

PROFILE



Nobu Toge promoted to KEK trustee

by Rika Takahashi

The ILC programme's Nobu Toge has been appointed as one of KEK's five trustees. He began working with the linear collider in 1986, later joining the Global Design Effort in 2005. Toge will remain in the GDE directorate as a member of the editorial team for the *Technical Design Report*.

FEATURE

From CERN Courier: Viewpoint: Authors and supporters

Lucie Linssen and Steinar Stappes from CLIC examine the question of authoring long-term development projects for particle physics.



While people often grasp only a fraction of the physics at stake, they easily recognise the full extent of the human undertaking. Particle-physics experiments and accelerators are, indeed, miracles of technology and major examples of worldwide co-operation and on-site teamwork.

DIRECTOR'S CORNER

KILC12 in Daegu: a preview

by Barry Barish



The joint ACFA Physics/Detector Workshop and Global Design Effort meeting on linear colliders (KILC12) will be held in Daegu, Korea from 23 to 27 April 2012. This meeting comes at the crucial time when we are making the transition from determining the technical details for the *Technical Design Report* to actually writing the report. At Daegu, the GDE will not only present a set of progress reports on ILC R&D but will also schedule special working meetings on costing and first draft sections of the TDR.

VIDEO OF THE WEEK



Fly down SLAC's Linac Coherent Light Source

Video: SLAC Multimedia Team / Matt Beardsley

SLAC's new [time-lapse videos](#), ranging from 13 to 72 seconds in length, show various sped-up scenes around the lab: clouds rolling above the klystron gallery, scientists keeping busy in the Main Control Center, and, shown here, a zipping tour of the Linac Coherent Light Source (LCLS).

Fly from one end of LCLS to the other in a lightning-quick 72 seconds to see how much fun it can be.

IN THE NEWS

from **Science News**

2 April 2012

[New data support Einstein on accelerating universe](#)

BOSS, for Baryon Oscillation Spectroscopic Survey, has measured the distance to faraway galaxies more precisely than ever before, mapping the universe as it existed roughly 6 billion years ago, when it was only 63 percent of its current size. The findings suggest that the mysterious “dark energy” causing the universe to expand at an accelerating rate was foreseen by Einstein, the researchers reported April 1 at the American Physical Society meeting.

from **The Washington Post**

2 April 2012

[Physicists hope to find the Higgs boson, key to unified field theory, this year](#)

Still, after years of research and billions of dollars invested, we haven't produced definitive evidence that the Higgs boson is real, leaving open the possibility that a decades-old, widely believed theory is completely wrong.

from **Science**

30 March 2012

[DOE Derails Planning for Major Fermilab Experiment](#)

This week, the U.S. Department of Energy (DOE) cited a tight budget in putting the brakes on the development of the flagship project for the next decade at the country's sole particle physics lab, Fermi National Accelerator Laboratory (Fermilab) in Batavia, Illinois. But if the \$1.5 billion Long-Baseline Neutrino Experiment (LBNE) is delayed, then Japanese physicists may be able to do a similar experiment first, researchers say.

BEST OF APRIL FOOL'S DAY

from **TRIUMF**

1 April 2012

[TRIUMF to Change its Name](#)

Effective Sunday, April 1, 2012, the laboratory formerly known as TRIUMF will be called “CALCIUM,” an acronym for CANada's Laboratory for Chemistry, Isotopes, Unknowns, and Medicine.

from **CERN's blog**

1 April 2012

[New particle spotted on Tristan da Cunha island](#)

The new particle, called a foolion, had been proposed by theorists to explain how elementary particles could attract so much attention.(...) Scientists from the ATLAS and CMS collaborations are now studying the possibility of moving their detectors to the island of Tristan da Cunha to confirm the findings.

from **CERN Bulletin**

1 April 2012

[Higgs Reconstructed at CERN's Computer Centre](#)

As clear physics evidence of the Higgs is still pending and expected to be established in 2012, the CERN Computer Centre operators have instead rearranged their computer racks in the Computer Centre (Building 513) to spell the word “Higgs”.

from **Fermilab Today**

1 April 2012

[HALLoWS to test MAGIC](#)

“We call it the High Acceleration Linear Lumos of W boson to Strange, or HALLoWS,” said Roger Dixon, head of the Accelerator Division. “The design is based on an obscure paper by J.K. Rowling who first postulated this idea in the mid-1990s.” HALLoWS consists of three accelerators: a linear accelerator called ELDER, a trilateral accelerator called CLOAK and a cyclotron called stONE.

from **USLHC's blog**

1 April 2012

[Physicists discover large body orbiting Earth!](#)

Given the size of Luno, we should be able to see the large figure as well, but all searches have been fruitless. Some people think that this figure may be even harder to find than SUSY, or even extra dimensions (outside of the Terry Pratchett universe.)

from **Futura-Sciences**

1 April 2012

[Révélations sur l'étrange affaire des neutrinos d'Opera](#)

Mais il y aurait encore plus étonnant : les documents mayas révéleraient que non seulement les neutrinos muoniques peuvent

aller plus vite que la lumière, que l'on peut s'en servir pour communiquer entre civilisations galactiques mais également qu'un nouveau contact avec nous serait tenté par nos visiteurs E.T. le 21 décembre 2012, par le biais des neutrinos.

