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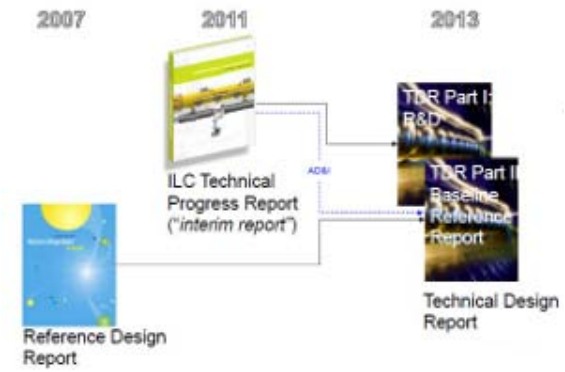
DIRECTOR'S CORNER



A second snapshot of the evolving TDR draft

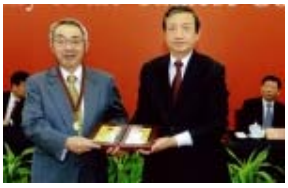
by Barry Barish

The *Technical Design Report* will be the culmination and final deliverable for the ILC Global Design Effort. The report will be submitted in near final form to the ILC Program Advisory Committee in November for technical review in December at KEK. The drafting of the report has been under way since last spring. The GDE Executive Committee recently performed a critical review of a second snapshot of the evolving TDR draft.

AROUND THE WORLD

China awards Shin-ichi Kurokawa the 2012 Friendship Award

by Rika Takahashi and Qian Pan



The former chair of the International Linear Collider Steering Committee and of the Asian Committee for Future Accelerators, Shin-ichi Kurokawa, has received the highest award that the People's Republic of China gives to foreign experts: the Friendship Award of China. The awardees also met Prime Minister Wen Jiabao.

AROUND THE WORLD

Accelerating news

The third issue of Accelerating News, a quarterly online publication for the accelerator community in Europe and beyond, looks towards the future: after the LHC as the world's first Higgs production place, what could a real factory look like? What's the plan for neutrinos? Written by the experts, the newsletter gives a broad overview.

IN THE NEWS

from ***Reuters***
9 October 2012
Nobel for quantum "parlour trick" that could make super computers
A French and an American scientist won the Nobel Prize in physics on Tuesday for finding ways to measure quantum particles without destroying them, which could make it possible to build a new kind of computer far more powerful than any seen before.

from ***Cosmos Magazine***
8 October 2012
Higgs discovery creates Nobel headache
The discovery of a new particle that may be the fabled Higgs boson could rank as the greatest achievement in physics in more than 50 years, but it also poses a dilemma for the jury deciding this week's Nobel Prize for Physics.

from ***CERN***
5 October 2012

The Republic of Cyprus becomes a CERN Associate Member State

The CERN Director-General, Rolf Heuer, and the Minister of Education and Culture of the Republic of Cyprus, George Demosthenous, today signed an agreement under which the Republic of Cyprus will become an Associate Member State in the pre-stage to Membership. The agreement will have to be ratified by the Parliament of Cyprus before coming into force.

CALENDAR

UPCOMING EVENTS

2012 International Workshop on Future Linear Colliders (LCWS12)
University of Texas at Arlington, Texas, USA
22- 26 October 2012

Special Linear Collider Event at the 2012 IEEE NSS/MIC
Disney Hotel, Anaheim, California
29- 30 October 2012

2012 IEEE Nuclear Science Symposium and Medical Imaging Conference
Disney Hotel, Anaheim, California
29 October- 03 November 2012

TESLA Technology Collaboration (TTC) Meeting
Thomas Jefferson National Accelerator Facility
05- 08 November 2012

Accelerators for a Higgs Factory: Linear vs. Circular (HF2012)
Fermilab
14- 16 November 2012

UPCOMING SCHOOLS

The first Asia-Europe-Pacific School of High-Energy Physics (AEPSHEP2012)
Fukuoka, Japan
14- 27 October 2012

