CERN Bulletin

Nos 26 & 27 – 27 June & 4 July 2012

To be or not to be? That is the question, and we're getting closer to an answer

Higgs candidate event, courtesy of CMS.

One subject dominated discussions at the CERN Council meetings this week: anticipation of news about the on-going search for the Higgs boson by the ATLAS and CMS experiments. The LHC has continued to perform impressively in 2012, raising expectations that sufficient data may have been accumulated for a discovery. Before going on, let me say very clearly that on that point, we'll have to be patient for a little bit longer.

Nevertheless, with less than two weeks to go until the start of the ICHEP conference, news from the experiments is eagerly anticipated. Refinements of the analysis of the 2011 data, released over the course of recent months, show that the hints reported in December persist. The latest progress, including results from the 2012 data, will be presented at CERN on Wednesday 4 July with a live two-way video link to the scientists gathering in Melbourne for ICHEP.

If and when a new particle is discovered, ATLAS and CMS will need time to tell whether it is the long sought Higgs boson, the last missing ingredient of the Standard Model of particle physics, or whether it is a more exotic form of the boson that could

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To be or not to be? That is the question, and we're getting closer to an answer

(Continued from page 1)

open the door to new physics. It's a bit like spotting a familiar face from afar: sometimes you need closer inspection to find out whether it's really your best friend, or actually your best friend's twin.

In other business, I'm happy to report that Council approved the Organization's budget for 2013. Council warmly congratulated CERN on the performance of the accelerators, experiments and computing. And Council also received notification from the Russian Federation that it is ready to start the procedure to apply for Associate Membership of CERN.

To conclude, we don't yet know what will be presented on 4 July. Data taking for ICHEP only concluded on Monday and analysis is in full swing. But with the amount of data we now have, coupled with impressive refinements in analysis techniques and a great performance from the computing Grid, we have a very interesting update to look forward to, and a vintage conference to follow. I'd like to thank the whole CERN community for all their hard work and dedication that have produced this wonderful performance.

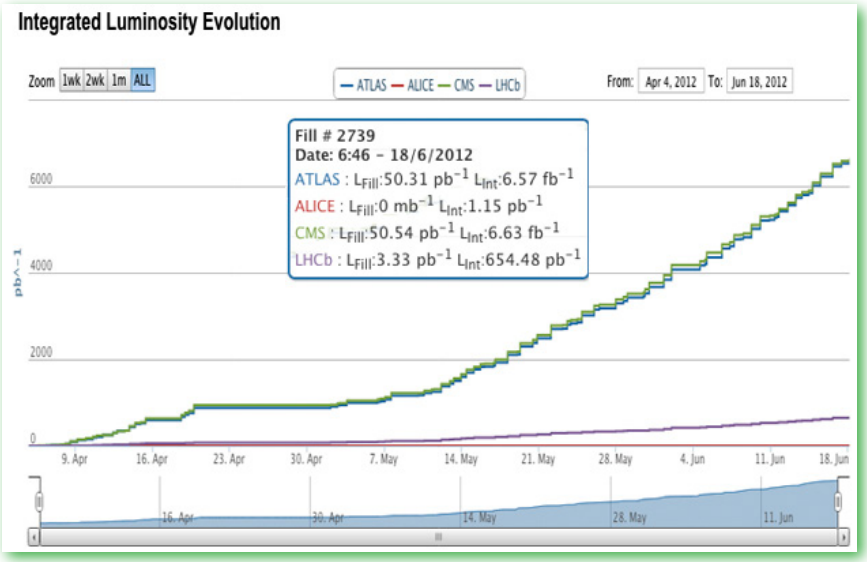
Rolf Heuer, CERN Director General

LHC Report: Summer temperatures in the LHC

The LHC experiments have finished their data-taking period before the summer conferences. The machine has already delivered substantially more collisions to the experiments this year than in the whole of 2011. The LHC has now started a six-day Machine Development period, which will be followed by the second Technical Stop of the year.

The number of collisions delivered to the experiments is expressed in integrated luminosity. In 2011, the integrated luminosity delivered to both ATLAS and CMS was around 5.6 fb^{-1}. On Monday 18 June, experiments finished taking data before the summer conferences and the integrated luminosity for 2012 so far is about 6.6 fb^{-1}, well above the unofficial target of 5 fb^{-1}.

The LHC's performance over the last week of running was so efficient that the injection kicker magnets – which heat up due to the circulating beam – did not have time to cool down between the subsequent fills. As the time constants for warming up and cooling down are both of the order of many hours, the temperature of the injection kicker magnets is a good indicator of the LHC's running efficiency. The all-time high record of luminosity production of over 1.3 fb^{-1} in a single week corresponds well with the highest measured kicker magnet temperature of 70°C. As these magnets lose their magnetic properties when the ferrites at their centre become too hot, a few hours of cool down time had to be included on a few occasions before the beam for the next fill could be injected. A programme is under way to reduce further the so-called "beam impedance" of the injection kicker magnets, which should substantially reduce this heating effect in the future.



On Monday evening, 19 June, the Machine Development period started during which accelerator physicists perform dedicated experiments to improve their understanding of the machine, thus paving the way for the future performance increase of the machine. On Monday 25 June, the second Technical Stop for machine maintenance will begin. The following weekend will be used to get the machine back to routine operation for physics from 2 July onwards.

Jan Uythoven for the LHC Team

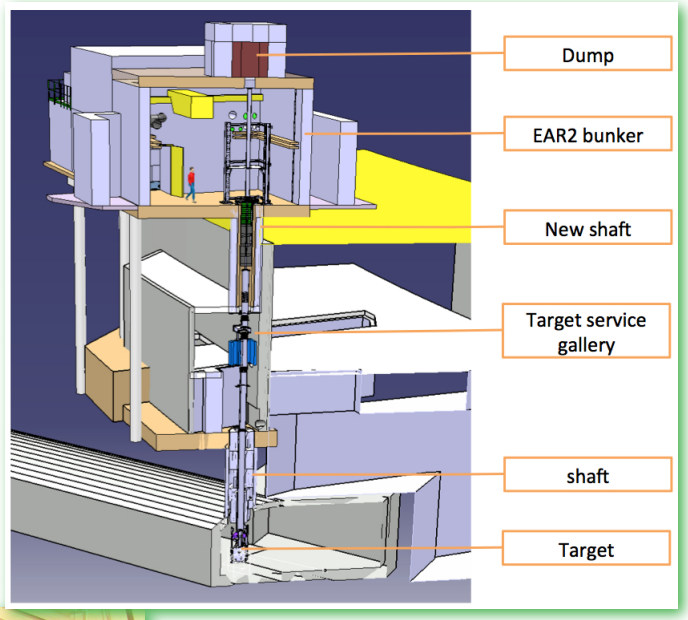
CERN's neutrons fly higher

The construction of a second experimental area for n_TOF – CERN's neutron source – has just been approved by the CERN Council. The new facility will provide the scientific community with a higher neutron flux, which translates into a higher sensitivity for the experiments. The new neutron beam line will open the way to a wider variety of research fields including nuclear energy applications, nuclear astrophysics, basic nuclear physics, dosimetry and radiation damage.

