



Report from Physics Coordinators

Keisuke Fujii
on behalf of the Physics WG
March 16, 2022

ILC Situation in Japan

MEXT Review

Final Report published on Feb. 14

KEK News on MEXT Panel Report

Panel Report: 5 main points

from KEK news, Feb. 25, 2022

<https://www.kek.jp/en/topics-en/202202251335/>

1. The panel **recognizes the academic significance** of particle physics and the importance of the research activities, including that of a Higgs factory, and understands the value of international collaborative research. However, the panel found that it is **still premature to proceed into the ILC Pre-lab phase**, which is coupled with an expression of interest to host the ILC by Japan as desired by the research community proposing the project.
2. Given the increasing strain in the financial situation of the related countries, the panel recommends the ILC proponents to reflect upon this fact and to reevaluate the plan. They should **reexamine the approach towards a Higgs factory in a global manner taking into account the progress in the various studies such as the Future Circular Collider (FCC) and ILC**.
3. The panel recommends that **the development work in the key technological issues for the next-generation accelerator should be carried out by further strengthening the international collaboration** among institutes and laboratories, **shelving the question of hosting the ILC**.
4. For realizing a very large project such as the ILC, **cultivating a framework where the related countries can exchange information on their situations and discuss required steps would be important**.
5. The panel recommends that **the research community should continue efforts to expand the broad support from various stakeholders in Japan and abroad by building up trust and mutual understanding through bi-directional communication** with the people concerned.

In light of the panel's findings, ***KEK will make an effort to reexamine the path for realizing the ILC as a Higgs factory, taking into account the progress in various fronts including the FCC feasibility study.*** In this process, the interaction with the domestic and international research community as well as the opportunities in the exchange of information through ICFA will be crucial. Also, in collaboration with the IDT, ***KEK will propose a framework to ICFA to address some of the pressing accelerator R&D issues for the Pre-lab,*** where joint developments will be done by the participating laboratories on the selected subjects. ***KEK and the Japanese ILC community is committed to further advance important technological and engineering development in the accelerator area and to continue the effort for the realization of the ILC.***

Furthermore, ***KEK, in collaboration with ILC-Japan, will establish a new organization that will centrally manage ILC communications activities.*** The new organization will strengthen activities to communicate the significance of the ILC to all parties involved, such as the general public, academia, or industry, focusing on communicating the importance to build an international laboratory for basic science, which will contribute greatly to the development of a new generation of scientists and advancement of knowledge, science and technology.

KEK endeavors to promote these activities for the realization of the ILC in the future, maintaining a relationship of trust with related organizations.

IDT Phys/Det WG (WG3)

<https://linearcollider.org/team/wg3/>

WG3 Meeting every two weeks (last one on Mar. 9)

- ***IDT WG1 report (by Tatsuya)***
- ***Usual subgroup reports***

Physics Potential & Opportunity Group

- Schedule for regular open meetings:

August 12: talks from Tim Barklow on $e\gamma \rightarrow eH$ and on the new CEPS paper

September 16: talks from Matt Basso on $H \rightarrow ss$ and from Yu Kato on $H \rightarrow 4b$

November 11/12: <https://agenda.linearcollider.org/event/9351/>

December 16/17: <https://agenda.linearcollider.org/event/9352/>

Feb. 10/11: <https://agenda.linearcollider.org/event/9354/>

Mar. 10, Snowmass, BSM mini-WS, QCD, Green ILC

<https://agenda.linearcollider.org/event/9355/>

Apr. 14, May 12, ...

Feb. 28, Mar. 1, 3: Mini-WS on BSM at ILC

<https://agenda.linearcollider.org/event/9575/>

- Snowmass meetings;

EF workshop Aug. 30 - Sep.3

<https://indico.fnal.gov/event/49756/>

Snowmass Day (all frontiers) Sep. 24

<https://indico.fnal.gov/event/50538/>

EF workshop Mar. 28 - Apr.1

<https://indico.fnal.gov/event/52465/>

Snowmass Agora

Dec. 15: Linear e+e- Colliders

<https://indico.fnal.gov/event/52161/timetable/>

Jan. 19: Circular e+e- Colliders

<https://indico.fnal.gov/event/52534/timetable/>

Feb. 16: 2022: Muon Colliders

<https://indico.fnal.gov/event/53010/timetable/>

Software & Computing Group

Software tutorials <https://agenda.linearcollider.org/category/273/>

- July 21, Introduction to iLCSoft: <https://agenda.linearcollider.org/event/9272/>
- August 18, LCFIPlus: <https://agenda.linearcollider.org/event/9318/>
- October 13, SGV fast simulation: <https://agenda.linearcollider.org/event/9394/>
- ***Planning the next one for ?***

ILD's contributions to Snowmass

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- 13:00** → 13:20 **Strange quark as a probe for new physics in the Higgs sector**
light-weight review by Alberto (PSB)
Speakers: Matthew Basso (University of Toronto), Valentina Cairo (SLAC National Accelerator Laboratory)
 OUTDATED
- 13:20** → 13:40 **Study of $e + e^- \rightarrow \gamma h$ at the ILC** 🕒 20
light weight review by Ivanka (PSB)
Speakers: Junping Tian (University of Tokyo), Keisuke Fujii, Yumi Aoki (SOKENDAI/KEK)
- 13:40** → 14:00 **Probing heavy Majorana neutrino pair production at ILC in a $U(1)_{B-L} 2$ extension of the Standard Model**
light-weight review by Mikael (PSB)
Speakers: Daniel Jeans, Jurina Nakajima (SOKENDAI/KEK)
- 14:00** → 14:20 **Measurement of A_{LR} using radiative return at ILC 250** 🕒 20
light-weight review by Kiyotomo (PSB)
Speakers: Junping Tian (University of Tokyo), Keisuke Fujii, Takahiro Mizuno (Sokendai)
- 14:20** → 14:40 **Evaluating the ILC SUSY reach in the most challenging scenario: τe NLSP, low ΔM , lowest cross-section.**
light-weight review by Alberto (PSB)
Speakers: Jenny List (Deutsches Elektronen-Synchrotron (DESY)), Maria Teresa Nuñez Pardo de Vera (DESY), Maria Teresa Núñez Pardo de Vera (DESY), Mikael Berggren (Deutsches Elektronen-Synchrotron (DESY))
- 14:40** → 15:00 **Stau study at the ILC and its implication for the muon $g-2$ anomaly**
light weight review by Daniel (PSB)
Speakers: Shin-ichi Kawada (KEK), Taikan Suehara (Kyushu University)

ILD Physics WG Activities

***- Joint Effort with Software WG
and IDT WG3 -***

Today (March 16)

→ Request for additional samples for $H \rightarrow ss$ by Jan

ICHEP 2022

Call for abstracts

July 6-13, 2022, Bologna, Italy

<https://www.ichep2022.it>

Abstract deadline: March 31

PSB needs to know all abstracts to be submitted from ILD. Inform PSB with CC to physics conveners if you have a suggestion or a plan to submit one.

See the message from Filip on this.

Proposed S&A meeting schedule

Mar. 16: *KF*
Mar. 30: Filip
Apr. 13: Daniel?
Apr. 27: Frank?

S&A meeting usually every two weeks on Wednesday at 14:00 CERN time

Schedule also on

<https://confluence.desy.de/display/ILD/ILD+Physics+Working+group>

Physics conveners' meeting every two weeks on the same day as the S&A meeting at 13:00 CERN time.

Conveners' ML:

ild-physics-conveners@desy.de

Use this mailing list to send your talk request.

Stay safe!