CALENDAR

UPCOMING EVENTS

[Joint ACFA Physics and Detector Workshop and GDE meeting on Linear Collider \(KILC12\)](#)

Daegu, Korea
23- 26 April 2012

[ILD Workshop 2012](#)

Kyushu University, Fukuoka, Japan
23- 25 May 2012

[15th International Conference on Calorimetry in High Energy Physics \(CALOR 2012\)](#)

Santa Fe, New Mexico
04- 08 June 2012

UPCOMING SCHOOLS

[The 2012 European School of High-Energy Physics](#)

Anjou, France
06- 19 June 2012

[View complete calendar](#)

PREPRINTS

ARXIV PREPRINTS

[1204.0487](#)

Search for electromagnetic properties of the neutrino in e^+e^- and $\gamma\gamma$ collisions at CLIC

[1203.6826](#)

Determination of Higgs-boson couplings (SFitter)

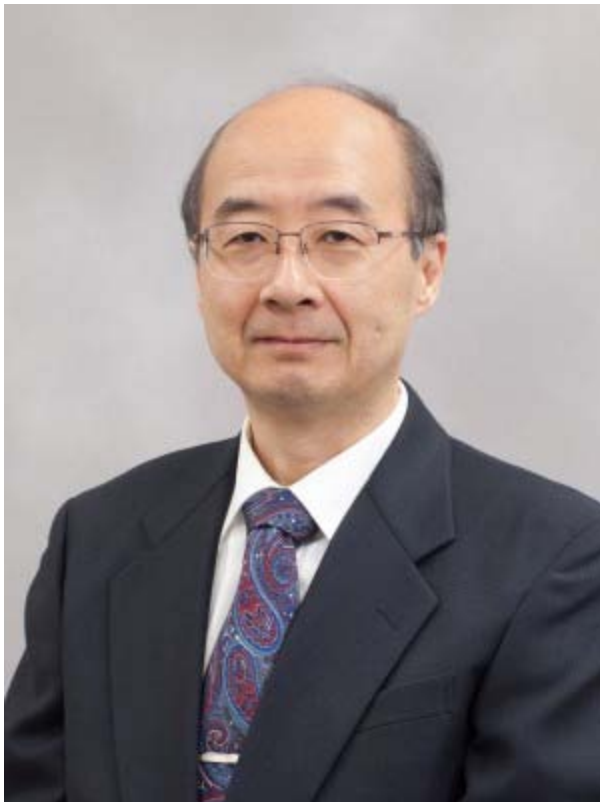
[1203.6563](#)

Restriction on the energy and luminosity of e^+e^- storage rings due to beamstrahlung

PROFILE

Nobu Toge promoted to KEK trustee

[Rika Takahashi](#) | [5 April 2012](#)



Nobu Toge of KEK's accelerator laboratory will support director general as a trustee. Image: Nobuko Kobayashi

On 30 March, [KEK announced a management reshuffle](#) for the new term, Japanese fiscal years 2012 to 2014. The ILC programme's Nobu Toge was appointed as one of the four trustees.

Toge is now in charge of planning and evaluating the laboratory's medium-term objectives, information technology systems and crisis management. He is also responsible for the management of public relations, intellectual property, library and lab archives, facility planning, and environment, safety and health issues.

Toge lived on the US west coast from 1981 until 1992. During that time, he first worked at Lawrence Berkeley National Laboratory as a visiting scientist in the Japan-US collaboration program in high energy physics. After receiving his PhD from the University of Tokyo, he went on as a post-doc at SLAC, and switching his career to accelerator physics he worked as a staff member there.

After eleven years of experience spent abroad, he returned to Japan and joined KEK as an associate professor at the accelerator laboratory.

Toge says that it was a major shock wave experience when he first went to the US. "Culturally and socially the environment in California was very different from that in Tokyo, both in and outside the labs." He came across another major shock wave-like experience when he returned to Japan in 1992. "It was like, 'How can things be so different at these two corners of the earth!'"