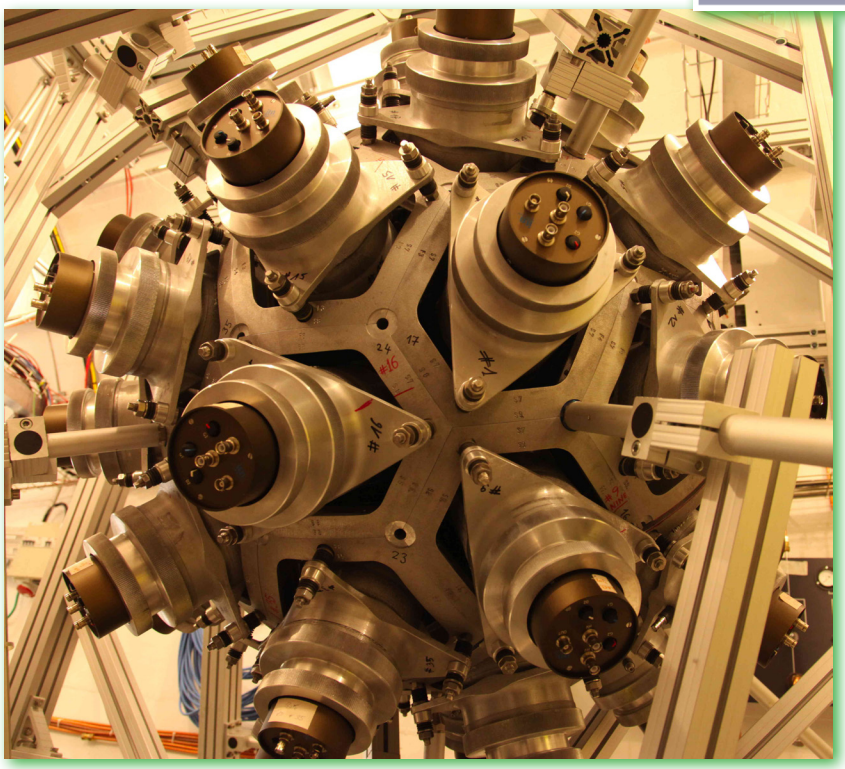
The project involves building a vertical flight path roughly 20 m above the current neutron target and a new experimental hall – Experimental Area 2 (EAR-2) – in the current Building 559. EAR-2 will be located on top of the neutron production target and partially on top of the ISR building (see the image below of a model of the facility). "The hall will be housed in a bunker, which will be connected with the n_TOF underground facilities via a duct 60 cm in diameter," explains Enrico Chiaveri, spokesperson for the n_TOF collaboration. "Due to the expected weight of the bunker, support pillars roughly 12 m high will have to be built with their feet located on the concrete structure of the n_TOF tunnel."

Physicists use neutrons – created from a primary pulsed proton beam – in a broad energy range (from MeV to GeV) to study neutron-induced reactions in samples, which are often radioactive. These same processes are in fact involved in a number of fields, including nuclear waste transmutation, nuclear technology, nuclear astrophysics and stellar evolution. Additional applications of wide energy neutron beams include basic research, medical applications, dosimetry and radiation damage. The enhanced capabilities provided by EAR-2 will allow experimentalists to study processes and isotopes with unprecedented accuracy that until now have remained out of reach in existing facilities. "Since the number of neutrons at the sample position is on average increased by a factor of 25, measurements can be performed on much smaller samples, in some cases less than 1 mg," explains Enrico Chiaveri. "This feature is of key importance when dealing with unstable samples and in cases where the sample material is particularly rare. Indeed, limitations in sample mass are crucial in astrophysics as well as in the field of nuclear technologies. Depending on the isotope concerned, EAR-2 may enable us to perform some measurements for the very first time."

EAR-2 and the existing EAR-1 (located around 200 m downstream of the production target) will run in parallel. "The n_TOF facility is already unique in the world in terms of its instantaneous neutron flux and low background, but the addition of the new neutron line will provide a 25 times higher flux per pulse delivered in 10 times less time. This will result in a substantial reduction of the background and an improved experimental sensitivity," says Enrico Chiaveri.



3D model of the new EAR-2 facility.



The 4π calorimeter inside the n_TOF experimental area. Image courtesy of the n_TOF Collaboration.

The long shutdown of accelerators (LS1) scheduled during 2013-14 will see the construction of the new facility, which is expected to receive the first beams during the summer of 2014. The attractiveness of n_TOF, soon featuring two neutron beam lines, is growing within the scientific community: indeed seven new institutions have joined the n_TOF Collaboration over the past two years and more are likely to join soon. A bright future lies ahead.

Antonella Del Rosso

ELENA's International Collaboration is born

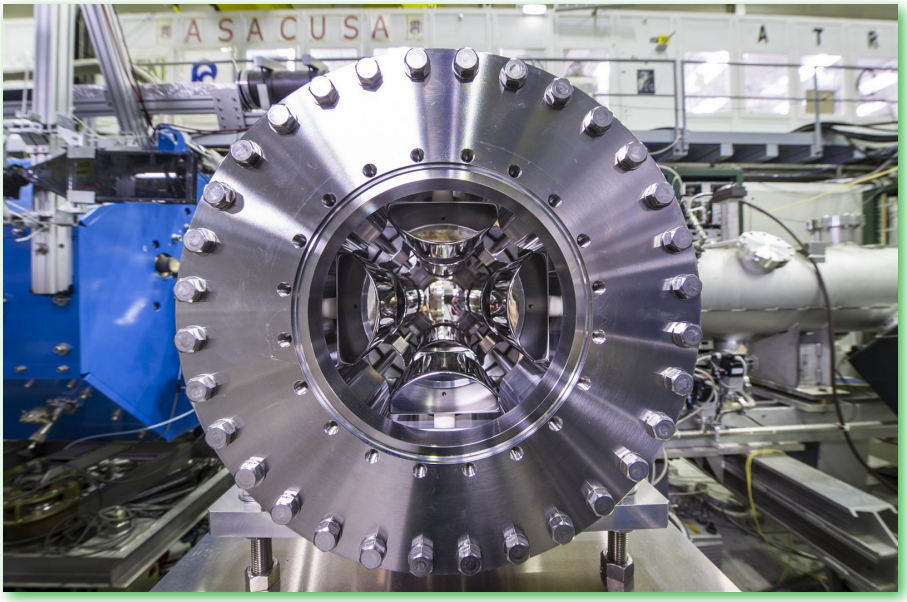
On 13 June, ten institutes signed a Memorandum of Understanding (MoU) for the construction of the Extra Low ENergy Antiproton ring (ELENA). Allowing the further deceleration of antiprotons from the Antimatter Decelerator, ELENA will significantly increase the number of particles trapped downstream in the experimental set-ups. This will give an important boost to antimatter research in the years to come.

ELENA - an upgrade of the existing Antiproton Decelerator (AD) - was approved by the CERN Council last year under the condition that external user institutions would contribute to its construction. On 13 June, the foundation stone of the new international collaboration was laid with the signature of the MoU.

ELENA is a small magnetic decelerator ring 30 m in circumference that will fit inside the present AD hall. The scientific demand for low-energy antiprotons at the AD continues to grow – particularly in the field of antihydrogen spectroscopy and measurements of gravitational effects on antimatter – and the AD alone can no longer provide the number of antiprotons needed. ELENA will slow down the 5.3 MeV antiprotons from the AD to an energy of just 100 keV and will thus increase the number of trapped antiprotons by a factor of 10 to 100. In addition, ELENA will allow parallel operation of up to four experiments and opens the possibility to accommodate an extra experimental area, which will be built as an extension of the current AD Hall.

The Technical Design Study will be completed by the end of 2012, after which orders will be placed for the machine components. Installation of the machine could start in 2014/15, followed two years later by the start of the physics programme.

