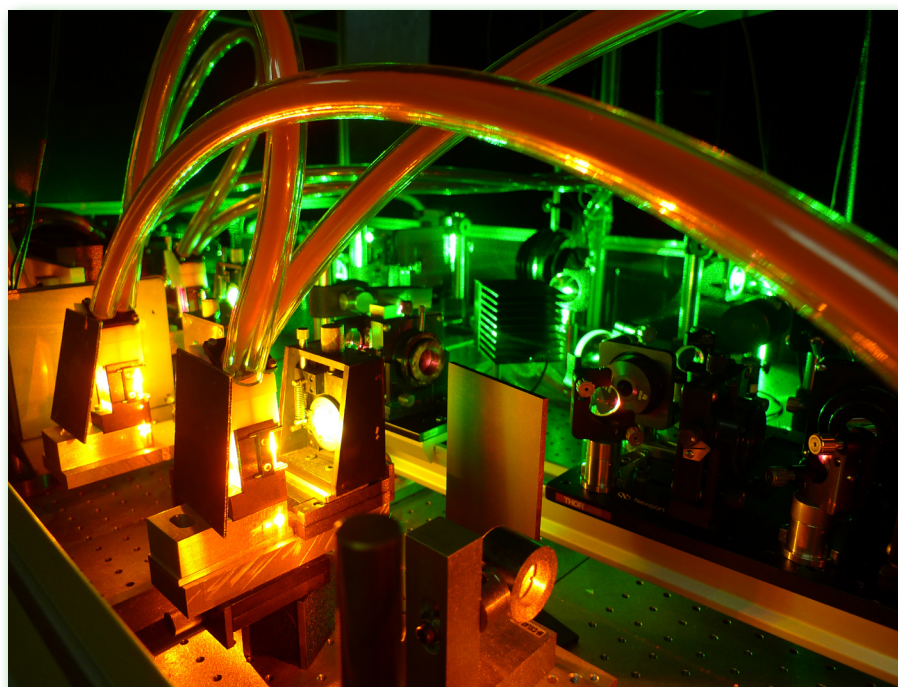




ISOLDE experiment explores new territory in nuclear fission



Resonance Ionization Laser Ion Source (RILIS) in action at ISOLDE. RILIS was instrumental in providing the pure beam necessary for the successful nuclear fission experiment.

In nuclear fission, the nucleus splits into two fragments (daughter nuclei), releasing a huge amount of energy. Nuclear fission is exploited in power plants to produce energy. From the fundamental research point of view, fission is not yet fully understood decades after its discovery and its properties can still surprise nuclear physicists.

An international collaboration led by the University of Leuven, Belgium, exploiting ISOLDE's radioactive beams, has recently discovered an unexpected new type of asymmetric nuclear fission, which challenges current theories. The surprising result opens the way for new nuclear structure models and further theories to elucidate the question.

The way the process occurs can tell us a lot about the internal structure of the nucleus and the interactions taking place inside the complex nuclear structure. In particular, processes in which fission is observed at an energy just above the minimum required are the most likely to tell us which quantum corrections should be applied to the liquid-

(Continued on page 2)



A word from the DG

The end of a remarkable era

An important era in particle physics is coming to an end: the US Department of Energy announced on Monday that it will not fund an extension to Tevatron running beyond 2011. It is a poignant moment for particle physics as we prepare to bid farewell to a machine that has changed our view of the Universe, and played a significant role in paving the way for the new era that is opening up with the LHC.

(Continued on page 2)

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A word from the DG

(Continued from page 1)

The end of a remarkable era

The Tevatron has been at the high-energy frontier of particle physics for over a quarter of a century. That's a remarkable achievement by any account, and the physics results are there to prove it. As well as bringing us the discovery of the top quark in 1995, the Tevatron's experiments have provided vitally important precision measurements covering the full spectrum of Standard Model physics, not to mention hints of what may lie beyond. With several months of running still to come, it would be a foolish gambler who bet against further new physics emerging before the Tevatron's last beams are extracted in the autumn.

Custodianship of the high-energy frontier passed to CERN at the end of 2009 when LHC collision energies surpassed those of the Tevatron for the first time. Exciting though this is for CERN, I am ever mindful of the help that Fermilab has given us over the years in achieving that milestone, and that Tevatron scientists continue to bring to the LHC programme thanks to their decades of experience.

The fates and missions of CERN and Fermilab have always been firmly intertwined, and this week's decision does nothing to change that. This year, I will be working closely with Pier Oddone and other lab directors to define a global vision for particle physics, and we'll be discussing that subject at the ICFA seminar here at CERN in October. Part of that vision is clear already – there is more than one important frontier in the quest to explore the particle world. While the LHC is currently the world's energy frontier facility, Fermilab has long made it clear that its post-Tevatron strategy would be to pursue the intensity frontier. On past record, we can expect another trail blazing performance, and I wish the lab every success as it moves on to this challenging and vital next phase.

Rolf Heuer

ISOLDE experiment explores new territory in nuclear fission

(Continued from page 1)

drop model (classical description) to fully understand nuclear behaviour.

At ISOLDE, an international collaboration involving scientists from nine countries has been studying the ^{180}Tl isotope. Via radioactive decay, the thallium isotope transforms into the ^{180}Hg isotope of mercury (^{180}Hg), which subsequently fissions. "According to previous experiments and related theoretical models, we were expecting a symmetric mass distribution of the fission fragments," says A. N. Andreyev, the principal investigator from the KU Leuven team (presently working at the University of the West of Scotland). "However, we measured an asymmetric mass distribution of the fission fragments. This discrepancy is leading us to rethink our theories on the interplay between the macroscopic liquid-drop model and the microscopic single-particle shell corrections to apply in the description of these nuclei."

The result follows other attempts to understand similar fission processes that were

made about 20 years ago by scientists in Dubna. "Previous experiments had to deal with huge amounts of contaminants in the samples of the parent element. Using ISOLDE's unique laser ion source that makes it possible to selectively ionize elements, we can obtain a high-purity sample of ^{180}Tl ($T_{1/2}=1.1$ s). This allows us to determine with an unprecedented accuracy the different branching ratios of the various decays", explains Andreyev.

The unexpected result of ISOLDE's experiment will stimulate the development of new theoretical approaches to the fission process. "We have worked on a new description of the internal structure of the Hg nucleus, which is able to predict the asymmetric mass splits that we have observed. Further experiments and new theories are needed to elucidate the dynamics of the fission processes, at least for nuclei located in the region around thallium in the nuclei chart," concludes Mark Huyse, another member of the team from KU Leuven.

CERN Bulletin

LHC Report: Even accelerators need a break

In addition to the maintenance work a number of modifications are being made to the accelerator for 2011. These include

the installation of small solenoids to combat the build-up of electrons inside the vacuum chamber with the increasing proton beam intensity; the replacement of a number of UPS (Uninterruptible Power Supply) installations, which are vital to ensuring the continuity of the electrical supply to essential systems such as the cryogenics; the installation of additional capacitors on the QPS (Quench Protection system) to prepare for a possible increase in beam energy in 2011; the completion of the programme to replace all electrical transformers containing traces of PCBs (polychlorinated biphenyls); plus a host of other improvements to RF, beam instrumentation, power converters, kickers, etc., which are all part of the life of a CERN accelerator. The work is proceeding as planned and the preparations for refilling the machine with liquid helium are already getting under way this week.

