and it is a trend that I hope to encourage. Over the coming years, I look forward to seeing our users map fully representing the depth and breadth of African talent that this first school has revealed.

Rolf Heuer

The rainbow school of physics

(Continued from page 1)

had the opportunity to meet great lecturers, make friends from different countries, and have a fun time visiting various sites here in South Africa. The school gave me the wings to fly to a higher ground in my academic career. This has definitely had an impact in my life, one that I will always be grateful for".

The praise to the organizers comes not only from the African participants but also from the others, such as Jörn Lange, a PhD student from the University of Hamburg, in Germany: "I am privileged because my university regularly gives me the opportunity to participate in physics schools. However, the ASP opened my mind as to how important it is to give such an opportunity also to people who otherwise could not have the chance to participate in international high-energy physics and gave me the motivation to get involved in supporting this kind of initiative".

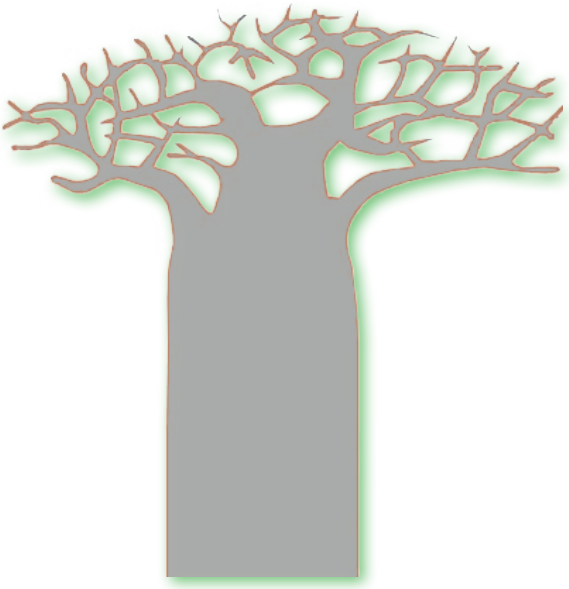
The school was also a great opportunity for participants to establish new networks and professional links. "Some of them are already thinking about how to establish new links and scientific collaborations", confirms Christine Darve. Naima Zahar from the University Hassan II in Morocco concludes: "I will never forget the organizing committee, Christine Darve and Steve Muanza. They were very nice and helpful". The next ASP will be in two years; the venue will be decided in October.

CERN Bulletin

Further reading:
The first African School of Physics 2010 in Bulletin Nr. 21-22/2010.

The ASP2010 website with programme, sponsors and contacts:

http://africanschoolofphysics.web.cern.ch/AfricanSchoolofPhysics/



Did you know?

Facts and figures

Out of the 150 applications received by the organizers, 60 of the students selected came from Africa, representig Algeria, Cameroon, the Democratic Republic of Congo, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Morocco, Nigeria, Rwanda, South Africa, Senegal, Sudan, Tunisia, Zambia and Zimbabwe. One student each came from Canada, Germany, India, Switzerland and the US.

The programme lasted three weeks, from 1st to 21st August, and it included lectures on physics, acceleration and detection techniques, as well as related technologies.

The school was held in Stellenbosch in the "Rainbow Nation" of South Africa, and was sponsored by 14 Labs and institutes around the world and four governmental institutions.

Beam-time for biology

There's no question that playing with mercury or handling radioactive cadmium with your bare hands is a risky business. But understanding how these and other toxic metals interact with biomolecules within the body is a challenging feat; one for which the ISOLDE IS488 collaboration hopes to provide valuable insight.

Unlike most of the facilities at CERN's accelerator complex, ISOLDE is not targeted mainly at particle physics. Rather, it produces radioactive nuclei during proton bombardment to study, among other things, physical and biological chemistry.

At ISOLDE, the 1.4 GeV proton beam of the PS Booster (an early stage in CERN's accelerator complex) produces nuclear reactions in a thick target, creating a large variety of radioactive nuclei, which are mass-separated for use in experiments.

In the case of the IS488 collaboration, the ion beam is directed into ice. "We implant radioactive metal ions into ice", explains Monika Stachura, a physicist from the University of Copenhagen, "We transport the ice into our chemistry lab here at CERN, let it melt and then add proteins and other chemical solutions to it, such as buffers to control pH. This protein solution is then placed in the gamma-ray Perturbed Angular Correlation (PAC) instrument, which allows us to observe how, for example, the toxic metals alter the protein structure, probably preventing the normal physiological functions of these biomolecules".

The PAC instrument is composed of six detectors that record the emission of two coincident gamma rays from the radioactive isotopes. This technique allows the study of molecular structure in close proximity to the isotope.

General view of the ISOLDE experimental area

As Monika explains, certain radioactive ions have the ability to substitute for the metals that are found in biological proteins. "The radioactive ions that we use in our experiment have a high affinity to the binding sites in proteins that are occupied by natural metal ions. One third of all the proteins found in our bodies contain metal ions that are vital for their structure, proper functioning and biological interactions. Thus, it is possible to study the actual function of the biomolecules, provided that they are still physiologically active."