Antonella Del Rosso



Electrostatic triplet lenses - a device that will transport antiprotons from ELENA to the experiments. The electrostatic device was successfully tested with the ASACUSA experiment two weeks ago.

The signatory institutes:

- University of Tokyo, Japan;
- RIKEN, Japan;
- University of Aarhus, Department of Physics and Astronomy, Denmark;
- The Cockcroft Institute of Accelerator Science and Technology, UK;
- Swansea University, Department of Physics, UK;
- MPQ-MPI, Max-Planck Institute of Quantum Optics, Germany;
- IKP, Forschungszentrum Juelich GmbH, Germany;
- Helmholtz-Institut Mainz, Germany;
- Universita' Degli Studi Di Brescia, Italy;
- Triumf, Canada.

Representatives from the 10 signatory institutes outside the CERN Council chamber, 13 June.

Celebrating the Tevatron legacy

Fermilab hosted an exceptional event on 11 June: the Tevatron Impact symposium. More than 800 people attended to hear how the Tevatron advanced our understanding of fundamental physics.

A version of this "Director's Corner" by Pier Oddone first appeared in Fermilab Today on 12 June.

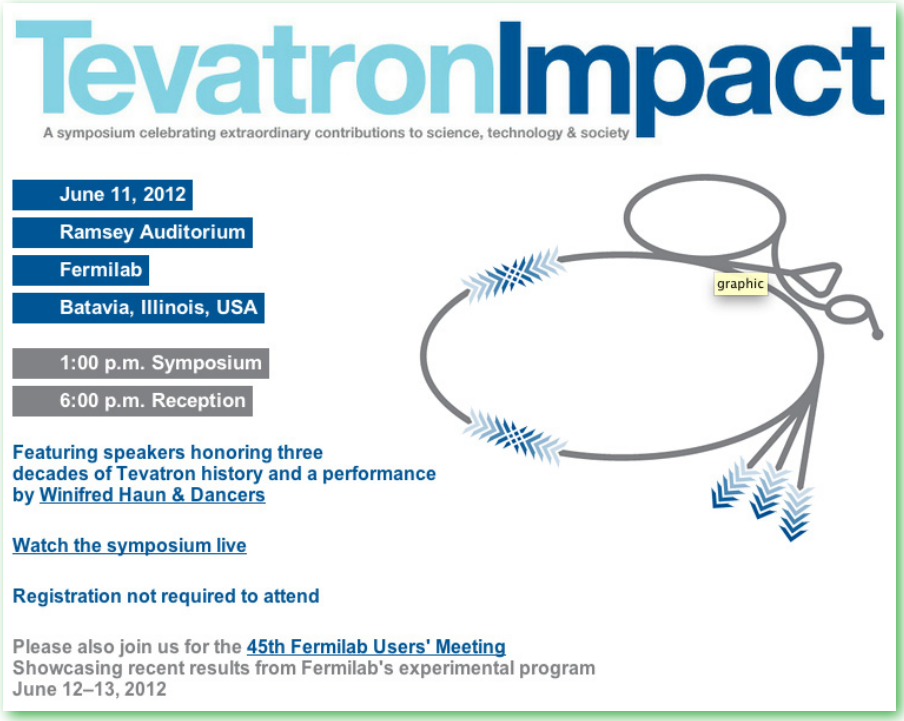
The development of accelerator technology for the Tevatron has influenced every subsequent major hadron accelerator. We heard reviews on the detector technologies and trigger systems developed with the Tevatron that are essential today for high-luminosity machines like the LHC.

There were also talks on the superconducting-wire industry that made MRI magnets ubiquitous, and we discussed the major computational systems that use large farms of Linux-based commodity processors. Researchers who worked on the Tevatron also established multivariate analysis techniques that now allow us to squeeze the maximum information from complex data sets.

One focus of the symposium was the people who had an impact on the Tevatron, as well as how the Tevatron influenced the lives of many. Roughly 1,500 PhDs trained at the Tevatron, cementing research paths and professional relationships that connect high-energy physics collaborations all over the world.

An event like this does not happen without the hard work of many people and the participation of many more. We at Fermilab extend our thanks to the many friends and colleagues from the international community, including CERN's Director-General Rolf Dieter Heuer, who filled the auditorium. Special thanks also go to the many national and international funding agencies, whose representatives were present and have supported the Tevatron throughout its extraordinary trajectory.

Pier Oddone, Fermilab Director



Sustainability debate at the Globe

Eco-neighbourhoods, solar panels, recycled heat: these were just some of the innovative ecological projects presented at the panel discussion organised by the Commune of Meyrin at the Globe on Thursday 21 June. CERN is closely involved with several of the projects.

CERN has an important role to play in sustainable development, and in Meyrin it has an excellent local partner. This was perhaps the key message, from CERN's point of view, to come out of Thursday's event. It particularly highlighted the proposed plan to use part of the "waste" heat going to the cooling towers at Point 1 to contribute to heating Meyrin's new ecological housing project, Les Vergers. Some of CERN's other high-profile contributions to sustainable development, such as the solar panels using CERN vacuum technology on the airport roof, were also presented. The video below presents some of the main ideas and actors in the CERN-Meyrin partnership. Please note that the video is currently only available in French:

https://cdsweb.cern.ch/record/1457436

Joannah Caborn Wengler

Use a defibrillator, save a life

With the work for Long Shutdown 1 looming on the horizon, the CERN Fire Brigade is anticipating a heavy workload: more people working at CERN means more call-outs. So the more trained first-aiders around to help out before the paramedics arrive, the better. Would you know what to do in a medical emergency?

It could happen at any time: two colleagues are having a coffee at work, when one suddenly clutches his or her chest and falls to the floor unconscious. What would you do? Run to find a first-aider? Call the ambulance and wait, finishing your coffee? Neither response is entirely correct. On Monday 11 June in Building 40 the CMS safety group, in collaboration with the Fire Brigade and the Medical Service, demonstrated the recommended, potentially life-saving response to cardiac arrest (see the video), including the correct use of a defibrillator, ten of which were recently installed in key CERN locations (see the Bulletin No. 12-13/2010).

"In countries where defibrillators are widely available to the public, the survival rate after cardiac arrest is between 20 and 50%, compared to only 2 to 4% in countries without them," explains Niels Dupont-Sagorin, Deputy GLIMOS for CMS and organiser of the simulation exercise. "A defibrillator can be used without any training, but to improve the patient's chances of recovery some first-aid knowledge, for example how to do chest compressions, can literally make the difference between life and death. So we need as many trained first-aiders as possible, and we need everybody to know where the defibrillators are."

Just a few hours of your time could save a colleague's life: sign up for the first-aid courses.

You can watch the video at:

https://cdsweb.cern.ch/record/1457093

Joannah Caborn Wengler

The members of the simulation team

The patient: Antonio Cuenca Perez - First-aider
The colleague: Guillaume Dutel - First-aider
The first-aider: Eric Herbé - Technical coordinator
The paramedic: Tomi Rasanen - Paramedic, CERN Fire Brigade
The ambulance driver: Jérôme Tochon - CERN Fire Brigade

Observers: Niels Dupont-Sagorin - Deputy GLIMOS, CMS; Christelle Gaignant; Davide Pagnani - Training, CERN Fire Brigade; Maurici Galofre - Chief of operations, CERN Fire Brigade; Katie Warrillow-Thomson - Nurse, Medical Service

One-day live webcast of the TEDGlobal 2012 Conference

We would like to invite you to a one-day live webcast of the TEDGlobal 2012 Conference. TED is a nonprofit organisation devoted to Ideas Worth Spreading. It started out (in 1984) as a conference bringing together people from three worlds: Technology, Entertainment, Design. The two annual TED conferences, in Long Beach/Palm Springs and Edinburgh, Scotland, bring together the world's most fascinating thinkers and doers, who are challenged to give the talk of their lives (in 18 minutes or less).