However, as the time went by, he slowly came to realise that "when a human being does all these systems-related things – how folks organise, manage and run laboratories – very good stuff and problematic stuff both come up in various ways. So I guess I can say that that was a good thing that I managed to learn through these different yet fundamentally similar aspects in working at different laboratories, but it is really an afterthought," he said.

Atsuto Suzuki, director general of KEK, sought out the quality of internationality in the newly appointed trustees, determined to attain for KEK a solid position as an international institution. Toge is expected to play an active role in this regard.

At KEK he first participated in the effort to build the KEKB accelerator, an asymmetric electron-positron collider for B-physics, as a coordinator of the design of the beam interaction region. Then he helped the leaders of KEKB accelerator team as a secretary to what was called the Parameter Committee, which was responsible for the overall KEKB design and its integrity.

His engagement with the linear collider began in 1986, when he worked on the SLAC Linear Collider. "Some members in and around the Global Design Effort have been at the linear colliders for years, and I am actually one of them," he said. He moved on to the JLC (Japan Linear Collider, which was renamed to GLC later) effort in 1997 as a coordinator for the development of the X-band-based LC scheme. After the technology decision made by the International Technology Recommendation Panel in 2005, he joined the Global Design Effort (GDE).

Toge will stay in the GDE directorate as a member of the editorial team for the *Technical Design Report*. He also participated in the editorial effort of the Conceptual Design Report for the CLIC Study. "Both the ILC and CLIC will have some sustained activities into the future, so I would like to maintain with them some linkage, although it might not be an extremely thick one," he said.

In addition to Toge's scientist side, many *ILC NewsLine* readers may know him as a great photographer – his name frequently appears in photo credits. Now a trustee of the laboratory, he may become too busy to take pictures. "My ambition is to continue taking pictures as much as time allows," he said. "Since I am expected to look at the activities of the whole of KEK, I think there should be chances for me to capture scenes from design, construction and operation of Super-KEKB, J-PARC and efforts on materials and life sciences, too."

However, his priority for the next three years will be to assist Suzuki to strengthen the laboratory's various internal aspects.

"Nobu is a multi-talented scientist who has made numerous and varied contributions to the ILC," said GDE Director Barry Barish. "He is a particularly good choice to assume the broad range of responsibilities this new position will involve."

[GDE](#) | [KEK](#)

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RF gun for the Quantum Beam Project at KEK. The cathode substrate, made of molybdenum, is being heat-processed for cleaning its surface. Image: Nobu Toge



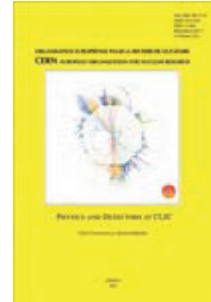
Morning breaks over Mt. Tsukuba. Image: Nobu Toge

Mar 27, 2012

Viewpoint: Authors and supporters

Lucie Linssen and Steinar Stapnes examine the question of authoring long-term development projects for particle physics.

The first "high-energy" accelerators were constructed more than 80 years ago. No doubt they represented technological challenges and major achievements even though, seen from a 2012 perspective, the projects involved only a few people and small hardware set-ups. For many of us, making a breakthrough with just a few colleagues and some new equipment feels like a dream from a different era. Nowadays, frontier research in particle physics requires huge infrastructures that thrill the imagination of the general public. While people often grasp only a fraction of the physics at stake, they easily recognize the full extent of the human undertaking. Particle-physics experiments and accelerators are, indeed, miracles of technology and major examples of worldwide co-operation and on-site teamwork.



A new concept in authoring

Looking ahead

Studies on future accelerators and particle-physics experiments at the energy or luminosity frontier now span several decades and involve hundreds, if not thousands, of participants. This means that, while progress is made with the technical developments for a future facility, the physics landscape continues to evolve. The key example of this is the way that current knowledge is evolving quickly thanks to measurements at the LHC. As a result, it is impossible to predict decades in advance what the best machine option will be to expand our knowledge. Pursuing several options and starting long-term R&D well in advance is therefore essential for particle physics because it allows the community to be prepared for the future and to make informed decisions when the right moments arise.

For the post-LHC era, several high-energy accelerator options are already under study. Beyond high-luminosity extensions of the LHC programme, new possibilities include: a higher-energy proton collider in the LHC tunnel, as well as various

electron-positron colliders, such as the International Linear Collider (ILC) and the Compact Linear Collider (CLIC); and a muon collider. There is typically much cross-fertilization and collaboration between these projects and there is no easy answer when it comes to identifying who has contributed to a particular project.

When, some months ago, we were discussing the authoring of the CLIC conceptual design report, we faced exactly such a dilemma. The work on the CLIC concept has been ongoing for more than two decades - clearly with a continuously evolving team. On the other hand, the design of an experiment for CLIC has drawn heavily on studies carried out for experiments at the ILC, which in turn have used results from earlier studies of electron-positron colliders. Moreover, we also wanted both the accelerator studies and the physics and detector studies to be authored by the same list.