The technical stop does not just concern the LHC: during the same period a similar maintenance programme is under way in the injector chain, namely at LINAC2, PSB,

The LHC technical stop is in full swing, with a lot of essential maintenance work on the accelerator services, such as electricity distribution, cooling, ventilation, cryogenic systems, access and safety systems, vacuum, cranes and lifts, being crammed into the few weeks before the start of the 2011 run in February.

PS and SPS. An example of this work is the programme to exchange 8 magnets in the SPS machine. This is part of a regular preventive maintenance programme in which the SPS magnets are exhaustively tested by teams from TE/MS at the end of each year and those presenting any initial signs of weakness are changed during the accelerator stop. This is a complicated task as it requires the cooperation of more than 6 different groups and teams all working together to very tight deadlines. At the PS, the present technical stop is also being used to begin the commissioning of the new PS main power supply (POPS, see Bulletin 21-22/2010). This commissioning will begin at the end of January. In 2011, POPS will replace the old SIEMENS rotating machine, which has powered the PS magnets since 1968. These are two examples of the extensive work required to ensure that the LHC injectors remain fully operational for many years to come.

All planned activities are on schedule for LHC hardware testing to begin on 24 January, starting with the Electrical Quality Assurance (ELQA) testing of the electrical circuits. The technical stop will finish at the end of January, and beam operation will start again in mid-February after a two-week hardware-commissioning period.

CERN Bulletin



Team changing a magnet in the SPS accelerator.

QART - the CERN facility for quality assurance

How would your detector perform in a very high magnetic field? Or at 60°C and high humidity? Will it work for 10 or more years? Answering these questions requires specialised and thorough testing. This can be done at the Quality Assurance and Reliability Testing Laboratory (QART) - a top-notch testing facility based at CERN, providing invaluable support for CERN projects. The QART lab has become a service in 2011, and invites all projects to use its equipment and expertise.

"When a project incorporates quality assurance from the very beginning, it can save time and money," says Alan Honma, a physicist at the QART Laboratory. The QART lab was originally developed in 2008 for the LHC upgrades and the quality assurance of the LHC experiments' silicon detector upgrades. While this remains the priority, its sophisticated equipment and expertise has become available for all CERN projects - providing them with free assistance with testing issues.

When developing the lab, the QART group selected the larger, more specialised and more expensive pieces of equipment that individual groups would not typically have. "Many projects develop quality assurance plans yet require extra resources or equipment to carry them out," says Honma. "We can also help smaller projects that might not know how to build a comprehensive quality assurance plan, seeing them through the entire process - from creation to finished product."

The strongest expertise the QART group can offer is in developing reliability tests based around the specific needs of a project. If a device needs to last a certain amount of time under very specific conditions, the QART group can devise a testing strategy to prove whether or not it can. This type of reliability testing is especially needed when the device needs to work flawlessly for a long time (10-20 years in the case of some LHC detectors) in a harsh environment with limited or no access for repair. Such testing can be performed in industry - but often at high cost and under test conditions which may not match the operating environment of the actual device.

(Continued on page 5)

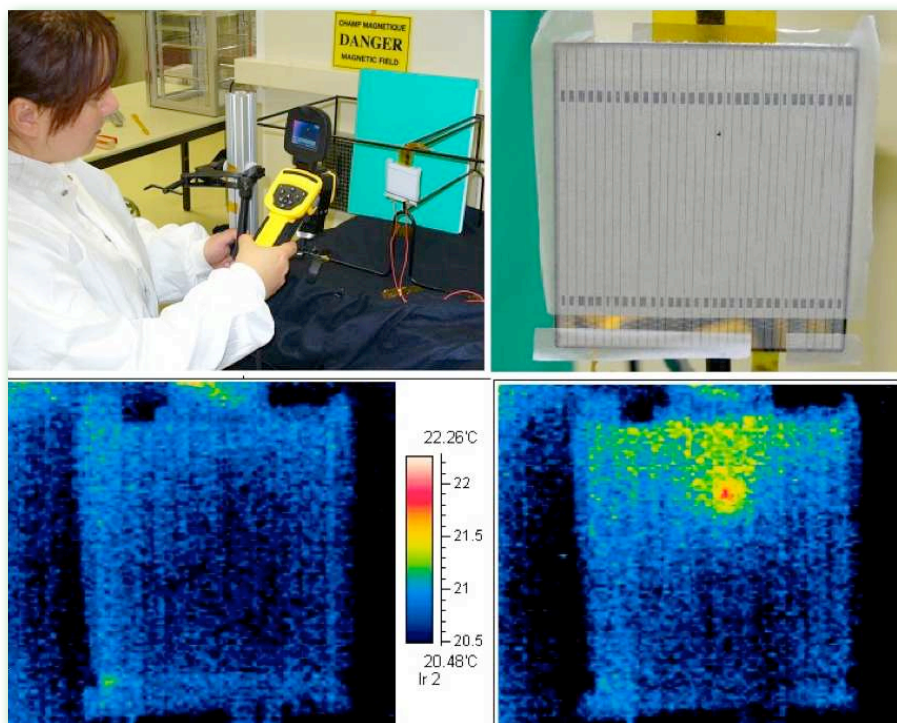


Image 1 - A portable high-sensitivity infra-red thermal imaging video camera (top left) is used to observe the thermal profile of a silicon strip sensor (top right). The thermal images taken before (bottom left) and after (bottom right) applying voltage to the device clearly show a hot spot developing on the sensor, indicating a serious defect. The infra-red camera is an example of the variety of sophisticated equipment in the QART lab available to CERN projects for the analysis of problems and environmental testing.

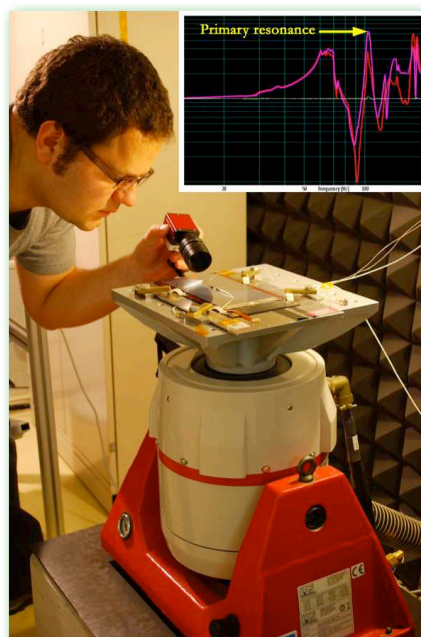


Image 2 - A silicon tracking detector module prototype is fastened to the support head of the high-payload vibration tester (the white cylindrical device mounted on a red base). Several accelerometers measure the actual G-forces on the silicon sensors as a function of frequency. In the insert top right, the sharp peak of a strong vibrational resonance is observed close to 100Hz.