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

CERN is investigating the possibility of holding a TEDx event in the future. Follow @TEDxCERN on twitter or like our TEDxCERN Facebook page for more information as it becomes available.

Meanwhile, on 27 June, we will be showing 3 sessions of the TEDGlobal 2012 live in the Council Chamber from 9.45 to 11.15 a.m., from 12.00 to 13.45 p.m. and from 6.00 to 7.45 p.m..

To gain maximum benefit from the TED experience, leave your cell phone and laptop at the office, stay for a full session and let yourself be inspired by ideas worth spreading.

Dancing to the beat of science

Three Strangels migrating to another dimension came to rest in the CERN Library at lunchtime on Friday 8 June: the first of choreographer-in-residence Gilles Jobin's artistic interventions.

Put a choreographer in a library and strange things start to happen: feet appear from piles of books, heads disappear into bookshelves. But how did these Strangels get there? Though unintrusive, almost invisible movement, guided by gravity and the fundamental forces that are the subjects of the books in the CERN Library.

If you weren't able to be there, the Bulletin's slide show shows you what you missed.

Joannah Caborn Wengler

The rewards of road safety

In May, the HSE Unit launched a cycling safety campaign at CERN over three days during which members of the Unit and representatives of the Swiss Office for Accident Prevention and the Touring Club Suisse reminded people of the basic safety rules to which they should adhere when riding a bike. A competition was held to encourage people to be self-critical and to highlight best practice.

On 14 June, a month and 273 participants later, 40 lucky contestants received winners' prizes in a low-key reception at Restaurant 2. Among the prizes were "safety packs" containing a fluorescent jacket, arm-bands and a water-bottle, cycle helmets and two brand new bikes.

More proof, if any were needed, that safety and prevention form a winning combination!

Anaïs Schaeffer

Computer Security
Sécurité informatique

Smartphone lost – Privacy gone

Who doesn't own an iPhone, Android or Blackberry mobile phone today? Lucky you if you don't! In previous issues (Issue 06/07, 2012 and Issue 32/33/34, 2011) we have pointed out their lack of security. But what happens if you lose your smartphone or it gets stolen?

Today, a smartphone clones your personality into the digital world. Your phone archives all your emails and messaging communications with your family, friends, peers and colleagues; contains photos and videos of the top moments of your life; holds your favourite music and movies and zillions of other bits of personal information stored in the apps of your choice (like GPS information of your jogging paths, a vault of your passwords, access to your Facebook or Twitter profiles, bank access information, flight and hotel bookings). In the future, your phone might also be used for making payments in shops.

Have you ever thought of how you would feel if you lost your smartphone or it got stolen? Naked? As I now know everything about your friends and your secrets. Ashamed? When I make your private photos public. Embarrassed? As I scoff at your weird taste in music. Helpless? Once I use your SIM card to call my friends in Australia.

There is no silver bullet for mitigation. The most easy prevention is of course disabling unused features and refraining from storing too much information on your smartphone. Back up its contents regularly and purge unnecessary data and photos. Also reduce the retention depth of your local mail box so that older mails get purged automatically. Note that there is a possibility to wipe your mobile phone remotely if it gets lost or stolen*. Finally protect your mobile phone against unauthorised access by locking it with a PIN code or swiping pattern.

And while you are at it: What about your laptop(s)?

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

Computer Security Team

* *The CERN Mail Service provides a possibility to wipe your phone remotely. The option is available from the CERN webmail interface and you can get more information at: https://espace.cern.ch/mmmservices-help/ManagingYourMailbox/QuotaArchivingAndRecovery/Pages/WipingMobilePhones.aspx. Note that on recent smartphone devices (iPhone, Android, etc) the "wiping process" can remove all data (pictures, music, applications etc) and restore factory settings.*

Library
Bibliothèque

CERN Library and Collide@CERN present media artist Nataša Teofilović

News from the Library

The Serbian media artist Nataša Teofilović creates virtual characters which are living art works, often employing animation techniques. She won an honorary mention for her work in the first Prix Ars Electronica Collide@CERN competition for her outstanding digital works which cross the boundaries between virtual and real spaces. As part of her prize, Arts@CERN offered Nataša the opportunity for a two-day visit to CERN, which is being funded by a Swedish foundation travel grant.

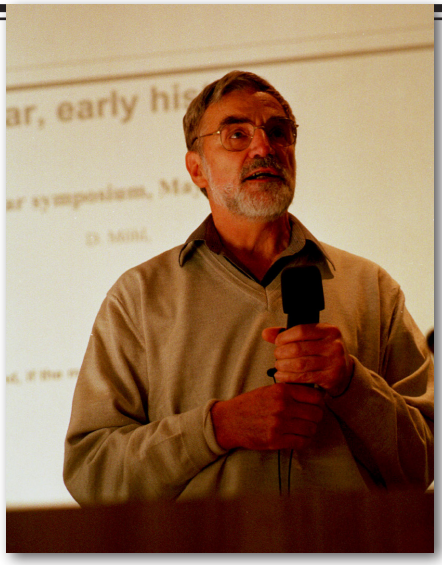
Nataša talks about why and how she creates her digital work and virtual beings, shows examples and reveals insights into the role and status of an artist in her native Serbia.

Nataša Teofilović has an PhD and MA in Digital Art (Belgrade University of Arts, Interdisciplinary Studies) and holds a BA in Architecture from Belgrade University of Architecture. She lives in Pančevo, Vojvodina, Serbia.

"Digital Art and Sensuality"
by Nataša Teofilović
Tuesday, 26 June 2012 from 4.00 pm to 5.00 pm in the Library, bldg. 52 1-052.
Tee and coffee will be served at 3.30 pm.

CERN Library

Dieter Möhl (1936–2012)



It is with great emotion and deep sadness that we learnt of the loss of our colleague and friend Dieter Möhl on 24 May. An accelerator physicist of world reputation, he made essential contributions to many projects at CERN and around the world. Here at CERN his name will remain forever linked with the success of the antiproton programme from its very beginning, but he also made substantial contributions to the FAIR project in Germany and to many other storage rings where beam cooling was an essential ingredient. His theoretical work was unique for the understanding, improvement and extension of beam cooling techniques to many accelerators and storage rings.

He was one of the pioneers who demonstrated by the Initial Cooling Experiment (ICE) that stochastic cooling was a viable proposition. This was essential for the approval of the CERN antiproton programme and its success. Then, he was a leading member of the team which initiated and designed the Low Energy Antiproton Ring (LEAR) where the first ultra-slow beam extraction extending over hours to experiments was performed.

After the decision to stop LEAR he actively participated in the study and design of a simplified antiproton source which later became the Antiproton Decelerator ring (AD) after the project SUPERLEAR, of which he was one of the prominent promoters, was not approved. He also participated in the study of the Extra- Low ENergy Antiproton ring (ELENA) back in 1982 and he was very happy to see that in 2011 this project, which will provide antiprotons with a kinetic energy as low as 100 keV, was finally approved in AD. Dieter also made important contributions to electron cooling, a token of this is found in AD and in the modified LEAR machine which became the Low Energy Ion Ring (LEIR). LEIR acts as a buffer and accumulation ring between the fast-cycling ion Linac 3 and the slow-cycling PS and is an essential element in the LHC ion injector chain.

