MEXT ILC Panel Review

Keisuke Fujii

January 21, 2022

How was MEXT review restarted?

Message from the IDT Chair, Tatsuya Nakada

June 21, 2021

Dear ILC International Development members,

As reported before, *on 2nd of June KEK submitted the Pre-lab proposal to MEXT. A second document, produced by the Japan Association of High Energy Physicists and KEK in Japanese, describing how to address "the issues on the ILC still to be worked out" was also submitted.*
These are the issues earlier pointed out by the Science Council of Japan and MEXT expert panel for the ILC,

KEK informed the IDT EB that the Pre-lab budget request would not be made for the 2022 Japanese fiscal year since MEXT considered it to be premature. It is anticipated that MEXT will quickly start forming ***a panel to review the submitted documents for validating the proposed process***, where the technical part on the accelerator and infrastructure is under the responsibility of the Pre-lab. The forthcoming work by the IDT already planned should also provide sufficient evidence to the panel demonstrating that the Pre-lab will be able to deliver its promise. KEK also informed us that MEXT expressed their intension to exchange opinions with government agencies in the United States and Europe on the ILC.

The IDT EB, therefore, encourages the IDT members to continue the planned work and will keep the community informed with new development in Japan.

yours

Tatsuya,
on behalf of the Executive Board

highlighted by KF

Hitoshi Murayama said
“I’m disappointed as anybody else!”

Message from KEK DG, Masa Yamauchi

Note on the Pre-lab budget request for 2022

June 23, 2021

Masanori Yamauchi

KEK

KEK submitted the proposal for the ILC Pre-lab produced by the IDT to MEXT in early June. It was submitted together with the "Report on the remaining issues of ILC", which is a report prepared jointly by the Japanese research community and KEK on the progress and future outlook for solving remaining issues of ILC that have been pointed out by several committees. In parallel with these, we and MEXT discussed next steps to take including the budget plan formulated by KEK to start the ILC Pre-lab in JFY2022.

Based on these, MEXT has announced that it will from now on start to exchange opinions with government agencies of the relevant countries, and that it would like to evaluate the progress on the remaining issues by examining the summary report by the ILC community as well as the IDT proposal. Regarding the budget for Pre-lab, MEXT indicated that ***it is premature at this time*** since 1) There is no clear prospect yet for the contributions to the ILC itself by US and Europe, and 2) The solutions to the remaining issues have not been confirmed yet.

highlighted by KF

New Round of MEXT ILC Panel Review

KF's Notes on the New Panel

ILC Advisory Panel (2021-7-29→2022-7-28: extensible if needed)

1. Shouken Miyama (chair) : Astronomy (theory)
2. Tomohiro Ichiji : Policy Innovation
3. Tatsuo Omachi : Civil Engineering
4. Sadanori Okamura : Astronomy
5. Haruyo Koiso : Accelerator
6. Michihisa Kyoto : JSPS
7. Noritaka Kumagai : Accelerator
8. Takahiro Shinyo : Diplomacy
9. Katsuo Tokushuku : HEP
10. Wako Tojima: Journalist
11. Takashi Nakano : NP
12. Shunsuke Mori : System Engineering, Ecology
13. Hiromi Yokoyama : Scientific Communication

No subcommittee formed this time

The panel seemed particularly interested in

1. International cost sharing
2. Understanding by general public and academia
3. Technical feasibility

Final report due within FY2021 after 5 to 6 meetings

Recap of 1st-3rd meetings

- ***1st mtg on July 29***

  https://www.mext.go.jp/b_menu/shingi/chousa/shinkou/064/kaisai/210729.htm

  Intro. by MEXT + exchange of opinions by panel members

- ***2nd mtg on Oct. 14***

  https://www.mext.go.jp/b_menu/shingi/chousa/shinkou/064/kaisai/211014.htm

  Presentations by researches followed by Q&A
  - T. Mori (project overview, history)
  - H. Murayama (science)
  - S. Michizono (technical feasibility and cost: accelerator)
  - T. Nakada (pre-lab proposal)

- ***3rd mtg on Oct. 18***

  https://www.mext.go.jp/b_menu/shingi/chousa/shinkou/064/kaisai/211018.htm

  Presentations by researches followed by Q&A
  - N. Terunuma (technical feasibility and cost: CFS, safety, env.)
  - S. Asai (academic significance, understanding by general public and academia)
  - M. Yamauchi (prospects for int'l cooperation and cost sharing)
  - Y. Okada (prospects for human resources, etc.)