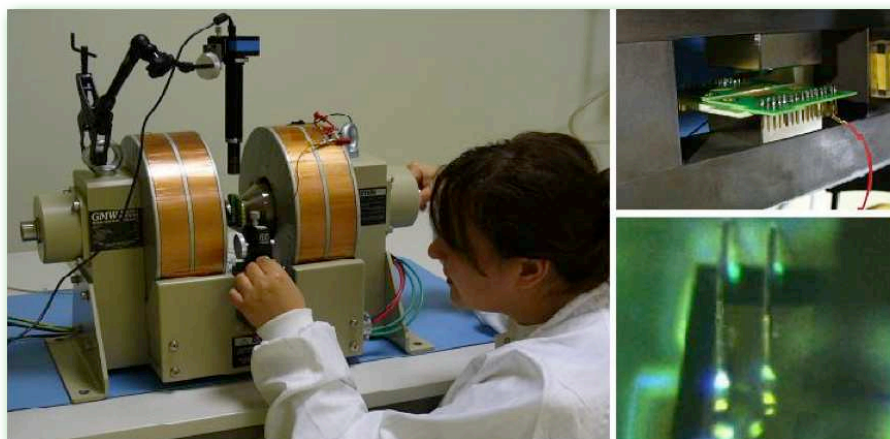


Image 3 - This small aperture laboratory electromagnet is capable of producing a 2T field - the same field strength as in the ATLAS solenoid magnet and about 50% of that in the CMS magnet. In this study, the risk of breakage of electronic micro-connections ('bond wires') used in a real circuit from an LHC experiment is analysed. A small alternating current passing through the wires in a very high magnetic field can lead to vibrations (see video). If this occurs at the resonant frequency of the bond wires, the metal fatigue caused by the vibrational motion can break the wires.

Microcosm 2.011

The QART group has also carried out research to study potential issues that could affect experiments. "For example, we are investigating the effect that high magnetic fields have on micro-connection ('bond') wires used in many LHC detectors and electronics," explains Honma. "These could break due to resonant oscillations (see video). Once developers are aware of the issue, it is an easy problem to fix." The group is currently developing guidelines for these types of issues, getting the information out there before they cost time and resources.

If you would like assistance or advice in developing a quality assurance plan or a reliability testing programme, do not hesitate to contact the QART group, or visit the QART website for further information at:

bondlab-qa.web.cern.ch/bondlab-qa/QA.html

Watch the video:

<http://cdsweb.cern.ch/record/1321862>

Katarina Anthony

New Year, and a new look for Microcosm! CERN's popular exhibition centre will undergo a transformation that will see, among other things, the installation of a new area dedicated to modern physics experiments for school groups. "Microcosm will keep its main features and character," says Rolf Landua, Head of the Education Group, which is in charge of the project. "While some parts will be replaced by more modern exhibition technologies and contemporary scenography, others will be moved to allow a better visitor flow and make room for the brand-new school lab and public demonstration area."

The new version will extend Microcosm's mission further. Together with the "Universe of Particles" exhibition, it will continue to complement the standard visits of the CERN site. It will also give individual and professional visitors - often guided by CERN staff - a possibility to get a quick overview of CERN. But the main new feature will be the school lab with 10 work places, where groups of up to 30 students at a time will be able to carry out some of the key experiments of modern physics. They will be under the supervision of their teachers, supported by a CERN instructor.

The demand for such a 'hands-on' facility at CERN comes directly from the 4000 teachers who have followed the CERN teacher programmes over recent years. "We asked them what they missed when they visited CERN with their school classes," says Landua. "The overwhelming majority answered that they would love to have an additional half-day filled with practical activities related to modern physics. So we decided to go ahead and fulfil their wish."

Microcosm, CERN's first exhibition centre, will soon be upgraded. While keeping its present character and many of its nice features, the use of new cutting-edge exhibition technologies together with an area for student experiments and physics demonstrations will make version 2.011 even more attractive to the general public and school classes.

The set of experiments to be installed has yet to be finalized, but it will certainly include the Rutherford, Thomson and 'natural radioactivity' experiments that are already present in Microcosm. Students will also be able to study the photoelectric effect, atomic spectra, atomic collisions (Franck-Hertz) and electron diffraction. Furthermore, it will be possible to detect cosmic rays by constructing a low-cost cloud chamber, by operating a cosmic ray scintillation counter or by using the Medi-Pix chip. Another option would be the use of a high-temperature superconductor to demonstrate superconductivity and the Meissner effect.

The educational area will replace the present 'movie theatre' and the exhibition on the history of computing, which will become part of a dedicated visit point in Building 513. Finally, the mock-up of the LHC tunnel will be moved to a different location inside Microcosm. The new Microcosm should be ready by the end of the year, representing a nice 2011 Christmas present from CERN to its visitors.

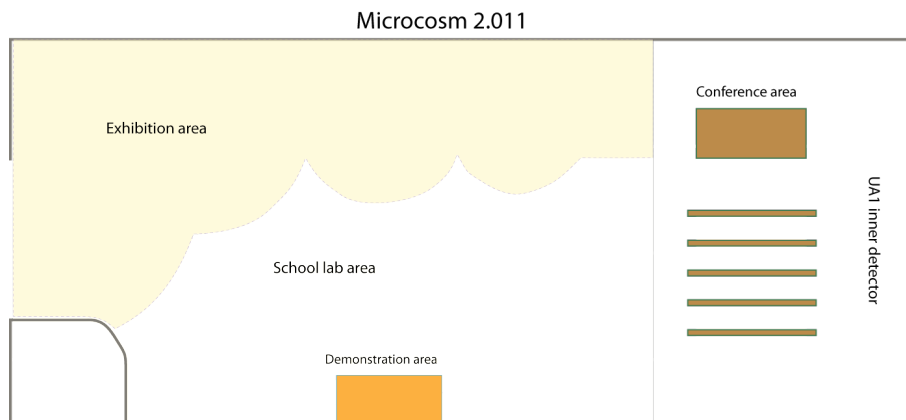
CERN Bulletin



Did you know?

The QART facility is a free service run by PH/DT, and is operated and maintained by two full-time technical personnel. It is located in the Departmental Silicon Facility in Building 186, which also houses the wire bonding lab.

Equipment at the QART facility is available for CERN projects to use or borrow free-of-charge. It includes a large-volume, rapid-cycling climatic chamber with humidity control, a small thermal cycling chamber, a portable infra-red thermal imaging video camera (Image 1), a vibration tester (Image 2), a high magnification stereo-microscope (320x) with video camera, a small aperture electromagnet with a magnetic field up to 2T (Image 3 and video), and a bond wire-pull tester.



Layout of the new Microcosm 2.011 exhibition.

CERN@school shoots for the stars

In today's educational environment, a pioneering school physics programme that involves students in authentic research

seems unlikely. But in the UK, the CERN@school programme is providing the resources for school students to do just that. "We develop projects which allow students to work alongside scientists and engineers before they go to university," says Becky Parker, head of the Langton Star Centre and founder of the CERN@school programme. "Thanks to these programmes, students can make a genuine contribution to global scientific research. LUCID is the culmination of three years of efforts by the students."

