

Linear Collider Board Discussion

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LCB History reminder

- January 2013 ICFA appointed Sachio Komamiya as the first Chair of the newly formed ICFA subpanel, Liner Collider Board
“The Linear Collider Board (LCB), as a sub-panel of ICFA, **will promote the construction of an electron-positron linear collider and its detectors** as a world-wide collaborative project.”
- Linear Collider Collaboration:
ILC+CLIC+Detector&Physics
is reporting to LCB

In February 2012

- One of the Japanese HEP community statements:
“**Should a new particle such as a Higgs boson with a mass below approximately 1 TeV be confirmed at LHC, Japan should take the leadership role in an early realization of an e^+e^- linear collider.** In particular, if the particle is light, experiments at low collision energy should be started at the earliest possible time.”

In July 2012



Latest update in the search for the Higgs boson

Wednesday 4 Jul 2012, 09:00 → 11:00 Europe/Zurich

500-1-001 - Main Auditorium (CERN)



Video in CDS



Webcast



There is a live webcast for this event

CERN seminar
Higgs discovery

09:00	→ 09:45	CMS	🕒 45m
Speaker: Joseph Incandela (Univ. of California Santa Barbara (US))			
Slides 			
09:45	→ 10:30	ATLAS	🕒 45m
Speaker: Dr. Fabiola Gianotti (CERN)			
Slides  			
10:30	→ 11:00	Conclusion	🕒 30m
Speaker: Rolf Heuer (CERN)			
Slides  			

The European Strategy May 2013

- “There is a strong scientific case for an electron-positron collider, complementary to the LHC, that can study the properties of the Higgs boson and other particles with unprecedented precision and whose energy can be upgraded. The Technical Design Report of the International Linear Collider (ILC) has been completed, with large European participation. **The initiative from the Japanese particle physics community to host the ILC in Japan is most welcome, and European groups are eager to participate. *Europe looks forward to a proposal from Japan to discuss a possible participation.***“

P5 Report May 2014

- “The interest expressed in Japan in hosting the International Linear Collider (ILC) is an exciting development. Participation by the U.S. in project construction depends on a number of important factors, some of which are beyond the scope of P5 and some of which depend on budget Scenarios. **As the physics case is extremely strong, all Scenarios include ILC support at some level through a decision point within the next 5 years.** “

By now

- Three of four high priority items of European Strategy realised
 - HL-LHC now approved by the Council.
 - CERN neutrino platform for ν detector R&D being constructed.
 - R&D for the future high energy machine: high field magnet, high gradient acceleration and design studies for CLIC and FCC.
- Many technical works are being carried out for the ILC, **but no visible progress in the political front.**

Foreign governments would need

- a declaration by the Japanese **government** on her **intension/interest to have the ILC in Japan,**
- a signal that Japan would provide a “**substantial**” contribution to the project if realised,
- **idea** by the Japanese **government** on **steps to be taken** with time scale,

in order to engage serious discussion on their participation and contribution to the project (I think).

“*Europe looks forward to a proposal from Japan...*” a **proposal** has not emerged yet from the European point of view.

What coming soon is

- The next update for the European Strategy
- European wide discussion in 2019
- New strategy in **Spring 2020**
- Community is **preparing for input for 2019 discussion**
 - Example: CERN preparation for the post HL-LHC era
 - CLIC with 380 GeV start-up machine
 - FCC with ee, hh and eh options
(hh includes High Energy LHC)
 - Physics with accelerators other than LHC

For Strategy discussion on the ILC

- **Significant change in its status** compared to that of 2013 would be required to remain in the European Strategy discussion: if not
⇒ Linear Collider discussion would be only on CLIC?
- If the current ILC status just continues,
⇒ possible ILC many years after HL-LHC may lose community interest and support?
- No mentioning of ILC in the Strategy:
⇒ would any funding still continue?

Hard time for the ILC...

If we wish to have Japanese reaction

- the project must fit in the scale which the government feels “comfortable” to make some sort of declaration.
- General impression (I have) is that the original ILC scope was too “big”.
- Take the advantage of the intrinsic nature of energy upgradability of a linear collider by **increasing the acceleration gradient, extending the tunnel, etc..**
- Defining the **project** to be well within the “**affordable**” level, with sufficient **physics relevance** looks like the way to go, given the intrinsic upgradability of a linear collider.

Coming LCB activities

Based on

- Cost evaluation(s) and physics reassessment for the 250 GeV machine by the LCC for the August meeting
- Japanese community statement on the 250 GeV machine in July

LCB will start discussion on the 250 GeV machine in August and **deliver its conclusion to the ICFA in October.**

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If the ICFA conclusion is positive, LCB should help **generating an environment for the Japanese government to make the first step.**