So far, the IS488 collaboration at CERN has studied the effects of mercury, lead and cadmium isotopes. Its research also provides experimental data to help understand the structure and function of proteins, as well as DNA and RNA. In particular, the ETHZ has sent samples of metallothionien to CERN so that its role in the biological self-protection of human bodies and plants can be studied. "Metallothionien is a naturally occurring protein that, among other functions, searches for toxic metal ions within a living organism, finds them and binds them. Using our technique, we can even study whole plants in vivo", explains Monika.

Although the collaboration is presently limited to studying a narrow group of isotopes, it is able to make extrapolations about the most important metal ions found in the body, such as copper, zinc and magnesium, which cannot be studied directly using most spectroscopic techniques. However, a new instrument for beta-NMR spectroscopy – which involves the use of beta emitters – has been designed by Alexander Gottberg, an IS488 collaboration member from the University of Copenhagen.This may allow these ions to become visible so that the extrapolations that have been made can be verified. The first experiments ever conducted on bio matter with this technique are planned for next year.

Jordan Juras

Latest news from the LHC

Over the past two weeks the LHC operations team has focused on pushing the LHC's performance into new territory in terms of stored beam power. Moving to 25 bunches per beam with almost nominal bunch intensities at the end of July implied operation with a stored energy in each beam of more than 1 MJ. This corresponds to the current record for stored beam energy in existing hadron accelerators (e.g. CERN's SPS and Fermilab's Tevatron) and it marks an energy regime where a sudden loss of beam or operational errors can result in serious damage to equipment: an energy of 1 MJ is sufficient to melt 2 kg of copper. Extreme care and a thorough optimization of all operational procedures are therefore required in making this important transition in the machine's performance.

The focus of the past two weeks has been on optimizing the operational procedures and the machine protection systems, with the aim of gaining experience with the reliability and reproducibility of the operation of the machine at such a high stored beam energy. This effort also featured record results for the LHC performance in terms of delivered luminosity. For the first time the peak luminosity surpassed $4x10^{30}$ cm^{-2} s^{-1} and the total integrated luminosity delivered to the experiments passed the milestone of 1 inverse picobarn (1 pb^{-1} or 1000 nb^{-1}) over the weekend 7-8 August.

In parallel the operations team conducted several tests for improving the LHC performance still further. The ramp speed of the magnets (the rate at which the electrical current can be changed in the LHC main dipoles) has been increased from 2 A/s to 10 A/s for the pre-cycle (without beam) of the magnet system. The ramp speed of 10 A/s has also been successfully tested for acceleration with beam, but the final implementation must wait until the LHC starts operation with bunch "trains", in which the bunches of protons are grouped closely together, in contrast to the present operation with widely separated bunches. The faster ramp speed reduces significantly the minimum required time between two physics fills and therefore increases the overall machine performance in terms of integrated luminosity.

Another step towards higher luminosity occurred just recently, when the number of bunches in each beam was increased from 25 to 49 on Thursday 19 August. This will be followed by a change to operation with bunch trains in September. Operating the machine with bunch trains will open the door for increasing the total number of bunches in successive steps, so improving the LHC's luminosity over the coming months by another factor of 10 to 100.

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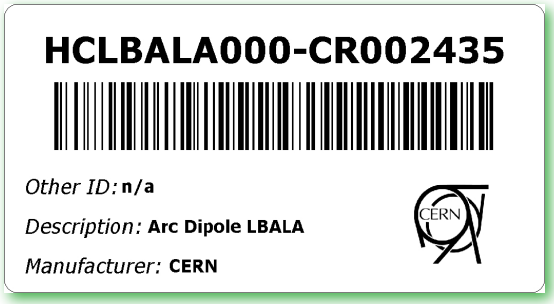
LHC technical data goes mobile

The Computerized Maintenance Management System (CMMS), which has been in use at CERN for many years, has recently been enhanced with an innovative new feature for managing and exploiting existing information regarding the LHC: a system to read the barcodes on the LHC components and easily obtain data and information on the many thousands of items of equipment that make up the accelerator. The feature will eventually be made available for any other scientific instrumentation located at CERN.

Systems like CERN's CMMS, which is based on an Enterprise Asset Management (EAM) system from Infor, are today standard practice in organizations managing large volumes of information about their facilities. However, the way in which CERN has adapted its system is rather unique: the CMMS not only manages the manufacturing, installation, maintenance and disposal of the components of CERN's infrastructure but now has the potential to provide equipment information interactively in the field, by means of a hand-held device.



Example of a magnet's barcode.

Such a device can be used to scan a barcode sticker glued to the surface of each and every dipole and quadrupole of the LHC. Information regarding the magnet is then displayed on the mobile device's graphical interface, developed by CERN. "In the case of the LHC magnets", explains Pedro Martel, CMMS manager, "a user equipped with this tool can scan the magnet's barcode and instantly access all the data on it collected throughout its lifecycle, as well as create a work order for repairs or any required maintenance."