Surrey Satellite Technology Limited, one of the key developers of the project, will be launching LUCID on board TechDemoSat-1 - an industry-led satellite which will be one of the first projects to use the UK Space Agency's International Space Innovation Centre. LUCID will examine the subtler aspects of cosmic rays and monitor radiation for NASA. Its data will be compared

CERN technology will be taking a stellar journey as the Langton Ultimate Cosmic ray Intensity Detector (LUCID) is launched into space in 2012. LUCID has been designed by students from the CERN@school programme using Timepix chips from the Medipix Collaboration at CERN.

with CERN@school's Earth-bound detectors, smaller versions of LUCID monitoring cosmic rays in 11 different schools across the UK. Not only is the project pioneering in its data collection, but LUCID will also provide the Timepix chips with a space qualification.

CERN@school has also benefited the teachers and scientists supporting the students. "When collaborating with our 'young researchers', scientists are often motivated to find new ways to participate in school science," says Parker. "Meanwhile, our science teachers have been able to explore scientific research usually reserved for practising researchers - enhancing their knowledge of the subject, making them better teachers, and providing a new level of career development." With good physics teachers becoming increasingly scarce in the UK, CERN@school is taking much needed steps

to encourage and retain physics teachers - perhaps even inspiring researchers to consider a career in education!

While students are busy at work preparing LUCID for its launch in 2012, the Langton Star Centre is in discussion with ESA about a second stellar project. Plans for a "LUCID 2" are currently in development for the ESMO (European Student Moon Orbiter) satellite.

Katarina Anthony

LHC Concerto

From a technical point of view, converting textual or numerical information into sound signals is the same as creating a graph, except that a song is made up of notes and tones instead of lines and points. From the point of view of a physicist, two conditions must be satisfied in order to represent a set of data accurately: uniqueness – a single item of data must be linked to one and only one point or sound - and covariance, which means that the graph or the melody must vary as quickly as the data. In music, this second condition is satisfied by frequency, timbre and volume. "From an early age, we learn to perform visual data analysis, while no one ever teaches us how to perform auditory data analysis," says Domenico Vicinanza, author of the GEANT song, who works at DANTE (see box) as a project support officer and product manager. "However, we are constantly performing auditory data analysis, for example, every time we recognize a person on the phone. The ear naturally recognizes patterns, structures and sequences. If we are searching for a particular value which, for some reason, is distinguished from a series of data, identifying it on a graph can be tricky and it can be easier to recognize a wrong note." On the other hand, the eye can take in an overall view, which is difficult to achieve with sound. So, the analysis of data could be improved by the use of graphs together with an auditory analysis. Sonification can be useful in developing strategies to translate data into audible information to help blind researchers carry out comprehensive data analyses exclusively from sounds. "For instance, to transform a graph into sounds that show the rise

Recently, a new song was created to celebrate the tenth anniversary of GEANT – the high-speed pan-European communication network dedicated to research and education. The names of the national networks interconnected by GEANT and that allow data to be exchanged between European research institutes were turned into music. The technique is known as 'sonification', and aims at complementing the graphic representation of data with sound.

of the price of bread as a function of time, you may use a higher note for a higher price. If there is a big price hike, there will be a fast rise in pitch," explains Domenico Vicinanza. "In this case, you are still only using the ear's ability to process information in sequence. It is also possible to make a single sound that, like a graph, can give an instant overview of all the information. In this case it is possible to code into the sound spectrum - rather than into the melody – the data to be sonified," he explains.

The huge amount of data coming from the LHC experiments is very inspiring to any sonification expert, to the point where several projects have come to life in recent years. Domenico Vicinanza is upping the ante: more than sonification, he is thinking of orchestration! "I would like to get something of artistic significance from the data used by the researchers, composing a concerto for a string quartet, where each musical instrument represents one of the four major LHC experiments. This would be a metaphor for scientific collaboration and reflect the complementarity of the experiments; each instrument plays its own score coming from the data of one experiment, yet it is only upon hearing them all together that you appreciate the completeness and beauty of the song," says Domenico Vicinanza. Can't you already hear a beautiful sound in your ears?

Francesco Poppi



Did you know?

The curriculum vitae of Domenico Vicinanza

Domenico Vicinanza graduated in piano and composition from the Salerno Academy of Music where he discovered an interest in data sonification while teaching music to visually impaired students. He developed different sonification strategies depending on the type of data to be processed, through a programme of advanced studies carried out at the Department of Informatics and Mathematics of the University of Salerno from 2001 to 2006. These studies led to a collaboration with the Italian National Institute of Geophysics and Volcanology (INGV) in Catania to develop an auditory analysis of seismic data from the Mount Etna area (Sicily). Domenico Vicinanza is now working at DANTE as a project support officer and product manager. DANTE (<http://www.dante.net/>) is a non-profit organisation, coordinating large-scale projects co-funded by the European Commission, and working in partnership with European National Research and Education Networks (NRENs) to plan, build and operate advanced networks for research and education. Established in 1993, DANTE has been fundamental to the success of pan-European research and education networking. DANTE has built and operates GEANT, which provides the data communications infrastructure essential to the success of many research projects in Europe.

Knowledge transfer to Africa

Although digital libraries are rapidly expanding across the Globe, a large proportion of the professionals working in the field have not followed relevant training, which poses a real challenge. To help to remedy the situation and encourage the development of digital libraries in Africa, CERN and UNESCO organised a training workshop at the National Centre for Scientific and Technical Research in Rabat (Morocco) in November. "The success of the first CERN-UNESCO digital library school, which took place in Rwanda in 2009, encouraged us to repeat the exercise, this time in a French-speaking country," says Jens-Vigen, head of CERN's Scientific Information Service and one of the workshop's organisers. "The decision to hold the school in Morocco, which has great potential in the digital domain, was taken jointly by CERN and UNESCO. This collaboration with UNESCO offers an excellent opportunity for CERN to establish contacts in countries that are not currently very active in particle physics. UNESCO is able to provide funding in the framework of its International Basic Sciences Programme (IBSP), while CERN has experience in organising this type of workshop."

For the second year running, a team from CERN comprising experts in the design and running of digital libraries has taken part in a workshop in Africa. The aim of the workshop, which was held in Morocco from 22 to 26 November 2010, was to pass on their expertise and help train librarians and IT engineers from five African countries.

In Africa it often happens that documents are inaccessible or cannot be found due to a lack of appropriate infrastructures. "These workshops are an opportunity for the participants to analyse and compare their situation and to acquire knowledge that can help to offset these shortcomings," explains Jérôme Caffaro, an IT engineer at CERN and another of the workshop's organisers. Practical exercises on the Invenio platform (the digital library system developed at CERN) helped the instructors to illustrate the concepts they were presenting during the training and enabled the participants to get to grips with installing and maintaining library management software and the various processes for which it can be used. "The participants also learned that there are various solutions that can meet their needs and help them manage their documents more efficiently and autonomously," continues Jérôme. "Invenio is able to manage large quantities of documents, and the number of documents to be handled can only increase in Africa, as in the rest of

the world," says Peter Amoako-Yirenkyi, a former student and currently professor of mathematics at the KNUST University of Science and Technology in Ghana. Peter was on hand at the Morocco workshop to set up the software in conjunction with the team of specialists.