Dieter was not only a famous accelerator physicist but also played an important role in human rights issues, in particular in the framework of the Orlov Committee created at CERN. Dieter was one of the founding fathers of this group which aimed to provide efficient help to Soviet dissidents in the 70s and 80s.

Retired since 2001, Dieter was at work nearly every day to help us in our projects and to give us advice. Even the day before his untimely death, he was still at CERN to discuss the ELENA project with us. He certainly was one of the kindest, gentlest persons we have ever known, with infinite patience and proverbial generosity. We gratefully remember Dieter's human quality and we miss his wise counsel.

His friends and colleagues

Jean-Paul Diss (1928-2012)

We were greatly saddened to learn of the sudden death of Dr Jean-Paul Diss at his home on 7 June 2012.

Jean-Paul studied medicine at the Strasbourg Faculty of Medicine and began his career as an occupational medical practitioner at the Mulhouse potash mines. He then came to CERN in 1965 to set up a Medical Service at the request of the then CERN Director-General, Professor Weisskopf. He was the first person to hold the position of Head of the Medical Service and he invested all his energies to provide the Organization with an occupational healthcare unit worthy of the name.

As a pioneer of occupational medicine, he worked tirelessly to improve the working conditions of the members of the personnel and continued to be solicitous about the health of every member of the personnel until his retirement in 1993. Over the past twenty years, he remained active within the CERN Pensioners Association, in particular as the pensioners' representative on the CERN Health Insurance Supervisory Board, of which he was a member from its inception until only a few months ago. He made a particularly important contribution to the setting-up of the Long-term Care Scheme, the introduction of home care and the establishment of the retirement home in Ferney-Voltaire. He was particularly enthusiastic about, and active in, the recent project on brain ageing conducted jointly with the Geneva University Hospitals (HUG).

Jean-Paul was a cultured man, respectful of tradition, who left a special mark on members of CERN past and present and thus on the Organization itself, and will be remembered for his rigour, his rational approach and for his faultless good manners. His dignity in all circumstances always earned him the respect of those who came into contact with him. He was also highly respected and appreciated for his kindness and devotion by the French and Geneva medical community, with which he established close links.

Jean-Paul had many other qualities, in particular a gift for music. He was an organist and a member of the CERN Choir, of which he was several times President. He was and remains for us a master and an example to be followed for his investment in medecine.

The CERN Medical Service

Official news

Members of the personnel shall be deemed to have taken note of the news under this heading. Reproduction of all or part of this information by persons or institutions external to the Organization requires the prior approval of the CERN Management.

FORTHCOMING INDEFINITE CONTRACT REVIEW PROCEDURE

The vacancy notices for posts opened with a view to the award of an indefinite contract will be published as from the first week of July 2012.

In the meantime, the list of posts to be opened will soon be available at the following address:

https://hr-recruit.web.cern.ch/hr-recruit/staff/ListOfPosts-Autumn2012.pdf

For more information please consult this page:

https://hr-recruit.web.cern.ch/hr-recruit/staff/IndefiniteContracts.asp

Département HR

IMPORTANT INFORMATION FOR DRIVERS IN FRANCE

From 1 July 2012, any driver of a motorised road vehicle, excluding two- or three-wheeled vehicles whose engine capacity does not exceed 50cm^3, must be in possession of a breathalyser in full working order. With effect from 1 November 2012*, drivers failing to produce a breathalyser run the risk of being served with an 11 euro fine.

A breathalyser is used to measure the alcohol content in the motorist's breath. The permissible level of alcohol for drivers is less than 0.5 g of alcohol per litre of blood, or 0.25 mg of alcohol per litre of air exhaled.

The obligation to have a breathalyser on board the vehicle also applies to all drivers on the French part of the CERN site. All vehicles belonging to or leased by the Organization must also carry a breathalyser together with all the requisite documentation (cf. Operational Circular No. 4).

Drivers of privately owned vehicles can obtain breathalysers from car accessory dealers, service stations or pharmacies, etc. Drivers of vehicles belonging to or leased by the Organization may obtain breathalysers by completing a material request in EDH using the reference number 50.64.03.001.6.

This obligation is consistent with CERN's alcoholism prevention policy (cf. Operational Circular No. 8).

* *For further details please consult: Décret n° 2012-284 of 28 February 2012 and FAQ at: http://www.securite-routiere.gouv.fr/article.php3?id_article=4076 (in French only). See also the CERN catalogue under the reference number 50.64.03.C.*

Take note

KEEPING YOU SAFE BY MAKING MACHINE TOOLS SAFE

CERN's third safety objective for 2012 concerns the safety of equipment - and machine tools in particular.

There are three prerequisites for ensuring that a machine tool can be used safely:

- the machine tool must comply with Directive 2009/104/EC,
- the layout of the workshop must be compliant, and
- everyone who uses the machine tool must be trained.

Provided these conditions are met, the workshop head can grant authorisation to use the machine tool.

To fulfil this objective, an inventory of the machine tools must be drawn up and the people responsible for them identified.

The HSE Unit's Safety Inspection Service produces compliance reports for the machine tools. In order to meet the third objective set by the Director-General, the section has doubled its capacity to carry out inspections: 1,100 machines will be inspected in total.

Additionally, specialists in the HSE Unit are available to take you through the simple customised risk analysis process for the use of machine tools and to help you take steps to ensure compliance.

CERN has a duty to ensure that its equipment is well maintained and fully compliant. The HSE Unit is here to help and can provide you with the relevant Safety Rules and interactive software (https://espace.cern.ch/Safety-Rules-Regulations/en/rules/byDomain/Pages/mechanical.aspx). This service is free so make sure you use it!

The HSE Unit will be happy to answer any questions you may have. Contact us at safety-general@cern.ch.

POST OFFICE - ON THE PRÉVESSIN SITE

The Post Bank (and post office) on the Prévessin site (Building 866) is open:

Monday to Thursday from 9 a.m. to 12.30 p.m.

Take note

LIGHT AND COLLISIONS: JULIUS VON BISMARK PRESENTS AN UPDATE ON HIS WORK AFTER HIS CERN RESIDENCY

On 27 June 2012, Julius von Bismarck, the first winner of the Prix Ars Electronica Collide@CERN, will give a special informal interim lecture for CERN on his ideas and work in progress.

Julius will disclose his personal reactions to his experiences at CERN, sharing with us how particle physics and the laboratory has started having an impact on his artistic practice. As he said when he won the prize at the first Collide@CERN public lecture: "For me, the Collide@CERN residency is a dream come true." So has reality matched up with his dreams? And why in the first two weeks did he say: "For me already the residency is already a success." What is his experience of the creative collisions between arts and science?

There will be opportunities for the audience to ask questions, and the artist stresses that this will be a personal and informal presentation of ideas in progress.

The lecture will take place in the Council Chamber (Room 503-1-001) from 4.30 pm to 5.30 pm.

More information at:

https://indico.cern.ch/conferenceDisplay.py?confId=195580

25 YEARS OF THE CONSEIL DU LÉMAN

On 30 June, the Conseil du Léman will celebrate its 25th anniversary. The Conseil, which comprises representatives of the French departments of Ain and Haute-Savoie and the Swiss cantons of Geneva, Vaud and Valais, was set up to promote cross-border cooperation in the Lake Geneva region.