  + discussions among panel members

→ Contrary to my expectations pre-lab related discussions dominated: Both positive and negative opinions there, but none supporting the full-fledged pre-lab. Panel members seemed to have different images about pre-lab.

The 4th mtg on Nov. 29

Agenda

- About additional questions from the Panel members
  → answers given by S. Asai on behalf of the ILC proponents
- Resent developments in Europe and the U.S. reported by MEXT
- General discussions
- AOB

https://www.mext.go.jp/b_menu/shingi/chousa/shinkou/064/kaisai/211129.htm

30 Additional Questions

3 general, 9 technical/cost-validity (5 acc + 4 CFS/safety/env), 4 pre-lab,
6 understanding by public/academia, 5 cost sharing/int'l cooperation,
3 human resources questions

Some sample questions:

- ***Does the ILC's scientific significance match its cost? Is this the right time to invest a big money in a project like ILC, given COVID19, climate change, etc.?***

  → **Want to hear more convincing explanations.**

- ***More organized explanations are needed for various upgrade/multi-purpose use scenarios including cost estimates.***

- ***Why have you proposed the pre-lab without clear prospects for the ILC realization? 230M is a big money. What if the int'l negotiation fails?***

  → **Want to hear more about economic ripple effects that can be expected even during the preparation period.**

- ***Is FCC-ee doable by Europe alone? If not, will Japan be requested to contribute? If yes, when and at what scale?***

Recent Development in Europe and the U.S.

MEXT reported on

Oct. 15 mtg of MESRI/BMBF/BEIS/STFC/DOC and MEXT on ILC
https://www.mext.go.jp/kaigisiryo/content/20211129-mxt_kiso-000019181_3.pdf

Recap by KF of the official summary

- MEXT (Japan): explained the situation in Japan and its position concerning the ILC.
- MESRI (France): no funding for ILC at this stage, takes EPPSU into account, but keeps prudent stance also for FCC, and needs discussions in a global context.
- BMBF (Germany): recognizes the scientific potential of the ILC, but little financial margin there for the ILC. ILC needs to be a part of RM2024 for Germany to make significant investment, which requires the host prioritizing the ILC.
- BEIS/STFC (UK): budget very tight due to COVID, needs clear positive sign from Japan for possible future participation, but difficult to include ILC in the current RM.
- DOE (US): strong support expressed in 2014 P5 valid, needs Japan to host the pre-lab. Intergovernmental discussions should be conducted.

General Discussions *among panel members*

Scientific significance; Whether multi-purpose use is the right direction or not; Understanding by people in humanities and social science; Is pre-lab cost of 230M defendable? ; Is financing with some external budget possible?

Some key questions:

- ***Is it really possible to finance ILC with some external source outside the usual science & technology budget?***

  → difficult to answer from our side.

- ***Does the ILC's scientific significance match its cost?***

  → need to provide more convincing explanations → next mtg?

- ***More organized explanations are needed for various upgrade/multi-purpose use scenarios including cost estimates.***

  → need to correct misunderstanding → next mtg?

- ***230M is a big money for the pre-lab without no guarantee for success. How do you defend this?***

  → need to provide more examples of ripple effects that start already in the pre-lab phase. → next mtg?

The 5th mtg on Dec. 21

Agenda

- About additional questions from the Panel members
  → answers given by S. Asai on behalf of the ILC proponents
- Discussion on a skeleton draft
- AOB

https://www.mext.go.jp/kaigisiryo/2021/mext_00022.html

From KF's private notes

(1) Additional questions after the last meeting

→ answers given by S. Asai on behalf of the ILC proponents

- *ILC's scientific significance: does it match its cost?*
- *A hh collider such as FCC-hh: is it needed anyway in future?*
- *Communication efforts to general public: show the quantitative evidence*
- *Economic ripple effects: what you can expect in the preparatory phase?*

→ ***S. Asai's presentation rather well received.***

(2) Skeleton draft (presented by MEXT)

→ ***negative tone persists throughout the draft***

- *No significant progress since last time.*
- *It's not yet time for pre-lab.*
- *There are many other more urgent global issues to spend money on.*