Thirty librarians and IT specialists from five different African countries took part in the workshop. Fifteen of them came from various institutions in the host country, Morocco, and the other fifteen came from Benin, Cameroon, Senegal and Tunisia. These workshops offer a unique opportunity for IT engineers and librarians to work together. "It has become clear that what is obvious to an engineer is not obvious to a librarian, and vice versa," emphasises Annette Holtkamp, a physicist librarian working at CERN who was an instructor at the workshop. "To optimise the way in which digital libraries are run and to establish a common understanding of the associated programmes, it is important to have a common basis between librarians and IT engineers," agrees Ludmila Marian, an IT engineer working in CERN's IT Department, who also took part in the workshop.

In June, some of the participants will come to CERN to follow a one-month intensive training programme on the Organization's digital libraries.

Laëtitia Pedroso



Participants in the training workshop at the National Centre for Scientific and Technical Research in Rabat (Morocco).

Competencies - a roadmap for CERN Staff

What are competencies? Competencies are the characteristics that allow you to do the job you have been assigned.

In more precise terms, competencies may be described as the knowledge, skills and types of behaviour that individuals demonstrate in carrying out a given task. Listing all the competencies that make CERN work is an impossible task but one can identify the two main types: technical and behavioural. Both are needed to work effectively in this Organization.

While technical competencies are simply the domains of expertise that CERN needs – examples include physics, mechanical engineering and information technology – behavioural competencies are those aspects of our own behaviour which can have a positive or negative impact on the way the task is carried out. CERN's behavioural competencies are underpinned by the Organization's values and include both core competencies applicable to all staff members – such as accountability, managing oneself, achieving results, communicating, solving problems, learning and sharing knowledge, building relationships, working in teams and in the interest of the Organization, flexibility – and leadership

Back in November, the new CERN Competency Model (CCM), a framework defining the competencies that “drive performance and lead to excellence”, was introduced by Anne-Sylvie Catherin, Head of the Human Resources (HR) Department, in a special edition of the “Spotlight on CERN” interviews.

competencies where applicable.

But how are these competencies used? In more specific terms: how will this competency model affect our performance? Practically speaking, the competency model will provide us with a reference framework and a common language with which to discuss performance and, in this respect, the sample indicators supporting each competency will help us to understand what are the types of behaviour that are valued by the Organization.

Time-wise, there will be no change in the performance appraisal process for the reference year 2010 (2010-2011 annual MARS exercise). However, before the next annual exercise begins, we should be aware that we will be preparing the ground for future discussions on competencies. This means that, at the end of the next annual exercise, the results of our work objectives will be expressed in terms of “what?” (achievements) and “how?” (competencies demonstrated or needing further development). There will be no rating of competencies as

such during the performance appraisal, and the overall performance rating (particularly meritorious, meritorious and non-meritorious) will remain unchanged.

The Competency Model will have an impact not only on the performance appraisal but also on many other HR activities, such as the selection criteria used during recruitment; the criteria used in the middle and at the end of the probation period; the assessment criteria used during the limited duration to indefinite contract process and the criteria used in the career path guide during promotion exercises.

To illustrate the CCM, the HR Department has published a dedicated webpage containing explanatory documents and video interviews. It has also launched a new training campaign which has initially targeted staff members involved in the recruitment process but which has been extended to all staff members as from January 2011. The half-day training course aims at introducing us to competencies in general, with practical examples and activities, and providing us with a hands-on opportunity to discover the new CERN Model in particular. We are all encouraged to attend it. For more information, please contact:

info-competencymodel@cern.ch

CERN Bulletin



Ombuds' Corner *Le coin de l'Ombuds*

In this series, the Bulletin aims to explain the role of the Ombuds at CERN by presenting practical examples of misunderstandings that could have been resolved by the Ombuds if he had been contacted earlier. Please note that, in all the situations we present, the names are fictitious and used only to improve clarity.

A section leader on a limited-duration contract

Bob* has been working at CERN for almost four years on a limited-duration contract. Due to the early retirement of one of his colleagues, he was appointed Section Leader very early in his career, as he was the only one who was able to replace this person. As Section Leader, Bob had to provide annual assessments for several staff members, which he did in a very honest and balanced way.

When staff members were given their results from the MARS exercise, George – one of Bob's supervisees – accused Bob of not giving him the promotion he deserved. George had been expecting his MARS appraisal to include work that he

claims Bob, being under a limited-duration contract, attributed to himself.

Bob was very hesitant to bring the case to his Department or to any official unit at CERN or even to the Ombuds, as he was afraid that this single event would ruin any possibility of his getting a long-term appointment. He then tried to resolve the issue with his supervisee by himself, aggravating the situation as George felt that Bob was trying to sweep the entire issue under the rug.

Convinced that his Section Leader had undermined him, George ended up making a formal appeal. At that time, Bob felt that

his career was in danger and finally came to the Ombuds for confidential advice.

Conclusion

Interaction with the Ombuds remains strictly confidential. If Bob had come to the Ombuds as soon as the issue arose, a facilitated discussion could have avoided the cumbersome formal procedure.

Contact the Ombuds early!

<http://cern.ch/ombuds>

Vincent Vuillemin

* Names and story are purely fictitious.

Wondering what the future can do for you?

Lift11 is an opportunity for technology "pioneers" - from entrepreneurs to researchers - to identify and anticipate uses of emerging technology. Now in their sixth year, the Lift events have become a must for technophiles worldwide, attracting 4,000 participants from 60 countries.

Alongside an official programme of talks, Lift11 will host workshops led by the participants. Each workshop is an opportunity to brainstorm with some of the most prominent researchers and innovators, explore new technological developments and discuss the social implications of technology. This year, CERN will lead its own workshop, focussing on the possibilities of basic research.

"The goal of the CERN workshop will be to find ideas for greater engagement between basic science and society as a whole - engaging publics more with the process of

Today's technological decision makers will explore the answer to this question at the Lift11 conference, to be held from 2 to 4 February in Geneva. CERN will be hosting a workshop at Lift11, and is offering one lucky person from CERN the opportunity to lead the workshop and 9 winners the chance to attend the conference.



research, and ensuring that ideas coming from basic research have the best chance of leading to innovation," says James Gillies, head of the Communication Group.

The Communication Group is looking for someone to lead the Lift11 workshop, and invites people at CERN to provide content for

the event: What messages would you convey to innovators and developers? How would you trigger discussion about basic research? In short, how would you lead the workshop?

The group is awarding 10 tickets to Lift11 for the best suggestions. So, send in your ideas to Bulletin-editors@cern.ch for a chance to win!

Katarina Anthony

Awards and Honours



On 8 December 2010, Phillippe Lebrun was named Engineer of the Year by *L'Usine Nouvelle* and the Engineers and Scientists of France for his work on the LHC's superconducting magnets and cryogenic cooling systems.