To celebrate its quarter centenary, the Conseil will be holding a day of discussions and activities, including a round-table discussion in CERN's Globe of Science and Innovation.

You are cordially invited to participate in the round-table discussion, which will be led by prominent representatives of each of the Conseil's five constituent authorities:

Round-Table Discussion

The Challenges of Cross-border Cooperation:

A look back at the role of the Conseil du Léman over the past 25 years.

Saturday, 30 June

9.30 am - 12.30 pm

Globe of Science and Innovation

During the afternoon, activities for the general public will be organised in the park of the Château de Prévessin-Moëns. The Le Joran secondary school (Prévessin-Moëns, Ain) will have a stand showcasing the scientific workshop that it has been running for the past two years jointly with the Moudon school (Vaud) and with CERN's help. The students, who have been studying the Universe, matter and energy, will organise various activities and put on displays to demonstrate their work.

For more information on the round-table discussion and the other celebratory events, please visit:

http://www.conseilduleman.org/

Language training

SUMMER ORAL EXPRESSION ENGLISH COURSE

An English Oral Expression course will take place this summer at some time between 25 June and 28 September. The exact dates will be decided according to the preferences of the students.

Schedule: to be determined (2 sessions of 2 hours per week).

Please note that this course is for learners who have a good knowledge of English (CERN level 7 upwards).

If you are interested in following this course, please enroll through AIS site.

Please be sure to indicate your planned absences in the comments field so we can schedule the course.

If you need more information please send a message to English.training@cern.ch

Academic training

25, 26, 27, 28 and 29 June 2012

ACADEMIC TRAINING LECTURE
Regular Programme

from 11:00 to 12:00 - Bldg. 500-1-001 - Main Auditorium

Superconducting Magnets with HTS

by Justin Schwartz / North Carolina State University

This series of academic training lectures will introduce the key topics related to the future of superconducting magnet technology based upon "high temperature superconductors" which have the potential to generate much higher magnetic fields than NbTi and Nb3Sn.

The series is comprised of five lectures. The first two will introduce some of the basic physics of the phenomenon of superconductivity, including the discovery of superconductivity, the difference between type I and type II superconductors, the thermodynamics of the superconducting state, magnetic vortices, magnetic flux pinning, the Bean critical state model and magnetization. The physics discussion will not focus on detailed quantitative rigor, but instead on conceptualization of the behavior.

The third lecture will introduce the technical superconducting materials that are used in conductors and magnets. After a brief overview of NbTi and Nb3Sn, the focus of this lecture will be on the emerging high temperature superconductors which have potential for future high energy physics magnets: (RE)BCO coated conductors and Bi2212 round wires. Each of these materials will be introduced, including their crystal structures (and how their intrinsic anisotropy influences their behaviors), how they are formed, and the challenges that must be overcome for them to become useful in high field magnets. Although these two materials have some similarities, from the perspective of technical challenges they are quite different; these differences will be presented and explored. Future directions that are likely to lead to significant improvements will also be presented.

The fourth lecture will focus primarily on the how technical superconductors respond to mechanical stress and stain, i.e., their electromechanical behavior. Again, after a brief overview of the behavior of of NbTi and Nb3Sn, the focus will be on (RE)BCO and Bi2212 conductors. For each material, their known behavior will be presented, including the performance limiting failure modes, the underlying causes of degradation and failure, and future directions that may lead to significant improvements.

The final lecture will discuss quench protection issues for HTS magnets. In this lecture, the focus will be on the unique challenges of HTS magnets, including the very slow quench propagation velocity and the uncertain failure limits. Potential solutions and current research directions will be discussed.

Justin Schwartz

Kobe Steel Distinguished Professor

Head, Department of Materials Science and Engineering

North Carolina State University - USA

Safety Training Course

SAFETY TRAINING: PLACES AVAILABLE IN JUNE

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

June 2012

(alphabetical order)

Habilitation électrique personnel non électricien (Basic course for non electricians)

27-JUN-12 to 28-JUN-12, 09.00 – 17.30, in French

Radiological Protection

26-JUN-12, 13.30 – 17.30, in English

Refresher course Self-Rescue Mask Training

26-JUN-12, 08.30 – 10.00, in French

26-JUN-12, 10.30 – 12.00, in French

Use of fire extinguisher – live exercises

27-JUN-12, 13.30 – 15.30, in French

29-JUN-12, 10.00 – 12.00, in French

Isabelle Cusato (HSE Unit)

Seminars

MONDAY 25 JUNE

ACADEMIC TRAINING LECTURE
REGULAR PROGRAMME
11:00 - Kjell Johnsen Auditorium, Bldg. 30-7-018

Superconducting Magnets with HTS (1/5)

J. SCHWARTZ / NORTH CAROLINA STATE UNIVERSITY

TUESDAY 26 JUNE

SPSC NEWS FROM EXPERIMENTS AND PROJECTS AT THE PS AND SPS
09:00 - Main Auditorium, Bldg. 500

Agenda of the 106th Meeting of the SPSC

ACADEMIC TRAINING LECTURE
REGULAR PROGRAMME
11:00 - Kjell Johnsen Auditorium, Bldg. 30-7-018

Superconducting Magnets with HTS (2/5)

J. SCHWARTZ / NORTH CAROLINA STATE UNIVERSITY

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

Solving the 3D Ising Model with the Conformal Bootstrap

SHEER EL-SHOWK / CEA SACLAY

WEDNESDAY 27 JUNE

LHCC MEETINGS
09:00 - Main Auditorium, Bldg. 500

Open and Closed Sessions 110 LHCC Meeting

ACADEMIC TRAINING LECTURE
REGULAR PROGRAMME
11:00 - Kjell Johnsen Auditorium, Bldg. 30-7-018

Superconducting Magnets with HTS (3/5)

J. SCHWARTZ / NORTH CAROLINA STATE UNIVERSITY

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

Recent anomalies in processes with heavy quarks

J. ZUPAN / UNIVERSITY OF CINCINNATI

THURSDAY 28 JUNE

INDUCTION SESSIONS
08:30 - Filtration Plant, Bldg. 222-R-001

INDUCTION PROGRAMME - 2nd Part

S. HEGARTY, M. SGOURAKI / CERN

THURSDAY 28 JUNE

ACADEMIC TRAINING LECTURE
REGULAR PROGRAMME
11:00 - Kjell Johnsen Auditorium, Bldg. 30-7-018

Superconducting Magnets with HTS (4/5)

J. SCHWARTZ / NORTH CAROLINA STATE UNIVERSITY

COLLIDER CROSS TALK
11:00 - TH Auditorium, Bldg. 4

Single top cross-sections in the t and tW channels

HUAQIAO ZHANG / MICHIGAN STATE UNIVERSITY (US), A. ORSO MARIA IORIO / UNIVERSITA E INFN (IT)

FRIDAY 29 JUNE

ACADEMIC TRAINING LECTURE
REGULAR PROGRAMME
11:00 - Kjell Johnsen Auditorium, Bldg. 30-7-018

Superconducting Magnets with HTS (5/5)

J. SCHWARTZ / NORTH CAROLINA STATE UNIVERSITY

MONDAY 2 JULY

CONFERENCES & WORKSHOPS
8:00 - TH Auditorium, Bldg. 4

String Phenomenology TH institute

TUESDAY 3 JULY

CONFERENCES & WORKSHOPS
9:00 - TH Auditorium, Bldg. 4

String Phenomenology TH institute

WEDNESDAY 4 JULY

CONFERENCES & WORKSHOPS
9:00 - TH Auditorium, Bldg. 4

String Phenomenology TH institute

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Introduction Welcome Presentation Introduction + CERN computing services and security + Workshop presentation