Developments were prioritized to create a graphical user interface consistent with that of the EAM system, with which CERN users were already familiar. "For the sake of coherence, we tried to make the graphical interface as similar as possible to the native interface of the Infor EAM but adapt it to a mobile device with a limited screen size" explains Pedro.

It was with uses such as this in minds, that barcodes were glued to the magnets when they were manufactured. Barcodes can be found throughout the CERN infrastructure, and the new EAM mobile device interface is being proposed for other technical and scientific services that can benefit from it. "We have proposed the new feature for services such as cooling and ventilation, cryogenics, surface cleaning inspections, electrical transformer inspections and radiation protection", explains Pedro. "Access to all relevant technical data about any registered item of equipment is now possible from anywhere at CERN, including the LHC tunnel where Wi-Fi is not available, thanks to the common mobile telephone technology used."

The Infor EAM system and its innovative counterparts have proven extremely valuable. When malfunctions occur, situational information and insight into similar past incidents save more than just headaches and money; they help to make immediate and efficient repairs possible.

Jordan Juras

Did you know?

The EDMS

CERN's Engineering and Equipment Data Management System (EDMS) comprises the CMMS and a PLM (Product Lifecycle Management) system, enabling the transfer of protected information and knowledge between successive generations of engineers and scientists at CERN. A PLM system collects all the data regarding an object's design along with its documentation (technical specifications, test procedures, non-conformities, drawings, etc.). CERN's PLM system has been merged with the CMMS system to create a seamless platform where all engineering data about CERN's infrastructure and scientific equipment are available to other systems and users.

The EDMS is a service available to any CERN unit and experiment approved by the CERN Scientific Policy Committee.

A Garden of Possibilities

Renowned landscape architect and designer Charles Jencks recently visited CERN with the architect of the Globe, Hervé Dessimoz, to investigate the possibility of creating a cosmic-inspired garden at the entrance to the Laboratory.

Charles Jencks is a master at designing whimsical, intriguing outdoor spaces that hold a much deeper meaning than just an interesting view. His Garden of Cosmic Speculation at his home in Scotland uses designs recalling cosmic forces, DNA, organic cells, spirals of time, black holes and the Universe, made with landform, plants, sculpture and water to re-shape the natural landscape.

One of the possible symbols for CERN that came to his mind was the cosmic uroborus, an ancient Egyptian symbol of a snake eating its own tail dating back to 1600 BC. "Many scientists have discussed this as a possible image for explaining to the public how size works, from the very small all the way up to the size of the Universe," said Jencks. "One of the great advantages of this symbol is that it is universally recognised by scientists, allowing a common iconography." The uroborus conveys the message that the physics of the very large and the physics of the very small address the same basic questions.

The new landscaped space, if it goes ahead, would include the area surrounding the Globe of Science and Innovation, as well as the area across the road near the Reception in Building 33, and could include a new auditorium for CERN use and public events. Links to Prévessin and Meyrin would also be foreseen. The iconic image of the uroborus would encircle the Globe. "Instead of a head and tail I've put two mounds with water coming down them and if you look closer you can see that the mounds are question marks because there are still many unanswered questions," said Jencks. "The uroborus would provide a buffer against the traffic and noise and become an inner garden in a larger garden."

Although at this stage of the project no external fundraising has begun, Jencks' ideas for a new landscape certainly seem very inspiring.

To see some of his previous projects, visit:

www.charlesjencks.com

Carolyn Lee

Left to right: Charles Jencks, Peter Higgs, Rolf Heuer in the garden of cosmic speculation. (Photo credit: University of Edinburgh/Maverick photo agency)

CERN Library *Bibliothèque*

News from the Library

CERN scientific book fair 2010

The CERN Bookshop and CERN Library invite you to attend the 2010 CERN Book Fair, a two-day scientific event offering you the opportunity to meet key publishers and to browse and purchase books at significant discounts..

Some twelve companies will be present and will bring with them a selection of titles in physics, technology, mathematics, engineering, computing and popular science.

You are welcome to come along and meet the publishers' representatives or simply have a look to the books on offer.

The Fair will take place in the Main Building (bldg. 500) on the ground floor near the Restaurant 1 on Tuesday 7th and Wednesday 8th September. Participating or represented publishers include:

Cambridge University Press, EPFL Press – PPUR, Oxford University Press, Imperial College Press, McGraw-Hill, Oxford University Press, Pearson Education, Princeton University Press, Springer, Taylor and Francis, Wiley, World Scientific.

Fair opening times:

Tuesday 7 September 9:00 – 18:00
Wednesday 8 September 9:00 – 18:00

Book presentations are scheduled for the two days. The detailed programme of events will be available in the next issue (36-37) of the Bulletin.