CERN Bulletin



News from the Library

The CERN Library continues to expand its range of online resources. As of January 2011, the CERN community now has access to several important journal collections via JSTOR (www.jstor.org). JSTOR (short for *Journal Storage*) is a not-for-profit online system for archiving academic journals. It provides access to digitized back issues of several hundred well-known journals in various subject areas, dating back to 1665.

The highlight of this new resource is undoubtedly access to the complete archives of Science, starting with volume 1 in 1880; a resource long-awaited by our users. The complete collection of the *Proceedings of the Royal Society of London*,

Finding an article from Science published in 1880? As simple as clicking!

as well as the *Philosophical Transactions*, starting in 1665, is also available via JSTOR. The collection of journal titles in mathematics is particularly rich, including *The Proceedings and Transactions of the American Mathematical Society*, where you can read, for instance, the article written by Norbert Wiener in 1917, "Certain Formal Invariances in Boolean Algebras" at:

<http://www.jstor.org/stable/pdfplus/1988928.pdf>

The journals are now in the process of being integrated into the Library catalogue at: cdsweb.cern.ch/collection/periodicals

The full list of JSTOR subscribed titles is available here:

Health and General Science:

<http://about.jstor.org/content-collections/journals/health-general-sciences>

Mathematics and Statistics:

<http://about.jstor.org/content-collections/journals/mathematics-statistics>

Access to the Science archives:

<http://cdsweb.cern.ch/record/229841?ln=en>

Your feedback is welcome:

library.desk@cern.ch

CERN Library



Official news

CERN HEALTH INSURANCE SCHEME - CHANGES ON 1 JANUARY 2011

Changes decided by the Council on 16 December 2010

Following the five-yearly review of financial and social conditions, which included the CERN Health Insurance Scheme (CHIS), the CERN Council has taken certain decisions which affect both active and retired staff.

In order to restore the financial equilibrium of the CHIS, the level of contributions will increase progressively over the next five years.

In 2011, the contributions of both active and retired members increase from 4.02% to 4.27%. The amounts of the fixed premiums for voluntary insured members (e.g. users and associates) as well as the supplementary contributions for spouses with an income from a professional activity increase accordingly.

The amounts of the daily allowance for Long-Term Care have been increased by 20% as of 1 January 2011.

The CHIS Rules have been amended according to the above decisions. They entered into force on 1 January 2011 and are available on the CHIS site:

<https://hr-services.web.cern.ch/hr-services/Ben/chis/default.asp>

HR Department
Tel. 74125



Take note

REMINDER: MANDATORY COMPUTER SECURITY COURSE

Just like any other organization, CERN is permanently under attack - even right now. Consequently it's important to be vigilant about security risks, protecting CERN's reputation - and your work. The availability, integrity and confidentiality of CERN's computing services and the unhindered operation of its accelerators and experiments come down to the combined efforts of the CERN Security Team and you. In order to remain par with the attack trends, the Security Team regularly reminds CERN users about the computer

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.

TO ALL MEMBERS OF PERSONNEL IN RECEIPT OF REMUNERATION FROM CERN

In 2011 net monthly remuneration will be paid into individual bank accounts on the following dates:

- * Tuesday 25 January
- * Friday 25 February
- * Friday 25 March
- * Tuesday 26 April
- * Wednesday 25 May
- * Friday 24 June
- * Monday 25 July
- * Thursday 25 August
- * Monday 26 September
- * Tuesday 25 October
- * Friday 25 November
- * Monday 19 December

Finance and Procurement Department

PENSION PAYMENT DATES IN 2011

Friday	7 January
Monday	7 February
Monday	7 March
Thursday	7 April
Friday	6 May
Tuesday	7 June
Thursday	7 July
Monday	8 August
Wednesday	7 September
Friday	7 October
Monday	7 November
Wednesday	7 December

security risks, and about the rules for using CERN's computing facilities.

Therefore, a new dedicated basic computer security course has been designed informing you about the "Do's" and "Don'ts" when using CERN's computing facilities. This course is mandatory for all person owning a CERN computer account and must be followed once every three years. Users who have never done the course, or whose course needs to be renewed, should have received an e-mail reminder during the last few days. Please note that it is essential to

follow both parts of the course in order to pass it. Failure to successfully pass both parts will lead to the blocking of your computer account. Usually this course takes less than 15 minutes, and is available at:

<http://sir.cern.ch>



Take note

CONFERENCE FOR CERN PENSIONERS

Wednesday, 19 January 2011,
2.30 to 4.30 p.m.

Council Chamber,
Main Building 503-1-001

RESEARCH PROJECT

"Optimum brain ageing"

– "Intelligence and longevity"

Dr François HERRMANN,
University Hospitals of Geneva (HUG)

– First results of the questionnaire: Promotion of Optimum Brain Ageing

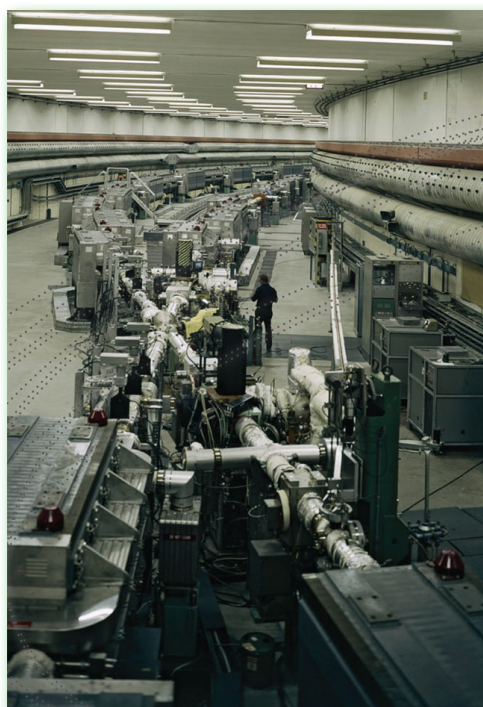
Dr François HERRMANN,
University Hospitals of Geneva (HUG)

– Discussion with the participants.

In French

Admission free

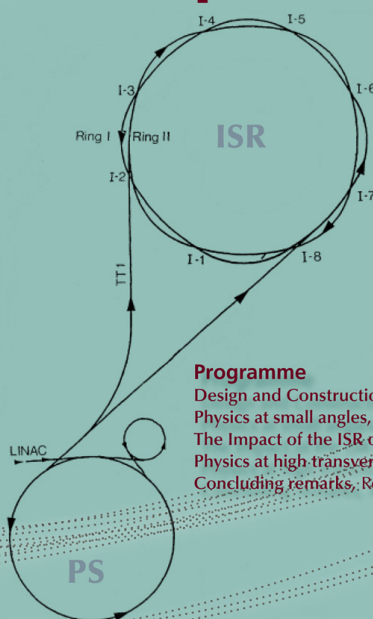
GS Department



40th Anniversary of the First Proton-Proton Collisions

in the CERN Intersecting Storage Rings (ISR)

Colloquium January 18th, 2011 at 14:30 CERN Council Chamber.



