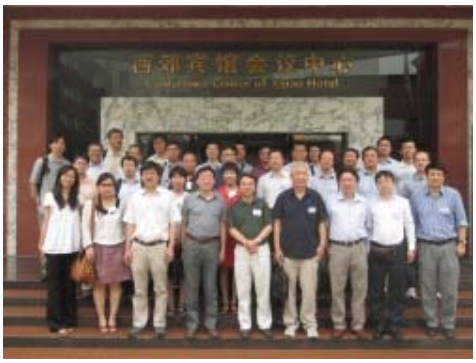
AROUND THE WORLD



China's roadmap for ILC international cooperation discussed

by Qian Pan

Last week, China's second Linear Collider Workshop was held in Beijing to discuss how China can join in the pre-research and future construction of ILC project more constructively. A unanimous consensus was reached that China should play an active role in ILC international cooperation and key-technology R&D on accelerator and detectors should be further pushed ahead.

FEATURE

From symmetry magazine: Through a muon's eyes

Alongside a story on muons—the short-lived cousins of the electron— symmetry magazine in its June 2012 issue features a silent movie about the Standard Model of Particle Physics. See quarks dancing, the Higgs entering the scene and get your own answer to the question mark at the end!

DIRECTOR'S CORNER

Some highlights from the KILC12 workshop

by Barry Barish

The international KILC12 workshop was held in April in Korea to discuss topics varying from ILC physics to the nuts and bolts of the accelerator and detector designs for the International Linear Collider. This meeting came at a crucial time when the design decisions for the *Technical Design Report* was being finalised and the writing of the report being begun in earnest.

IMAGE OF THE WEEK

Cavities in the spotlight

Image: DESY

Some 100 cavity and photo enthusiasts came to DESY last Wednesday to hear Karsten Büßer talk about “Cool Runnings” and see the picture story of cavities in the making by science photographer Heiner Müller-Elsner. The exhibition will be on show at DESY for a few more weeks. Read more here.

IN THE NEWS

from ***Fermilab***
05 June 2012
Fermilab experiment announces world’s best measurement of key property of neutrinos
Scientists from the MINOS experiment at the Department of Energy’s Fermi National Accelerator Laboratory have revealed the world’s most precise measurement of a key parameter that governs the transformation of one type of neutrino to another.

from ***Deutschlandfunk***
05 June 2012
Das seltsamste aller Elementarteilchen
Was das Neutrino mit dem Urknall zu tun haben könnte

from ***CERN***
04 June 2012
CERN adopts new scheme for easy access to intellectual property
CERN has adopted a new approach to knowledge transfer under the label of CERN Easy Access IP, an initiative to make it easier for businesses and entrepreneurs to access intellectual property generated at CERN in the course of its research programme.

from ***SLAC***
04 June 2012
Underground Search for Neutrino Properties Unveils First Results
Scientists studying neutrinos have found with the highest degree of sensitivity yet that these mysterious particles behave like other elementary particles at the quantum level.

from ***Daily Telegraph***
02 June 2012
CERN director says LHC will find God Particle by end of the year
The Large Hadron Collider is to be switched off at the end of the year to undergo a major upgrade, but scientists hope to have achieved one of the machine’s major goals by the time it does – proving the existence of the so called God Particle.

CALENDAR

UPCOMING EVENTS

15th International Conference on Calorimetry in High Energy Physics (CALOR 2012)
Santa Fe, New Mexico
04- 08 June 2012

PREPRINTS

ARXIV PREPRINTS

1206.1033
Top effective operators at the ILC

1205.6979
Future colliders based on a modulated proton bunch driven

36th International Conference on High Energy Physics (ICHEP2012)
Melbourne, Australia
04- 11 July 2012