CERN Library

Exchange of equipment between CERN and JINR

The drift chambers of the former NA48 experiment have recently left CERN to be installed in the MPD experiment at the future NICA accelerator in Dubna, Russia. As a counterpart, the JINR Laboratory will produce the new drift chambers for the new NA62 experiment. This operation is a fruitful exchange of technology that profits to both laboratories and successfully enhances their collaboration.

The NA48 drift chambers were overhanded in 2000 and employed until 2008. With a total of 110 kilometres of wire soldered to a very high degree of precision, the four drift chambers were a crucial element of the experimental kaon programme at CERN. The chambers are now moving to a new challenge as they will be re-used by the Multi Purpose Detector (MPD) experiment, under construction in the Joint Institute for Nuclear Research (JINR) in Dubna, and dedicated to the study of the properties of hadrons.

Despite their very good performance, the NA48 chambers cannot be used for the new NA62 experiment studying ultra-rare kaon decays at the SPS. "One of the requirements for the new NA62 experiment is to minimise the multiple scattering introduced by the spectrometer: the new chambers will allow us to improve the missing mass resolution by about a factor of two", explains Augusto Ceccucci, NA62 spokesperson.

As the chambers leave CERN to serve the MPD experiment, experts at JINR are developing the new chambers for NA62. "The first of the four drift chamber stations for NA62 is currently being engineered at CERN but the straw tube technology was developed at JINR in Russia where the mass production will take place", says Augusto Ceccucci. Unlike the NA48 chambers, the NA62 detectors use straws and they can be installed directly in the kaon decay tank under vacuum.

The MPD experiment is not the only example of collaboration where high quality equipment is re-employed to address a new challenge. For instance, NA62 itself will use the lead-glass blocks from the electromagnetic calorimeter of OPAL, one of the LEP experiments, and also the NA48's liquid krypton calorimeter. "Using previously developed equipment when possible helps us reduce the overall cost of the experiment and ensures high reliability because the detector is well understood", confirms Augusto Ceccucci.

The chambers have now safely arrived in Dubna, where they will be tested again and finally installed at the MPD experiment. No doubt CERN and JINR will continue to benefit from the fruit of their successful collaboration.

Further reading about NICA/MPD:

http://cerncourier.com/cws/article/cern/41456

http://accelconf.web.cern.ch/accelconf/r08/papers/MOBAU04.pdf

CERN Bulletin

22 July, on the occasion of the departure of the chambers from CERN, Mikhail Itkis (centre), acting Director of the JIINR, visited the NA62 experimental area accompanied by Rolf Heuer (left), CERN Director General, and Ferdinand Hahn, NA62 Technical Coordinator.

A CERN fireman is an instructor for French-speaking Switzerland

Davide Pagnani, a team leader in the CERN Fire Brigade, is a Swiss Federal expert and instructor in the field of interventions involving radioactivity. Firemen from throughout the French-speaking part of Switzerland come to CERN for training exercises supervised by Davide.

Before joining the CERN Fire Brigade, Davide Pagnani studied in Rome to be a radiation protection technician working in control rooms. Since joining, he has specialised in interventions in incidents involving radioactive materials. "The CERN firemen are trained in this type of work. If there is a radioactive leak, special measures are needed to protect the firemen, bystanders and the environment", says Davide.

The training of qualified firemen in radiation protection is organised in collaboration with the Radiation Protection Group of CERN's Occupational Health and Safety and Environmental Protection Unit (HSE). "I have been collaborating with the radiation protection section ever since I joined the CERN Fire Brigade", says Davide. "Close collaboration is essential both in terms of the training we provide and in the event of an incident requiring our intervention."

Davide Pagnani is an instructor not only for the CERN Fire Brigade but also at the Swiss Federal level, for French-speaking Switzerland: "Among other things, I run the training courses for the Suisse Romande fire service at the Applied Radiophysics Institute (IRA) in Lausanne, where the theoretical part of the training takes place", says Davide. "For the last three years, the practical part of the training has been done at CERN: all the firemen from French-speaking Switzerland come here. We do drills in specially determined areas that allow the use of radioactive sources under optimum safety conditions".

Through these exchanges with other fire brigades of French-speaking Switzerland, CERN can export and share its knowledge and expertise in interventions involving radioactive sources. The benefits of this joint training are extremely important for CERN as it enables the various fire brigades to standardise their methods, equipment and manoeuvres, thus improving operations and making them even more efficient in the event of a serious incident requiring the assistance of the fire brigades stationed at the airport or in Geneva, Lausanne or Neuchatel.

Alizée Dauvergne

Training on the radiation protection techniques.

Did you know?

Davide's curriculum vitae

After obtaining a diploma as a radiation protection technician in Italy, Davide intended to work in the control room of a nuclear reactor, but fate decided otherwise: following a reform by the Italian government, the construction of new nuclear power stations was prohibited and Davide's plans changed.

Shortly afterwards, in 1986, Davide began his military service with the Italian firefighting service. He was sent to the north of Italy, near Genoa, to measure the fall-out from the Chernobyl explosion.
He enjoyed the work as a fireman and decided to sit the entrance exam. He was then transferred to Rome, where he spent eight years, including four in the service dealing with technological hazards. He then applied to join the CERN Fire Brigade and was recruited in 1998.