We looked at how others had dealt with this dilemma and found that in some cases, such as in the early studies for LHC experiments, protocollaborations were taken as a basis for authoring, while others, such as the TESLA and Super-B projects, have invited anyone who supports the study to sign. For the CLIC conceptual design report we opted for a list of "signatories". Those who have contributed to the development are invited to sign alongside those wishing to express support for the study and the continuation of the R&D. Here non-exclusive support is meant: signing-up for CLIC is not in contradiction with supporting other major collider options under development.

The advantage of the signatories list is that it provides the opportunity to cover a broader range of personal involvements and avoids excluding anyone who feels associated or has been associated with the study. The drawback of our approach is that the signatories list does not pay tribute in a clear way to individual contributions to the study. This recognition has to come from authoring specialized notes and publications that form the basis of what is written in the report.

The signatories list covers both the CLIC accelerator and the report for the physics and detector conceptual design. Already exceeding 1300 names in February, it demonstrates that - even if all eyes are on LHC results - simultaneous R&D for the future is considered important.

Are there better ways of doing this? As the projects develop, the teams are becoming more structured and this helps - at least partly - towards creating appropriate author lists. The size of the teams and the particular timescale of the projects will, however, remain much larger than the first accelerator projects in our field, and it is likely that striking the right balance between openness and inclusiveness and, on the other hand, restrictions and procedures in this matter will continue to be a difficult subject.

About the author

Steinar Stapnes is CERN's Linear Collider study leader and Lucie Linssen leads CERN's Linear Collider Detector project.

Further reading

See <https://indico.cern.ch/conferenceDisplay.py?confId=136364>, with links to both CLIC conceptual design reports.

DIRECTOR'S CORNER

KILC12 in Daegu: a preview

[Barry Barish](#) | [5 April 2012](#)



Daegu

The Linear Collider Physics/Detector Group of ACFA (Asian Committee for Future Accelerators) and the Global Design Effort (GDE) of the ILC are sponsoring a joint ACFA physics and detector workshop and GDE meeting on the International Linear Collider. The meeting, called [KILC12](#), will be held in Daegu, Korea from Monday April 23 through Thursday April 26. The ACFA workshop will be devoted to studying the physics case for high-energy linear electron-positron colliders, especially in light of recent results from CERN's LHC. There will also be a review on the progress on detectors.

Daegu, the meeting site, is located in southeastern Korea and has a population of 2.5 million. In addition to being a large modern metropolitan city, Daegu has a long and colourful history tracing back to about 1000 BC. Daegu was important in the process of opening up Korea to the rest of the world in the late 19th century, and in recent years, it has experienced explosive growth as a manufacturing city for textiles and various mechanical products.

As I indicated above, the ACFA-sponsored GDE plenary meeting has two main goals: to collect and assemble both the draft *Technical Design Report* (TDR) text and cost estimate information for the TDR

and to make preparations for the transition to the post-TDR Linear Collider organisation. As a result, the meeting agenda is structured to give priority to TDR preparations, by providing adequate time for both authors and editors to meet, as well as for group leaders and cost engineers to meet.

The Daegu meeting will include a full set of parallel session reports summarising ongoing and planned R&D. However, unlike previous meetings, the upcoming ACFA meeting will have a special focus on recent technical decisions, as these define the baseline for the technical design. This will make sure the community at large understands all the decisions that have been taken for the TDR baseline, and gives the opportunity to raise for discussion any questions that remain. These reviews of the ILC R&D will also be helpful in defining goals and priorities for post-TDR studies.

This meeting comes at a crucial time when we will be completing the transition from determining technical details to writing the *Technical Design Report* for the accelerator and the Detailed Baseline Design report for physics and detectors. Our schedule is to submit these reports in advanced draft form to the International Linear Collider Steering Committee by the end of 2012. They will be reviewed technically and for cost early next year and we will then revise the TDR as needed and present it in final version to ILCSC and ICFA at the Lepton-Photon 2013 conference in San Francisco.

This submission will complete the mandate of the GDE!

Perhaps it is appropriate for us to meet in Daegu, a city noted for its large stone Buddha, called Gatwabi. People come from afar to visit this Buddha that is wearing a “gat,” a traditional Korean hat. But more intriguingly, it is said that visiting the Buddha helps make one wish come true. Maybe it is time for those of us who have worked so long and so hard towards the ILC to also make our one wish known to Gatwabi.



The Gatwabi Buddha near Daegu

[ACFA](#) | [KILC12](#) | [TDR](#)

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