CERN Accelerator School: Introduction to Accelerator Physics

University of Granada, Granada, Spain
28 October- 09 November 2012

View complete calendar

ANNOUNCEMENTS

LCWS12 online registration deadline

The deadline for online registration for the conference is Wednesday, 17 October. Please make sure that you make your online registration at lcws12.org by this date.

ilc newsline

DIRECTOR'S CORNER

A second snapshot of the evolving TDR draft

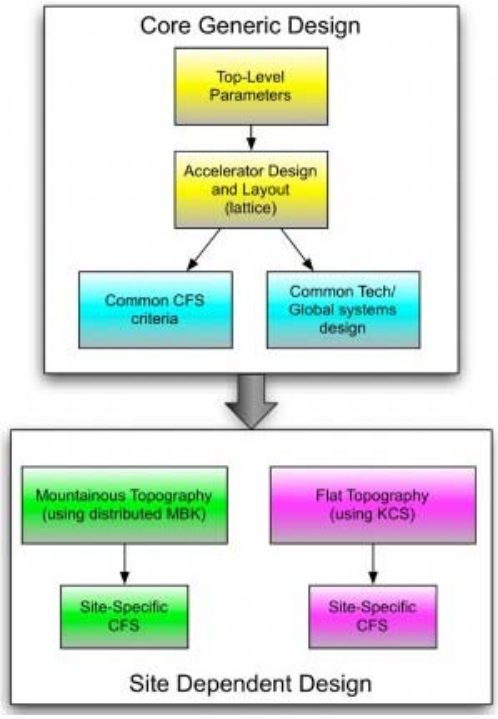
Barry Barish | 11 October 2012

John Carwardine, Argonne National Laboratory, is leading the TDR writing effort.

The *Technical Design Report* (TDR) will be the culmination and final deliverable for the Global Design Effort. The technical details of the baseline that is the basis of the TDR design were established and finalised last spring. At that time, report writing began on a schedule of producing a report that is in near-final form for the technical review by the ILC Program Advisory Committee. The review meeting will be held in December at KEK Laboratory in Japan.

The process for producing the TDR uses the technical leaders as authors for each section or chapter and an experienced team of editors to edit and integrate the pieces into a coherent overall report. An interesting feature of our process is that the GDE Executive Committee (EC) has been serving as ongoing referees, since they reviewed an early 'snapshot' draft in July. They are continuing in this role until they sign off on the version that will be submitted for technical review. The EC has the ultimate responsibility for the report, and by performing periodic reviews while the report evolves, we expect the final sign-off in November to be relatively straightforward.

The first snapshot, produced in July, was reviewed by the EC in Melbourne, and the second more mature one was reviewed in September. The July snapshot still had missing sections, sections that had yet to be edited or sections with mixed formats, and it was only about 40 percent complete. Yet the review by the EC uncovered many issues that led to major revisions, even in the structure of the report. One challenge in writing this report is that the ILC design has gone beyond being just a site-independent design, like what was presented in the *Reference Design Report* in 2007. In the *Technical Design Report*, we address important inherent differences between mountainous and deep underground sites in terms of civil construction, access and technical choices.



The TDR will address design differences for mountainous vs. deep underground sites

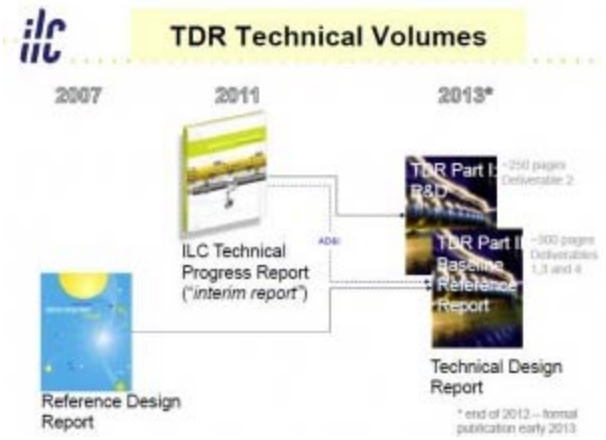
The September TDR snapshot was much more complete, had undergone significant editing and was all in a common LaTeX format. The total length of the two volumes (R&D and Accelerator Design) at that time was 651 pages, which is not far from our current goal. However, despite the enormous improvements, this snapshot was still a work in progress, definitely not a final draft ready for external review. Two EC members, acting as lead reviewers for each chapter, summarised their reviews of the September snapshot in an extended online meeting for discussion. The combined review reports were then assembled and given to John Carwardine and the authors and editors, who are using them to refine the next version.