Programme

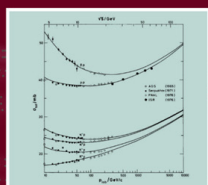
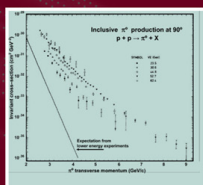
Design and Construction of the ISR, Kurt Hubner

Physics at small angles, Ugo Amaldi (IFRA-Novara)

The Impact of the ISR on Accelerator Physics and Technology, Philip J. Bryant

Physics at high-transverse momentum, Pierre Damiat (VATLY-Hanoi)

Concluding remarks, Rolf Heuer





Take note

INDUSTRIAL EXHIBITION "11TH GERMANY AT CERN"

Administration Building
(Bldg. 60/61)

Tuesday 25 January: 11 a.m. - 5.30 p.m.

Wednesday 26 January: 9 a.m. - 5 p.m.

The Federal Ministry of Education and Research (BMBF), together with CERN, will hold the Industrial Exhibition "11th Germany at CERN". Some 30 German companies will present their latest products/technologies related to the field of particle physics and their services to the scientists and buyers of CERN, establish contacts and find out about future purchasing opportunities.

On 25 January, Dr. B. Vierkorn-Rudolph of the Federal Ministry of Education and Research and CERN Director-General, Prof. R. D. Heuer, will open the exhibition, followed by a tour of the stands.

The main subjects are: electrical engineering, electronics, informatics, mechanical engineering, vacuum & low temperature technologies, instrumentation and safety.

CERN staff wishing to obtain information concerning the programme, the exhibitors and their profiles or to get in contact with exhibitors are requested to contact their departmental secretariat or use the link:

http://gs-dep.web.cern.ch/gs-dep/groups/sem/ls/Industrial_Exhibition.htm

During the evening reception at the "Globe of Innovation", exhibitors and invited CERN employees will have the opportunity to celebrate the event.

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

List of exhibitors

1. Astro- und Feinwerktechnik Adlershof GmbH, www.astrofein.com – fine mechanics
2. Babcock Noell GmbH, www.babcock-noell.de – SC magnets, wide range products
3. BOA Balg- und Kompensatoren-Technologie GmbH, www.boa-bkt.com – compensators
4. Bruker ASC GmbH, www.bruker-est.com – SC magnets, cavities, etc.
5. CST AG, Darmstadt, www.cst.com – simulation technology
6. Dräger Safety Schweiz AG, www.draeger.com – safety equipment
7. Eckelmann AG, www.eckelmann.de – machine automation
8. ELMA Renew Electronic GmbH, www.elma.de – electronics
9. Forschungszentrum Dresden-Rossendorf e.V., www.fzd.de – safety research
10. GE Intelligent Platforms GmbH & Co.KG, www.ge-ip.com – electronics
11. HAMEG Instruments GmbH, www.hameg.de – electronics, power supplies
12. Horst GmbH, www.horst.de – special heating systems
13. LT Ultra Precision Technology GmbH, www.lt-ultra.com – ultra fine mechanics
14. MENNEKES Elektrotechnik GmbH & Co.KG, www.mennekes.de – electro-technics

15. MIKROMAT Werkzeugmaschinen GmbH & Co.KG, www.mikromat-wzm.de – tooling machines
16. NTG - Neue Technologien GmbH & Co.KG, www.ntg.de – nano-technics, special machines
17. powerbridge Computer Vertriebs GmbH, www.powerbridge.de, computer, informatics
18. pro-beam AG & Co.KG, www.pro-beam.com – welding, drilling, coating
19. Radio Frequency Systems (RFS), www.rfsworld.com – RF systems
20. RITTER Starkstromtechnik GmbH & Co. KG, www.ritter-starkstromtechnik.de – electrical power supplies
21. Röhr & Stolberg GmbH, www.roehr-stolberg.de – engineering, radiation protection
22. Schwanner GmbH, www.schwanner.com – piping, vacuum and low temperature technique
23. Schott Glas, www.schott.com/advanced_optics – special glass and ceramics
24. SIEMENS SUISSE SA, www.siemens.com – broad range of products
25. SIS Struck Innovative Systeme GmbH, www.struck.de – electronics
26. Teletronik Rossendorf GmbH, www.tz-rotech.de – electronics
27. Thermo Fisher Scientific Messtechnik GmbH, www.thermo.com – scientific instruments

28. transtec Computer AG, www.transtec.de – transport control-technics
29. WAGO Contact SA, www.wago.ch – electro & contact-technics

EXHIBITION ORGANIZER

Federal Ministry of Education and Research, Germany
Heinemannstrasse 2, D - 53175 Bonn

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Information: Karine Robert/GS-SEM-LS / 74407



Take note

PUBLICATION OF THE BULLETIN IN 2011

The table below lists the 2011 publication dates for the paper version of the Bulletin and the corresponding deadlines for the submission of announcements. Please note that all announcements must be submitted by 12.00 midday on Tuesdays at the latest.

Bulletin No. Week number	Submission of announce- ments (before 12.00 midday)	Bulletin Web version	Bulletin Printed version
3-4	Tuesday 11 January	Fridays 14 and 21 January	Wednesday 19 January
5-6	Tuesday 25 January	Fridays 28 January and 4 February	Wednesday 2 February
7-8	Tuesday 8 February	Fridays 11 and 18 february	Wednesday 16 February
9-10	Tuesday 22 February	Fridays 25 February and 4 March	Wednesday 2 March
11-12	Tuesday 8 March	Fridays 11 and 18 March	Wednesday 16 March
13-14	Tuesday 22 March	Fridays 25 March and 1 April	Wednesday 30 March
15-16	Tuesday 5 April	Fridays 8 and 15 April	Wednesday 13 April
17-18	Tuesday 19 April	Fridays 21 and 29 April	Wednesday 27 April
19-20	Tuesday 3 May	Fridays 6 and 13 May	Wednesday 11 May
21-22-23 (Ascension)	Tuesday 17 May	Fridays 20 and 27 May	Wednesday 25 May
24-25	Tuesday 7 June	Fridays 10 and 17 June	Wednesday 15 June
26-27	Tuesday 21 June	Fridays 24 June and 1 July	Wednesday 29 June
28-29	Tuesday 5 July	Fridays 8 and 15 July	Wednesday 13 July
30-31	Tuesday 19 July	Fridays 22 and 29 July	Wednesday 27 July
32-33-34	Tuesday 2 August	Friday 5 August	Wednesday 3 August
35-36	Tuesday 23 August	Fridays 26 and 2 September	Wednesday 31 August
37-38	Tuesday 6 September	Wednesday 7 and Friday 16 September	Wednesday 14 September
39-40	Tuesday 20 September	Fridays 23 and 30 September	Wednesday 28 September
41-42	Tuesday 4 October	Fridays 7 and 14 October	Wednesday 12 October
43-44	Tuesday 18 October	Fridays 21 and 28 October	Wednesday 26 October
45-46	Tuesday 1 November	Fridays 4 and 11 November	Wednesday 9 November
47-48	Tuesday 15 November	Fridays 18 and 25 November	Wednesday 23 November
49-50	Tuesday 29 November	Fridays 2 and 9 December	Wednesday 7 December
51-52/1-2	Tuesday 13 December	Friday 16 December	Wednesday 20 December

If you wish to publish a news article or an item in the General Information or Official News sections, please contact

Bulletin-Editors@cern.ch

If you wish to publish an announcement in the Staff Association section, please contact

Staff.Bulletin@cern.ch

Publications Section, DG-CO group



Technical training

Marie-Laure LECOQ 74924
ENSEIGNEMENT TECHNIQUE
TECHNICAL TRAINING
technical.training@cern.ch

CERN TECHNICAL TRAINING: AVAILABLE PLACES IN FORTHCOMING COURSES

The following course sessions are scheduled in the framework of the 2011 CERN Technical Training Programme and places are still available. You can find the full updated Technical Training course programme in our web catalogue (<http://cta.cern.ch/cta2/f?p=110:9>).