CERN welcomes its first doctoral students from Morocco

This year marks the start of a new phase between CERN and Morocco with the arrival of the first two Moroccan students.

Thanks to the efforts of a small group of Moroccan academics, Morocco has been participating in the LHC programme for over ten years. About ten Moroccan physicists are members of the ATLAS collaboration, which comprises over 2000 physicists and 165 research institutes from 37 different countries. The arrival of the first Moroccan doctoral students at CERN was the logical next step.

The new programme is the result of a multi-party agreement between CERN, the Sharing Knowledge Foundation, the Moroccan universities participating in the LHC programme and the Hassan II Academy of Science and Technology.

Mohamed Gouighri and Sara Boutouil, the first two Moroccan students at CERN.

Mohamed Gouighri is the first Moroccan to obtain a scholarship to study at CERN, which is being funded by the Hassan II Academy of Science and Technology. He has been studying physics at the Faculty of Science in Casablanca for the last 6 years. "I came to CERN on a placement in 2008 but it was only for a short period. It was my dream to be able to stay here for longer and today it's come true", says Mohamed.

Mohamed had to compete with several other candidates for the scholarship. He and four other applicants were pre-selected and were assessed by an international committee in March this year. Mohamed's application was subsequently approved by the local CERN committee. He becomes the first Moroccan student to be given the opportunity to do his PhD within the ATLAS collaboration. "I would love to be able to continue to work with CERN once I've completed my PhD as it's the perfect place for physicists. It's a great honour to be the first Moroccan doctoral student at CERN", says Mohamed.

Sara Boutouil, who is currently in her fourth year at the Mohamed I University in Oujda (North East Morocco), is doing a thesis in top-quark physics. As part of an exchange programme between Morocco, France and Sweden, organised in the framework of an LIA (International Associated Laboratory) agreement, the Laboratoire de Physique Corpusculaire of Clermont-Ferrand (part of the Blaise Pascal University) is sending Sara to CERN for a 4-month placement in the ATLAS group. At the same time, the ATLAS group at CERN has offered to fund her data analysis work for 2 months (October and November). "I had been trying to get a placement at CERN for a long time, so I'm really delighted", says Sara.

The students regard the CERN scholarships as springboards to a future career in science and an excellent opportunity to establish contacts with other young people from all over the world. We hope that they will make the most of their experience at CERN and that the knowledge they gain here will benefit them throughout their future careers.

Laëtitia Pedroso

2020 vision for KAUST

Felicitas Pauss, Head of International Relations at CERN, greets Members of the Board of Trustees of the King Abdullah University of Science and Technology, KAUST, who visited CERN on Friday 6 August.

KAUST, which is situated on Saudi Arabia's Red Sea coast, is a new forward-looking co-educational research university with a vision to become one of the world's top ten science and technology universities by 2020, stimulating the intellectual life of Saudi Arabia and making significant contributions to the country's economy.

CERN's Director General, Rolf Heuer, is a member of the Board of Trustees. "I accepted the invitation to join the board because I believe that KAUST's values can make a real difference to the region and to the world," he said. The University's mission statement emphasises achievement, passion, inspiration, diversity, openness and integrity.

CERN Bulletin

Members of Board of Trustees of the King Abdullah University of Science and Technology upon their arrival at CERN.

Beauty is in the eye of the photographer

On Saturday 7 August, over 200 amateur photographers took part in the first "Particle Physics Photowalk", a photo contest organized by CERN in collaboration with DESY in Germany, Fermilab in the USA, KEK in Japan and TRIUMF in Canada. As of mid-September you will be able to discover on a dedicated website the five particle physics laboratories as seen through the lenses of the participants.

The Photowalk was a unique opportunity for the participants to photograph state-of-the-art accelerators and detectors in all their beauty and complexity. At CERN, the photographers were able to visit and take pictures of Linac4, the Computing Centre, SM18 and CLIC. Photographers came to CERN from Switzerland, France, the UK and Germany (one even came from the USA just for the event). "The 48 places available for the Photowalk at CERN were snatched up within days through the dedicated website", says Sophie Tesauri from the Communication Group, one of the event's organizers.

But why would a photographer want to photograph a particle accelerator? Yousef Elbes, a Jordanian electronics engineer working in France explained: "As far as I'm concerned, my interest in physics comes before my interest in photography. I am very curious to see the miracles physics can produce in building such impressive machines".

Whatever their personal motivation, the photographers' eyes were attracted by the shiny metal objects inside the magnets at SM18, the narrow corridors and blinking LEDs in the Computing Centre and the wires in the Linac4 experimental hall. But taking pictures in the experimental halls can also be very challenging from the technical point of view. At SM18, the sunlight, filtered by the large windows on the upper side of the walls, mixed with neon light to give a very subdued lighting, whereas in the Computing Centre the light was strong and definite.