HOECKER A., LUEDERS, S., SCHWEMMER R. / CERN

10:15 Standard Model (1/6)

GODBOLE, R. / CENTRE FOR HEP, IIS, BANGALORE, INDIA

11:15 Standard Model (2/6)

GODBOLE, R. / CENTRE FOR HEP, IIS, BANGALORE, INDIA

12:00 Introduction Library Services

GENTIL-BECCOT, A. / CERN

WEDNESDAY 4 JULY

TH COSMO COFFEE
11:00 - TH Auditorium, Bldg. 4

The Fermi bubbles via a spectral components analysis of gamma-ray data

D. MALYSHEV

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

TBA

P. NASON

THURSDAY 5 JULY

CONFERENCES & WORKSHOPS
9:00 - TH Auditorium, Bldg. 4

String Phenomenology TH institute

SUMMER STUDENT LECTURE PROGRAMME
Globe, Bldg. 80-1-001

09:15 Standard Model (3/6)

GODBOLE, R. / CENTRE FOR HEP, IIS, BANGALORE, INDIA

10:15 Introduction to Accelerator Physics (1/5)

HOLZER, B. / CERN

11:15 Statistics (Introduction to Statistics) (1/4)

VOSS, H. / MPI HEIDELBERG, GERMANY

12:00 Discussion Session

GODBOLE. R. / HOLZER, B. / VOSS, H.

FRIDAY 6 JULY

CONFERENCES & WORKSHOPS
9:00 - TH Auditorium, Bldg. 4

String Phenomenology TH institute

SUMMER STUDENT LECTURE PROGRAMME
Globe, Bldg. 80-1-001

09:15 Standard Model (4/6)

GODBOLE, R. / CENTRE FOR HEP, IIS, BANGALORE, INDIA

10:15 Introduction to Accelerator Physics (2/5)

HOLZER, B. / CERN

11:15 Statistics (Introduction to Statistics) (2/4)

VOSS, H. / MPI HEIDELBERG, GERMANY

12:00 Discussion Session

GODBOLE. R. / HOLZER, B. / VOSS, H.

MONDAY 9 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Standard Model (5/6)
GODBOLE, R. / CENTRE FOR HEP, IIS, BANGALORE, INDIA

10:15 Introduction to Accelerator Physics (3/5)
HOLZER, B. / CERN

11:15 Introduction to Root
GROSSE-OETRINGHAUS, J. F. / CERN

12:00 Discussion Session
GODBOLE. R. / HOLZER, B. / GROSSE-OETRINGHAUS, J.

TUESDAY 10 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Standard Model (6/6)
GODBOLE, R. / CENTRE FOR HEP, IIS, BANGALORE, INDIA

10:15 Introduction to Accelerator Physics (4/5)
HOLZER, B. / CERN

11:15 Statistics (Introduction to Statistics) (3/4)
VOSS, H. / MPI HEIDELBERG, GERMANY

12:00 Discussion Session
GODBOLE. R. / HOLZER, B. / VOSS, H.

WEDNESDAY 11 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Concepts in HEP (Fundamental Concepts in Particle Physics) (1/4)
SERVANT, G. / CEA, SACLAY, FRANCE

10:15 Introduction to Accelerator Physics (5/5)
HOLZER, B. / CERN

11:15 Statistics (Introduction to Statistics) (3/4)
VOSS, H. / MPI HEIDELBERG, GERMANY

12:00 Discussion Session
SERVANT, G. / HOLZER, B. / VOSS, H.

THURSDAY 12 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Concepts in HEP (Fundamental Concepts in Particle Physics) (2/4)
SERVANT, G. / CEA, SACLAY, FRANCE

10:15 Detectors (Simulation of particle interaction in a detector) (1/5)
BORTOLETTO, D. / PURDUE UNIVERSITY, USA

11:15 Electronics, TDAQ (Introduction to Electronics, DAQ and Trigger Technology) (1/3)
VANDELLI, W. / CERN

12:00 Discussion Session
SERVANT, G. / BORTOLETTO, D. / VANDELLI, W.

FRIDAY 13 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Concepts in HEP (Fundamental Concepts in Particle Physics) (3/4)
SERVANT, G. / CEA, SACLAY, FRANCE

10:15 Detectors (Simulation of particle interaction in a detector) (2/5)
BORTOLETTO, D. / PURDUE UNIVERSITY, USA

11:15 Electronics, TDAQ (Introduction to Electronics, DAQ and Trigger Technology) (2/3)
VANDELLI, W. / CERN

12:00 Discussion Session
SERVANT, G. / BORTOLETTO, D. / VANDELLI, W.

MONDAY 16 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Concepts in HEP (Fundamental Concepts in Particle Physics) (4/4)
SERVANT, G. / CEA, SACLAY, FRANCE

10:15 Detectors (Simulation of particle interaction in a detector) (3/5)
BORTOLETTO, D. / PURDUE UNIVERSITY, USA

11:15 Electronics, TDAQ (Introduction to Electronics, DAQ and Trigger Technology) (3/3)
VANDELLI, W. / CERN

12:00 Discussion Session
SERVANT, G. / BORTOLETTO, D. / VANDELLI, W.

TUESDAY 17 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 BSM - Beyond the Standard Model (1/6)
GIUDICE, G. / CERN

10:15 Detectors (Simulation of particle interaction in a detector) (4/5)
BORTOLETTO, D. / PURDUE UNIVERSITY, USA

11:15 Triggers for LHC physics (1/2)
DAHMES, B. / UNIVERSITY OF MINNESOTA, USA

12:00 Discussion Session
GIUDICE, G. / BORTOLETTO, D. / DAHMES, B.

15:00 Introduction to CERN by the DG
HEUER R. / DG CERN

16:00 Welcome Drink
CERN - Mezzanine-Pas Perdus, Bldg. 500-1st floor

WEDNESDAY 18 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 BSM - Beyond the Standard Model (2/6)
GIUDICE, G. / CERN

10:15 Detectors (Simulation of particle interaction in a detector) (5/5)
BORTOLETTO, D. / PURDUE UNIVERSITY, USA

11:15 Triggers for LHC physics (2/2)
DAHMES, B. / UNIVERSITY OF MINNESOTA, USA

12:00 Discussion Session
GIUDICE, G. / BORTOLETTO, D. / DAHMES, B.

THURSDAY 19 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 BSM - Beyond the Standard Model (3/6)
GIUDICE, G. / CERN

10:15 From Raw Data to Physics Results (Experimental Physics) (1/3)
BOYD, J. / CERN

11:15 Monte Carlo (Introduction to Monte Carlo techniques in High Energy Physics) (1/2)
SJOSTRAND, T. / LUND UNIVERSITY, SWEDEN

12:00 Discussion Session
GIUDICE, G. / BOYD, J. / SJOSTRAND, T.

FRIDAY 20 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 BSM - Beyond the Standard Model (4/6)
GIUDICE, G. / CERN

10:15 From Raw Data to Physics Results (Experimental Physics) (2/3)
BOYD, J. / CERN

11:15 Monte Carlo (Introduction to Monte Carlo techniques in High Energy Physics) (2/2)
SJOSTRAND, T. / LUND UNIVERSITY, SWEDEN

12:00 Discussion Session
GIUDICE, G. / BOYD, J. / SJOSTRAND, T.