UPCOMING SCHOOLS

The 2012 European School of High-Energy Physics
Anjou, France
06- 19 June 2012

View complete calendar

plasma wakefield acceleration

1205.6977
The impact of fill patterns on the fast ion instability in the ILC damping ring

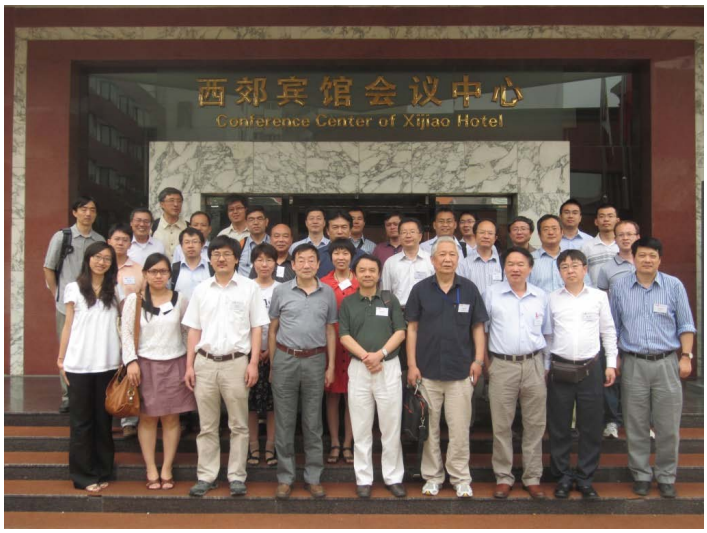
1205.6929
Post LHC7 SUSY benchmark points for ILC physics

1205.6340
Modified perturbation theory for angular distribution in W-pair production

AROUND THE WORLD

China's roadmap for ILC international cooperation discussed

Qian Pan | 7 June 2012



Attendants of China's second Linear Collider Workshop Image: IHEP

From 29 to 30 May, the Institute of High Energy Physics held China's second Linear Collider Workshop (CLCWS12) in Xijiao Hotel, Beijing. Following their first gathering in Beijing in 2010, this time, over thirty front-line scientists from theoretical physics, experimental physics, detectors and accelerators met again to exchange their ideas and have a comprehensive discussion about China's future involvement in the International Linear Collider project.

"The new workshop was held in front of the background that the whole community of particle physicists are looking forward to the possible new findings at LHC. Moreover, the global organisation framework of the ILC project is getting clear, so to answer the question how China joins in the pre-research and future construction of ILC project more constructively becomes increasingly urgent," said Jie Gao, chair of CLCWS12 and of the Asian Linear Collider Steering Committee (ALCSC).

The meeting started with a keynote speech from Yifang Wang, IHEP Director. In his speech, Wang explained that the development of China's high-energy physics programme originated from international cooperation, as the country is experiencing a period of fast economic growth and improved international standing, the international cooperation called for a whole new approach. "Chinese scientists should secure a position in the future international cooperation, and joining in the ILC project more intensively would definitely be an excellent opportunity at present," Wang pointed out.

As chair of CLCWS12, Gao gave a general introduction on the progress of international cooperation in linear colliders. Then, ten talks ranging from recent status and progress on TeV physics, ILC experimental physics R&D, linear collider detector design and technology development, Z factory, and linear collider accelerator R&D were given by experts from different institutes and universities such asTsinghua University, Nanjing University, Peking University, Central China Normal University, Xi'an Jiaotong University, University of Science and Technology of China (USTC), Institute of Theoretical Physics, Technical Institute of Physics and Chemistry, Institute of Electronic and IHEP.

Following the talks, heated discussions were held among the scientists. A unanimous consensus was reached that China should play an active role in ILC international cooperation and key technology R&D on accelerator and detector should be further pushed ahead. It was concluded that Chinese scientists must be well prepared according to Chinese government guideline for participating in large-scale international scientific collaboration and raise more dedicated linear collider funds.

From 19 to 21 December 2012, the second Fragrant Mountain Meeting – the top level scientific strategy meeting in China – on ILC will be held in Beijing. “We must be well prepared to guarantee the success of this important meeting both for domestic and international community in the era of the new linear collider organisation,” said Gao.