During the Arlington LCWS meeting from 22 to 26 October, we will have special TDR sessions where we will discuss some outstanding issues. Following that meeting, the TDR draft will be revised as needed

and submitted the GDE EC for a dedicated TDR review meeting on 14 November at Fermilab. At that meeting, the EC will review this new version chapter by chapter, recommend any last changes and hopefully agree to ‘sign off’ on the version that will be submitted to the PAC for the technical review.

We believe the process described above is quite robust and will lead to a well-written *Technical Design Report*. I should emphasise, however, that the version we complete in November will not be a final version for circulation, but rather a complete version for technical design, cost and overall reviews to be carried out this winter. Following those reviews, we will modify the TDR as needed, complete final figures and publish the final report in time to officially submit it to ICFA at the Lepton Photon Conference in San Francisco in June 2013.

We are working very hard to produce a well-written TDR that will not only review well, but can serve as the basis of a final design and a construction project. We are making every effort to ensure that the TDR will have a long ‘shelf life,’ for example by having direct access to support materials through an EDMS system. This is especially important since the GDE will have completed its task and will be replaced by a new organisation having a different mandate for the future.



The TDR updates and expands the content from the Reference Design Report and Interim Report

EXECUTIVE COMMITTEE | LCWS | LCWS12 | PAC | TECHNICAL DESIGN REPORT

AROUND THE WORLD

China awards Shin-ichi Kurokawa the 2012 Friendship Award

Rika Takahashi and Qian Pan | 11 October 2012

Shin-ichi Kurokawa receives the Friendship Award from State councillor Ma Kai at the ceremony held in Beijing

Shin-ichi Kurokawa, professor emeritus at KEK, vice president of Cosylab and former chair of the ILC Steering Committee, was awarded the Friendship Award of China, the highest honour that the Chinese government confers to foreign experts for their contribution and dedication to China's economic construction and social development.

On 28 September, the awards ceremony for the 2012 Friendship Award of China was held at the Great Hall of the People, Beijing. Fifty experts from 22 countries, including four from Japan, received the award this year alone. On 29 September, the Prime Minister of China, Wen Jiabao, met the awardees, who were then invited to the state banquet to celebrate the 63th anniversary of the creation of the People's Republic of China.

Launched in 1991, the Friendship Award of China expresses China's gratitude to awardees and rewards their outstanding achievements and dedication to China's development and construction in the fields of economy, technology, education and culture as well as fostering talents. Up to this year, a total of 1249 experts from 65 countries have won the Friendship Award of China.

Kurokawa has been fostering a cooperative relationship in accelerator science between China and Japan for a long time. Last January, he was given the award for International Scientific Cooperation by the Chinese Academy of Sciences (CAS), which honours eminent foreign experts who make outstanding contributions to facilitating cooperation with the CAS in science and technology.

Kurokawa has visited China 60 times. Since the 1980s, he has been actively promoting academic cooperation and exchanges in science and technology, collaborating with Chinese researchers at the Institute of High Energy Physics (IHEP), the Shanghai Institute of Applied Physics, the University of Science and Technology of China, and the Institute of Modern Physics.

Chuang Zhang, Former Deputy Director of IHEP, commented: "For a long time, Professor Kurokawa has dedicated himself to promoting Sino-Japanese cooperation on accelerator science and technology as well as ILC research in China, and his tireless efforts helped build a sturdy bridge of understanding and friendship between the two sides. Now he has been given the Friendship award, which shows our gratitude and acknowledges his contribution from the level of our government. He really deserved this award."