As well as photographing the technical aspects of CERN, the participants seemed to really capture some of the hidden aspects of the Lab's facilities. "I am a nature photographer, so I'm used to taking pictures of rather different objects", said Andy Hoppe from Berlin, "but the wires of the CLIC and Linac4 accelerators, as well as their colours and shapes, remind me of nerves and vessels in the human body, and of other organic patterns".

Diego Giol, an Argentinian engineer, would have preferred to see the LHC, because, he said, "that is the real thing", even though he admits that "probably the pictures would not have been that different from the ones we are taking today, as in any case we are aiming at details". Marion Tabeaud from Haute-Savoie, France, had taken part in other events at CERN and said: "I am pleased to have visited something different from the LHC. I will now look for some information about these facilities on the Internet".

The best pictures taken during the CERN Photowalk will be selected by a committee, and will be shown in an exhibition in the Globe in 2011. An international competition, which will select the best two of all the photos taken in the five laboratories, is also planned. The winning photos will be featured by Symmetry and the CERN Courier. From mid-September, all the pictures taken at the five labs will be published on Flickr.

Roberto Cantoni

Photographers at the photowalk.

EGEE leaves a lasting legacy for the future

With the LHC running smoothly since March this year, the World LHC Computing Grid, WLCG, is proving itself well up to the task of serving the particle physics community. It has also played an increasingly important role in other areas of science through the Enabling Grids for E-sciencE project, EGEE-III.

EGEE has been the primary grid infrastructure supporting WLCG (along with OSG and Nordugrid) and has nurtured innovative, world-class research across Europe and around the globe. EGEE-III brought together a computing infrastructure, software tools and services to support more than 10,000 scientific researchers across more than 170 research communities.

Grids bring together computing and storage resources located in, owned and operated by different organisations located around the world. Connecting securely through the GÉANT internet network, grids share computer power and data storage capacity, creating an interwoven resource for the large-scale, compute and data intensive grand challenges facing us today – such as climate change, health and sustainable energy.

EGEE's achievements grew from the pioneering European DataGrid project, which started in 2001 and developed continuously through the three successive project phases of EGEE. By the close of EGEE-III in April this year, the project had created the largest collaborative production grid infrastructure in the world, including 250,000 computer processing cores, collaboratively hosted by more than 300 centres, running around 15 million computer tasks every month.

Using EGEE, scientists have been able to do more intensive work on a larger scale, and get results in a shorter time than would otherwise have been possible. EGEE has also fostered collaborations within Europe and worldwide, allowing Europe to stand out on the world stage. These collaborations will last for years to come and are now being developed within the new European Grid Infrastructure, EGI, which brings together National Grid Infrastructures under the coordination of a new organisation, EGI.eu. The European Commission is providing initial co-funding for EGI through the four year EGI-InSPIRE project, which started on 1 May 2010, coordinated by EGI.eu.

"Distributed Computing Infrastructures have matured at an incredible rate and EGEE has been a driving force in making this happen," says Bob Jones, EGEE Project Director. "In 2000 I think it would have been a brave call to say that Europe would have a sustainable production grid infrastructure built on a federation of national grid infrastructures in place by 2010. We are glad to see EGI embody the results of a decade of work and I am certain it has a bright future in contributing to the European Research Area and serving the ESFRI projects."

"EGEE has been a guiding light for a number of projects," adds Enric Mitjana, EC Project Officer for EGEE. "The structuring effect EGEE has had on the e-Infrastructure landscape in Europe and beyond is much appreciated by the Commission."

"The establishment of EGI.eu represents a new phase for the European Grid Infrastructure," says Steven Newhouse, EGI.eu Director. "Sustainability is key for supporting the next generation of data intensive science projects. EGI, through its foundation on strong National Grid Infrastructures, will provide the coordination necessary for a secure, reliable and integrated infrastructure in Europe."

As the EGEE project closes, and the EGI-InSPIRE project gets underway, the infrastructure and knowledge EGEE has created stands to leave a lasting legacy for the European Research Area and the world of e-science.

Catherine Gater
Bob Jones

The final EGEE user forum held in Uppsala, Sweden in April 2010. It marked the end of the EGEE series of projects and the beginning of EGI.

Robert Lévy-Mandel 1923-2010

Former CERN Director Robert Lévy-Mandel passed away on 3 July at the age of 87.

After obtaining a diploma from the *Institut polytechnique* in Grenoble, in 1948 he started work at the CEA, and was involved in the development and construction of the Saclay institute's first particle accelerator, a Van de Graaff machine. From 1954 to 1957 he was responsible for the coordination, development and construction of the CEA's Saturne synchrotron, which entered service in 1958.

In 1963 he was appointed head of the Saturne Synchrotron Department. The team led the construction of the Gargamelle bubble chamber detector, which was installed at CERN, and made contributions to other major facilities, including the Big European Bubble Detector (BEBC).