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ilc newsline

DIRECTOR'S CORNER

Some highlights from the KILC12 workshop

Barry Barish | 7 June 2012

The KILC-12 workshop held in Daegu, Korea from 23 to 27 April 2012.

A workshop organised by the Asian Committee on Future Accelerators (ACFA) and the ILC Global Design Effort (GDE) was held in Daegu, Korea from 23 to 27 April 2012. The central emphasis of this workshop was the final discussions of the technical systems for the ILC, before we launch full-fledged into producing the *Technical Design Report* for the accelerator and the Detailed Baseline Design (DBD) report for ILC detectors. Both reports will be produced in final draft forms before the end of this calendar year to be handed over to our oversight committees. The final versions taking into account the comments from these committees will be published in summer 2013. The ACFA workshop was devoted to the study of the physics case for high-energy linear electron-positron colliders, taking into account the recent and projected results from LHC, and reviewed progress on the detectors. For the GDE this meeting represented an important milestone to finalise the baseline and start writing the *Technical Design Report*, as well as to begin the process of reviewing the detailed ILC cost estimates.

In the opening session, Michael Peskin from SLAC gave a talk on the "Status of the Physics Report for the DBD." He said that this part of the physics/detector report will serve as an important update on the physics motivation and justification for the ILC. The physics report will consist of an introduction on experimentation at the ILC, the design and benchmarking for each ILC detector (ILD and SiD), and a report on the physics opportunities at the ILC.

Peskin concentrated on the last topic in his talk, emphasising that the DBD Physics Report needs to make a clear physics case for the ILC. He went on to point out that although the case for the next accelerator after the Large Hadron Collider should be based on the knowledge gained from the LHC, we have not gained much of that knowledge yet. The original expectations were that at this point we would have accumulated 100 inverse femtobarn (fb^{-1}) of data at 14 TeV, which should be compared to the present 7 fb^{-1} with energy that has recently been increased from 7 TeV to 8 TeV. In fact, he pointed out that considering future upgrades, we have probably only seen about 0.1 percent of the eventual data set and therefore most of the LHC physics is still in front of us. Nevertheless, with the added data being accumulated this year, we should have around 20 fb^{-1}, potentially enabling observation of a five-sigma signal, if the present hints lead to a discovery of the Higgs.


Michael Peskin, SLAC, discussing the Physics Report for the DBD at KILC12. Image: KILC12

The approach being taken for the physics report is to assume that the Higgs will be found, and this report will make the case for why we will then need to study the Higgs in electron-positron annihilations, for example, in order to make model-independent conclusions regarding the Higgs couplings. Peskin proceeded to make the case that studying the

physics of the Higgs is so important that we need not and should not wait for longer-term LHC results. He concluded that this will be the right moment to make the case and propose a linear collider. There was related community discussion of precisely this point in a panel discussion the next day. I will discuss the panel discussion next week.

Another interesting and informative talk at KILC12 was given by Satoru Yamashita of Tokyo University on "Japanese Efforts towards ILC." In his talk, he emphasised the cooperative effort between academia, industry, policy makers and local governments in Japan. He traced the history and status in each of these areas, as well as near-term future plans. In the political arena, efforts are being made through the Federation of Diet Members for promoting the ILC, and Yamashita talked about the close collaboration that has been forged between academia and industry through the Advanced Accelerator Association (AAA) promoting ILC-related science and technology. AAA consists of 84 private companies and 30 public research institutions. Yamashita discussed the two Japanese candidate sites, their characteristics and the future plans in Japan to study these sites.

Satoru Yamashita, Tokyo University, at KILC12. Image: KILC 12

Yamashita emphasised that broad support from the international community will be a necessary ingredient if a proposal to host the project in Japan is to go forward, and in that respect he pointed to the impact and importance of our site visit last January.

I conclude today by thanking the workshop organisers. Our Korean hosts did an absolutely superb job of organising all aspects of the workshop, including choosing a very good venue for the meeting.

DBD | HIGGS | JAPAN | KILC12 | PHYSICS | TDR