In 1999, Kurokawa organised the first major Asian accelerator school held in China and carried it to a successful conclusion. In 2000, he initiated a collaborative programme between the Japan Society for the Promotion of Science and CAS. This programme was continued for a decade, involving many institutions and universities in China and Japan. Later, Korea and India also participated in the project, making it a truly Asian-wide collaborative programme.

He also helped IHEP to upgrade the Beijing Electron Positron Collider (BEPC) to BEPC II, transferring the superconducting accelerating technology used at the KEKB accelerator to China. He also served as a member of the Machine Advisory Committee for BEPC II and provided many valuable comments and suggestions.

Kurokawa served as chair of the Asian Committee for Future Accelerators (ACFA) from 2004 to 2006, and chair of the ILC Steering Committee from 2005 to 2007.

“I am filled with deep emotion that I received this year’s Friendship Award during the current difficult situation between China and Japan,” he said. “As a scientist, I believe that our community is responsible for continuing to promote and deepen the collaborative relationship between two countries. I am quite confident that this collaboration will grow further based on the strong foothold we have built.”

AWARD | CHINA | ILCSC | JAPAN

AROUND THE WORLD

Accelerating news

11 October 2012

The third issue of the newsletter Accelerating News brings summaries of project plans, new ideas and progress on EU-funded projects.

From the editors: This summer saw CERN announce to a worldwide audience the discovery of a Higgs-like boson, so this issue takes a look at the machine behind the discovery, the LHC, as well as future plans for a possible Higgs factory in the form of LEP3. Looking ahead too are European strategies for particle physics and accelerator-based neutrino physics. In addition, taking stock of the work so far, HiLumi LHC and EuCARD showcase their latest results.

Some of the highlights of the newsletter: a story about the LHC "Higgs factory" by Mike Lamont (CERN), alternative "Circulating ideas about a new Higgs factory" by Frank Zimmermann (CERN), or "A European strategy for accelerator-based neutrino physics" by Alain Blondel (University of Geneva).

Frank Zimmermann (CERN) and Roy Aleksan (CEA) summarise the Cracow Strategy Symposium from the accelerator experts' point of view:

> *From 10 to 12 September 2012 about 500 particle physicists and accelerator experts came together in Cracow, Poland, at an Open Symposium organized by the CERN Council to discuss the future European strategy. The Symposium's Accelerator Science and Technology Session featured two excellent overview talks, on the energy frontier by Caterina Biscari (INFN-LNF) and on the intensity frontier by Mats Lindroos (ESS, on leave from CERN), which were complemented by a lively discussion. The smooth operation of the LHC represents a huge success. The measures needed to raise the LHC collision energy up to 13-14 TeV by 2014 are at hand. Work is progressing on the technology for the LHC luminosity upgrade (HL-LHC) around 2020. Increasing further the collision energy up to 26-33 TeV in the LHC tunnel requires substantial R&D for 16-20 T magnets (HE-LHC). A new 80-km tunnel could allow reaching energies of 80-100 TeV in proton-proton collisions.*
>
> *Great progress in the SRF development for the ILC makes the construction of a high-energy lepton collider possible. CLIC with two-beam technology could be an alternative if 3 TeV is needed but R&D is still required. A lower-energy CLIC based on klystrons is also proposed. A number of new ideas for circular or gamma-gamma colliders, to study a "Higgs" particle at 125 GeV have also emerged. Much higher energy using leptons requires muon colliders, dielectric RF structures or plasma acceleration, with increasing complexity. High-power proton linacs, such as ESS and IFMIF, are under construction. Neutrino beams will be improved worldwide.*
>
> *Many R&D topics are common for various accelerators, e.g. high-field magnets, RF structures & RF power sources, particle sources, alignment & stabilization. The conference brought together experts from these areas, highlighting the need to promote further collaborations with other fields of science.*

ACCELERATOR R&D | CLIC | EUCARD | EUROPEAN STRATEGY FOR PARTICLE PHYSICS | HIGGS FACTORY | ILC