In 1971 he was invited to come to Geneva by John Adams, who was in charge of the SPS accelerator project. With the start of the SPS project, CERN had two laboratories, one at Meyrin and one at Prévessin, each with its own Director General: Willibald Jentschke at Laboratory I and John Adams at Laboratory II. Robert Lévy-Mandel was entrusted by John Adams with responsibility for site installation work at the Prévessin laboratory, then under construction. As an engineer, he worked tirelessly to ensure the success of the project.

In 1976 the SPS was started and reached 400 GeV, 100 GeV more than the expected energy. With the two CERN laboratories

combined, Robert-Lévy Mandel joined the Directorate, with responsibility for technical services and site management. At this time, planning for the Large Electron-Positron collider (LEP) was already in full swing.

Emilio Picasso, appointed leader of the gigantic LEP project in 1980, asked Robert Lévy-Mandel to produce the safety report for the future accelerator. The task was a particularly sensitive one as the underground ring tunnel, measuring an unprecedented 27 km in circumference, would run under numerous French and Swiss villages, and the plans were meeting determined opposition. Robert Lévy-Mandel produced the INB (*Installation nucléaire de base*) reports that were submitted to the French authorities to obtain approval for the project. He set up a programme for consultation with the French and Swiss municipalities and organized numerous briefings for the local authorities together with Henri Laporte, the head of civil engineering. His talent for diplomacy proved particularly valuable in getting the local authorities on side and allaying their concerns. When he retired, the former mayors of the Pays de Gex organized a farewell dinner in his honour, in recognition of the work he had done during the construction of LEP.

Robert Lévy-Mandel retired in 1988, just before the accelerator started up. However, like many former members of the CERN staff who had dedicated large portions of their lives to the Laboratory, he maintained his attachment to CERN, and continued to participate in discussions and work at the Laboratory.

Robert Lévy-Mandel will be remembered for his great dignity and tact, as well as for his tireless devotion to CERN and seemingly boundless capacity for work.

When he retired, he had this to say: "Emilio Picasso, Günther Plass and the group leaders created the kind of warm, open atmosphere that fosters creativity and is absolutely essential for the teamwork that you need on a major project." We would pay him the same compliment.

Our sincere condolences go to his two daughters, Anne and Françoise, to his grandchildren and to the entire family.

Emilio Picasso
and the members of the LEP project management

Matey Mateev (1940-2010)

Matey Mateev and his wife Rumiana died in a car accident on 25 July. Mateev, who was born in 1940, was a major figure in Bulgarian physics and had very close ties with CERN. The Mateevs had two children–Dragomir and Iliana–and a granddaughter, born three days before they died.

The academic activities of Mateev–Mag, to his many friends–were centred around the St. Clement of Ohrid University of Sofia, from which he graduated in 1963, to become professor in 1984 and subsequently Head of Theoretical Physics, Dean of Physics and Vice-Rector. From 1980 onwards, without interruption, Mag led one of the University's most well-attended courses and was the students' favourite teacher. Mateev and the late Alexander (Sande) Donkov–another central figure at the University–wrote a book together on quantum mechanics, like so many physicists eventually do.

Mag's research ventured into high-temperature superconductivity, the growth of crystals in a micro-gravity environment and the relativistic bound-state problem. But his most lasting and passionate endeavours centred around a new version of quantum field theory based on the hypothesis of the existence of an upper limit for elementary particle masses. This approach was systematically developed by Mag, his inseparable friend Volodya (Vladimir Kadyshevsky, former director of CERN's sister laboratory in Dubna) and their co-authors.

Mateev was a key figure in Bulgaria's scientific policy. He was named Minister of Education in 1991 and developed the «National Education Act », adopted by the National Assembly that very year. He championed the establishment of the National Foundation for Fundamental Research and was elected to the Bulgarian Academy of Sciences in 2003. In 2009 he received the « Cyril and Methodius» medal, a very high Bulgarian distinction. None of these honours changed Mag's modest and friendly ways.

Mag was the key promoter of Bulgaria's membership of CERN, and his country's representative to the CERN Council from 1999 to 2000. Bulgaria's active participation in CERN was among Mateev's greatest services to science. But what Mag truly appreciated at CERN were his frequent visits to the Theory Group. There, and literally for hundreds of miles around, Rumiana and Mag were able to enjoy the company of their innumerable « local » friends. We shall deeply miss them.

Mag and Rumiana's friends and colleagues

GENERAL MEETING OF THE PENSION FUND

All members and beneficiaries of the Pension Fund are invited to attend the

Annual General Meeting to be held in the CERN Council Room on Monday 6 September 2010, from 14:00 to 16:30 p.m.

The Agenda comprises:

1. Opening Remarks - F. Ferrini
2. Presentation of the 2009 Financial Statements - T. Economou

   Copies of the 2009 Financial Statements are available from departmental secretariats.
3. Management Update - T. Economou
4. Report by the Chairman of the Pension Fund Governing Board - F. Ferrini
5. Questions from members or beneficiaries

   Persons wishing to ask questions are encouraged to submit them, where possible, in writing in advance, addressed to the secretariat of the Pension Fund.
6. Conclusions - F. Ferrini

As usual, participants are invited to drinks after the Meeting.