Software and system technologies

C++ Part 1 - Hands-On Introduction	25-Jan-11 28-Jan-11	English	4 days
CERN openlab/Intel Computer Architecture and Performance Tuning Workshop	15-Feb-11 16-Feb-11	English	2 days
CERN openlab/Intel Computer Architecture and Performance Tuning Workshop	08-Feb-11 09-Feb-11	English	2 days
JAVA - Level 2	17-Jan-11 20-Jan-11	English	4 days
Python - Hands-on Introduction	07-Feb-11 10-Feb-11	English	4 days
Secure coding for Java	12-Jan-11 12-Jan-11	English	1 day
Secure coding for PHP	14-Jan-11 14-Jan-11	English	1 day
Secure coding for Python	13-Jan-11 13-Jan-11	English	0.5 day
Secure coding for Python	13-Jan-11 13-Jan-11	English	0.5 day

Electronic design

Technologie S-Web	12-Jan-11 13-Jan-11	French	2 jours
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Mechanical design

ANSYS Workbench advanced	31-Jan-11 03-Feb-11	English	4 days
CATIA-Smarteam Base1	25-Jan-11 08-Feb-11	French	6 jours

Office software

Dreamweaver CS3 - Level 2	10-Feb-11 11-Feb-11	French	2 jours
EXCEL 2007 - Level 2: ECDL	21-Feb-11 22-Feb-11	French	2 jours
PowerPoint 2007 - Level 1: ECDL	13-Jan-11 14-Jan-11	French	2 jours
Powerpoint 2007 - Level 2	21-Feb-11 22-Feb-11	French	2 jours
Sharepoint Collaboration Workspace	24-Feb-11 25-Feb-11	English	2 days
Sharepoint Collaboration Workspace	20-Jan-11 21-Jan-11	French	2 jours
Sharepoint Designer (Frontpage) - Level 1	14-Feb-11 15-Feb-11	French	2 jours
Sharepoint Designer (Frontpage) - Level 1	24-Jan-11 25-Jan-11	English	2 days

Special courses

AXEL: Introduction to Particle Accelerators	10-Jan-11 14-Jan-11	English	4 days
Designing effective websites	17-Jan-11 18-Jan-11	English	2 days

If you are interested in attending any of the above course sessions, please talk to your supervisor and/or your DTO, and apply electronically via EDH from the course description pages that can be found at: <http://cta.cern.ch/cta2/f?p=110:9> under 'Technical Training' with the detailed course program. Registration for all courses is always open – sessions for the less-requested courses are organized on a demand-basis only. CERN Technical Training courses are open only to members of the CERN personnel (staff members and fellows, associates, students, users, project associates, apprentices and employees of CERN contractors, with some restrictions). In particular, quoted prices and programmes refer specifically to the CERN community.



Language training

Language Training French Training

Nathalie Dumeaux Tel. 78144
nathalie.dumeaux@cern.ch

The next session will take place from **24 January to 1 April 2011**.

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

For registration and further information on the courses, please consult our Web pages:

<http://cern.ch/Training>

or contact Mrs Nathalie Dumeaux: Tel. 78144.



Seminars

MONDAY 17 JANUARY

TH JOURNAL CLUB ON STRING THEORY

14:00 - TH Auditorium, Bldg. 4

(de)Tails of Toda CFT

C. KOZCAZ

TUESDAY 18 JANUARY

SPSC MEETING

09:00 - Council Chamber, Bldg. 503

100th Meeting of the SPSC

C. VALLEE / CPPM-MARSEILLE

TH STRING THEORY SEMINAR

14:00 - TH Auditorium, Bldg. 4

Localization and Exact Quantum Entropy of Black Holes

A. DABHOLKA

WEDNESDAY 19 JANUARY

TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

TBA [topological insulator]

D. CARPENTIER / ENS-LYON

THURSDAY 20 JANUARY

TH SEMINARS

11:00 - TH Auditorium, Bldg. 4

Collider Cross Talk / Prospects for Higgs searches at the LHC -- Theory discussion

A. DJOUADI / MONTPELLIER

CERN COLLOQUIUM

16:30 - Council chamber, Bldg. 503

New Tools for Forecasting Old Physics at the LHC

L. DIXON / SLAC

FRIDAY 21 JANUARY

TH INFORMAL LATTICE MEETING

11:00 - TH Auditorium, Bldg. 4

TBA

J. BULAVA / NIC, ZEUTHEN

PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

Theory of $B \rightarrow K(^*) l+l-$ decays at high q^2

G. BUCHALLA / CERN

MONDAY 24 JANUARY

CONFERENCES & WORKSHOPS

09:30 - Filtration Plant, Bldg. 222 R-001

CERN Winter School on Supergravity, Strings, and Gauge Theory 2011

TUESDAY 25 JANUARY

CONFERENCES & WORKSHOPS

09:30 - Filtration Plant, Bldg. 222 R-001

CERN Winter School on Supergravity, Strings, and Gauge Theory 2011

WEDNESDAY 26 JANUARY

CONFERENCES & WORKSHOPS

09:00 - Filtration Plant, Bldg. 222 R-001

CERN Winter School on Supergravity, Strings, and Gauge Theory 2011

TH COSMO COFFEE

11:00 - TH Auditorium, Bldg. 4

Dark energy perturbations and parameterisations of modified growth

L. HOLLENSTEIN / GENEVA UNIVERSITY

TH THEORETICAL SEMINAR

14:00 - TH Auditorium, Bldg. 4

TBA

J. DRUMMOND / CERN PH-TH

THURSDAY 27 JANUARY

CONFERENCES & WORKSHOPS

09:30 - Filtration Plant, Bldg. 222 R-001

CERN Winter School on Supergravity, Strings, and Gauge Theory 2011

FRIDAY 28 JANUARY

TH INFORMAL LATTICE MEETING

08:00 - TH Auditorium, Bldg. 4

TBA

B. LUCINI / SWANSEA UNIVERSITY

CONFERENCES & WORKSHOPS

09:30 - Filtration Plant, Bldg. 222 R-001

CERN Winter School on Supergravity, Strings, and Gauge Theory 2011

PARTICLE AND ASTRO-PARTICLE PHYSICS SEMINARS

14:00 - TH Auditorium, Bldg. 4

TBA

T. TOMARAS / UNIVERSITY OF CRETE