MONDAY 23 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 BSM - Beyond the Standard Model (5/6)
GIUDICE, G. / CERN

10:15 From Raw Data to Physics Results (Experimental Physics) (3/3)
BOYD, J. / CERN

11:15 Detector simulation
RIBON, A. / CERN

12:00 Discussion Session
DVALI, G. / BOYD, J. / RIBON, A.

TUESDAY 24 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 BSM - Beyond the Standard Model (6/6)
GIUDICE, G. / CERN

10:15 SM Physics at hadr.coll._exp_ (Experimental QCD, top, W/Z and Higgs Physics at hadron colliders) (1/4)
MAETTIG, P. / PROF UNIVERSITAET WUPPERTAL, GERMANY

11:15 Nuclear Physics
BLUMENFELD, Y. / CERN

12:00 Discussion Session
DVALI, G. / MAETTIG, P. / BLUMENFELD, Y.

WEDNESDAY 25 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Neutrino Physics (1/3)
KAYSER, B. / FERMILAB

10:15 SM Physics at hadr.coll._exp_ (Experimental QCD, top, W/Z and Higgs Physics at hadron colliders) (2/4)
MAETTIG, P. / PROF UNIVERSITAET WUPPERTAL, GERMANY

11:15 Heavy Ions (From Heavy-Ion Collisions to Quark Matter) (1/3)
ANTINORI, F. / INFN PADOVA AND CERN

12:00 Discussion Session
KAYSER, B. / MAETTIG, P. / ANTINORI, P.

THURSDAY 26 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Neutrino Physics (2/3)
KAYSER, B. / FERMILAB

10:15 SM Physics at hadr.coll._exp_ (Experimental QCD, top, W/Z and Higgs Physics at hadron colliders) (3/4)
MAETTIG, P. / PROF UNIVERSITAET WUPPERTAL, GERMANY

11:15 Heavy Ions (From Heavy-Ion Collisions to Quark Matter) (2/3)
ANTINORI, F. / INFN PADOVA AND CERN

12:00 Discussion Session
KAYSER, B. / MAETTIG, P. / ANTINORI,P.

FRIDAY 27 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Neutrino Physics (3/3)
KAYSER, B. / FERMILAB

10:15 SM Physics at hadr.coll._exp_ (Experimental QCD, top, W/Z and Higgs Physics at hadron colliders) (4/4)
MAETTIG, P. / PROF UNIVERSITAET WUPPERTAL, GERMANY

11:15 Heavy Ions (From Heavy-Ion Collisions to Quark Matter) (3/3)
ANTINORI, F. / INFN PADOVA AND CERN

12:00 Discussion Session
KAYSER, B. / MAETTIG, P. / ANTINORI, P.

MONDAY 30 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Antimatter (Antimatter in the Lab) (1/3)
DOSER, M. / CERN

10:15 BSM (Search for Beyond the SM Physics at hadron colliders) (1/3)
SPHICAS, P. / CMS, CERN AND UNIVERSITY OF ATHENS

11:15 Particle Accelerators in Cancer Therapy (1/2)
AMALDI, U. / TERA FOUNDATION MILANO, ITALY

12:00 Discussion Session
SPHICAS, P. / DOSER, M. / AMALDI, U.

TUESDAY 31 JULY

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Antimatter (Antimatter in the Lab) (2/3)
DOSER, M. / CERN

10:15 BSM (Search for Beyond the SM Physics at hadron colliders) (2/3)
SPHICAS, P. / CMS, CERN AND UNIVERSITY OF ATHENS

11:15 Particle Accelerators in Cancer Therapy (2/2)
AMALDI, U. / TERA FOUNDATION MILANO, ITALY

12:00 Discussion Session
SPHICAS, P. / DOSER, M. / AMALDI, U.

WEDNESDAY 1 AUGUST

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Antimatter (Antimatter in the Lab) (3/3)
DOSER, M. / CERN

10:15 BSM (Search for Beyond the SM Physics at hadron colliders) (3/3)
SPHICAS, P. / CMS, CERN AND UNIVERSITY OF ATHENS

11:15 String Physics
LAMBERT, N. / CERN

12:00 Discussion Session
SPHICAS, P. / DOSER, M. / LAMBERT, N.

THURSDAY 2 AUGUST

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Astroparticle Physics (1/3)
BINETRUY, P. / APC U. PARIS 7 DENIS DIDEROT

10:15 Physics at future colliders
LE DIBERDER, F. / LAL, ORSAY

11:15 Future Collider Technologies (1/2)
SCHULTE, D. / CERN

12:00 Discussion Session
BINETRUY, P. / LE DIBERDER, F. / SCHULTE, D.

FRIDAY 3 AUGUST

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Astroparticle Physics (2/3)
BINETRUY, P. / APC U. PARIS 7 DENIS DIDEROT)

10:15 Astroparticle Physics (3/3)
BINETRUY, P. / APC U. PARIS 7 DENIS DIDEROT

11:15 Future Collider Technologies (2/2)
SCHULTE, D. / CERN

12:00 Discussion Session
BINETRUY, P. / SCHULTE, D.

MONDAY 6 AUGUST

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Cosmology (Introduction to Cosmology) (1/4)
VERDE, LICIA / ICREA AND ISC, UNIVERSITY OF BARCELONA

10:15 B Physics and CP Violation (1/4)
RAVEN, G. / NIKHEF, AMSTERDAM, NETHERLANDS

11:15 LHC Upgrade - Accelerator Physics Challenges for the LHC upgrade (1/4)
HOLZER B. / CERN

12:00 Discussion Session
VERDE, L. / RAVEN, G. / HOLZER, B.

TUESDAY 7 AUGUST

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Cosmology (Introduction to Cosmology) (2/4)
VERDE, LICIA / ICREA AND ISC, UNIVERSITY OF BARCELONA

10:15 B Physics and CP Violation (2/4)
RAVEN, G. / NIKHEF, AMSTERDAM, NETHERLANDS

11:15 LHC Upgrade - Accelerator Physics Challenges for the LHC upgrade (2/4)
HOLZER B. / CERN

12:00 Discussion Session
VERDE, L. / RAVEN, G. / HOLZER, B.

WEDNESDAY 8 AUGUST

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Cosmology (Introduction to Cosmology) (3/4)
VERDE, LICIA / ICREA AND ISC, UNIVERSITY OF BARCELONA

10:15 B Physics and CP Violation (3/4)
RAVEN, G. / NIKHEF, AMSTERDAM, NETHERLANDS

11:15 LHC Upgrade - Accelerator Physics Challenges for the LHC upgrade (3/4)
HOLZER B. / CERN

12:00 Discussion Session
VERDE, L. / RAVEN, G. / HOLZER, B.

17:00 Poster Session
CERN: MEZZANINE (OUTSIDE MAIN AUDITORIUM)

THURSDAY 9 AUGUST

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

09:15 Cosmology (Introduction to Cosmology) (4/4)
VERDE, LICIA / ICREA AND ISC, UNIVERSITY OF BARCELONA

10:15 B Physics and CP Violation (4/4)
RAVEN, G. / NIKHEF, AMSTERDAM, NETHERLANDS

11:15 LHC Upgrade - Accelerator Physics Challenges for the LHC upgrade (4/4)
HOLZER B. / CERN

12:00 Discussion Session
VERDE, L. / RAVEN, G. / HOLZER, B.

FRIDAY 10 AUGUST

SUMMER STUDENT LECTURE PROGRAMME
Main Auditorium, Bldg. 500

10:15 Closing Lecture
Y.K. KIM / FERMILAB, UNIVERSITY OF CHICAGO