NB The minutes of the 2009 General Meeting are available from the Administration of the Fund (tel. + 41 22 767 27 42 ; e-mail Barbara.Brugger@cern.ch)

ACCU MEETING

DRAFT Agenda
for the meeting to be held
on Wednesday 8 September 2010
at 9:15 a.m. in room 60-6-002

1. Chairperson's remarks
2. Adoption of the agenda
3. Minutes of the previous meeting
4. Matters arising
5. News from the CERN Management
6. Report on services from GS department
7. An update on Safety at CERN
8. The CERN Summer Student program
9. Bringing library services to users
10. Reports from ACCU representatives on other committees
11. Users' Office news
12. Any Other Business
13. Agenda for the next meeting

Anyone wishing to raise any points under item 12 is invited to send them to the Chairperson in writing or by e-mail to

Christopher.Onions@cern.ch

Chris Onions (Secretary)

ACCU is the forum for discussion between the CERN Management and the representatives of CERN Users to review the practical means taken by CERN for the work of Users of the Laboratory. The User Representatives to ACCU are (CERN internal telephone numbers in brackets):

Austria	G. Walzel (76592)
Belgium	C. Vander Velde (Chairperson) (71539)
Bulgaria	
Czech Republic	S. Nemecek (71144)
Denmark	J.B. Hansen (75941)
Finland	K. Lassila-Perini (79354)
France	N. Besson (75650)
	A. Rozanov (71145)
Germany	H. Lacker (78736)
	O. Biebel (72974)
Greece	G. Tsipolitis (71162)
Hungary	F. Siklér (76544)
Italy	G. Passaleva (75864)
	N. Pastrone (78729)
Netherlands	G. Bobbink (71157)
Norway	J. Nystrand (73601)
Poland	M. Witek (78967)
Portugal	P. Bordalo (74704)
Slovak Republic	A. Dubnickova (71127)
Spain	I. Riu (76063)
Sweden	K. Jon-And (71126)
Switzerland	M. Weber (71271)
United Kingdom	M. Campanelli (72340)
	S. McMahon (77598)
Non-Member States	D. Acosta (71566)
	E. Etzion (71153)
	C. Jiang (71972)
	N. Zimine (75830)
CERN	E. Auffray (75844)
	F. Teubert (73040)

CERN Management is represented by S. Bertolucci (Director for Research and Computing), S. Lettow (Director for Administration and General Infrastructure) and J. Salicio Diez/PH with C. Onions/PH as Secretary. Human Resources Department is represented by J. Purvis, the General Infrastructure Services Department by M. Tiirakari and the CERN Staff Association by M. Goossens. Other members of the CERN Staff attend as necessary for specific agenda items. Anyone interested in further information about ACCU is welcome to contact the appropriate representative, or the Chairperson or Secretary (75039 or Christopher.Onions@cern.ch).

http://cern.ch/ph-dep-ACCU/

Take note

RENOVATION OF THE OUTSIDE LIGHTING - BLDG. 112 ZONE

Due to renovation of the outside lighting, traffic will be disrupted along "Route Feynman". From the water tower (Bldg. 227) to Restaurant Nr. 2 (Bldg. 504) between 18 and 30 August. We recommend great caution.

Thank you for your understanding.

GS - SEM

Seminars

TUESDAY 24 AUGUST

TH STRING THEORY SEMINAR
14:00 - TH Auditorium, Bldg. 4

Integrability of high energy scattering amplitudes in N=4 SUSY

L. LIPATOV

WEDNESDAY 25 AUGUST

TH THEORETICAL SEMINAR
14:00 - TH Auditorium, Bldg. 4

The renormalization group and quark number fluctuations near the chiral phase transition

K. REDLICH / UNIVERSITY OF WROCLAW AND CERN-PH-TH

THURSDAY 26 AUGUST

TH BSM FORUM
14:00 - TH Auditorium, Bldg. 4
TBA

B. BELLAZZINI / CORNELL UNIVERSITY

MONDAY 30 AUGUST

ACADEMIC TRAINING LECTURE FOR POSTGRADUATE STUDENTS
08:00 - Bldg. **593-R-010**
"Liquid Helium" Week

WEDNESDAY 1 SEPTEMBER

TH COSMO COFFEE
11:00 - Bldg. 1-1-025
TBA

A. E. ROMANO / KYOTO UNIVERSITY

TH THEORETICAL SEMINAR
14:00 - TH Auditorium, Bldg. 4

Exploration of Hot QCD Matter: The Next Decade

B. MUELLER / DUKE UNIVERSITY

FRIDAY 3 SEPTEMBER

DETECTOR SEMINAR
11:00 - Bldg. 40-S2-B01 - Salle Bohr

CMS Tracker First Operation Experience

S. MERSI / CERN