→ ***triggered numbers of positive comments*** including such as

- *Now that introvert mindset prevails because of various global issues including climate change, pandemic, etc. we need something to brighten up our future.*
- *Some next step showing Japan's leadership is necessary to break the chicken and egg problem.*

→ ***Let's hope that some concrete next positive step will be recommended even though the full-fledged pre-lab is unlikely at this point.***

→ ***At least one more meeting for the Panel to complete the review.***

The 6th mtg on Jan. 20, 2022

Agenda

- Discussion on a draft report
- AOB

https://www.mext.go.jp/kaigisiryo/2021/mext_00022.html

Summary part (Sec. 4)

Based on DeepL translation

To summarize the above discussion, the conclusions can be summarized as follows.

From the discussions so far, it can be seen that *there has been no significant progress in the ILC project* to clarify the future prospects of the ILC project, although some technical progress has been made in the three years *since the previous panel review*. In addition, in light of these circumstances, as well as the Minister of Education, Culture, Sports, Science and Technology's statement to the Diet in February 2021 regarding the ILC preparation laboratory, it is *difficult at this time to support the transition to the ILC preparatory laboratory stage* as proposed by the research community.

The current status of the issues surrounding the ILC project is described above, but from the perspective of hoping for the continued development of this field in the future, *the Second ILC Advisory Panel would like to make the following comments*.

In the field of particle physics and accelerator science, which is the foundation of particle physics, Japan has a strong presence in the world, having produced many Japanese Nobel laureates, and it is expected that Japan will continue to produce world-leading research results. The panel shared the same understanding. Looking ahead to the future of particle physics in the world, *the academic significance of the precise measurement of the Higgs particle and the development of "physics beyond the standard model" will remain unchanged.* On the other hand, in light of the recent *severe financial situation* of each country, *it is time for the research community to reconsider how to proceed with the ILC project.*

Continued

Based on DeepL translation

In this reconsideration, the discussion should not be confined to the ILC project, but it should also take into account the current status of the FCC feasibility study *in order to vision future particle physics and accelerator science in a sustainable form, to consider how to reconstruct the international R&D strategy for the Higgs factory, including the ILC and FCC*, on a medium- to long-term time scale, and to clarify what are the technological issues that form the core of the strategy.

In the meantime, the ILC project should not be focused on the ILC preparatory laboratory as proposed this time, but rather, it *should separate the site issues that directly affect the international cost-sharing discussion.* It *should seek an approach to steadily implement the strategically important technical issues* for the development of the next generation accelerator, taking into account the latest technological trends, *under an appropriate division of labor among the research institutes* of the countries concerned, and develop the research and development in a phased manner, taking into account various circumstances.

Continued

Based on DeepL translation

In order to realize such a large project, it is *important to foster an environment in which the government officials of the countries concerned* can discuss the project while going through *the proper procedures within each country* and sharing their own circumstances, referring to the consensus building process of past large-scale international joint projects such as the ITER project. It is *also important for the research community to make steady efforts to increase the understanding and support of various stakeholders* in Japan and abroad, while maintaining the relationship of trust among the parties concerned. In this regard, we *look forward to the future activities of ILC Japan*, which was newly established this year.

Once again, we *hope that the world's particle physics and accelerator science communities will consider more realistically the future development of the field*.

Major Comments from panel members

from my personal notes

- ***Do not mention MEXT minister's statement here.***
- ***Sounds too negative. Seek for more positive way to say the same thing for each point made.***
- ***Mention ILC's potential significant positive impact on Japanese society.***
- ***Researches should understand society. Understanding should be 2-way.***
- ***Divide the last para. and make clear what the government should do and what researches should do.***
- ***Panel should appreciate what the researchers are doing. Don't discourage the ILC promoters. Otherwise there will be no future in science.***
- ***Don't just turn down the pre-lab proposal. Just say it is not yet time.***
- ***Something pre-lab-like will be needed before constructing ILC.***
- ***Modify "pre-lab" to "full fledged pre-lab as proposed this time" or something.***

Let's hope that the final report becomes much better than this.

My Personal Take

- ***The panel turned down the full-fledged pre-lab as proposed by IDT.***
- ***Technical part of the pre-lab work package activities might be supported at least partially.***
- ***There are certain number of strong supporters in the panel.***

Let's hope that the final report becomes much better than this.