# Recent ILC status

## -SCJ discussion-

*Shin MICHIZONO*
*KEK/Linear Collider Collaboration (LCC)*

- *MEXT advisory panel and Science Council of Japan (SCJ) committee*
- *SCJ committee discussions*
- *Draft of the "reply to MEXT" from SCJ on Nov.14 and our response*
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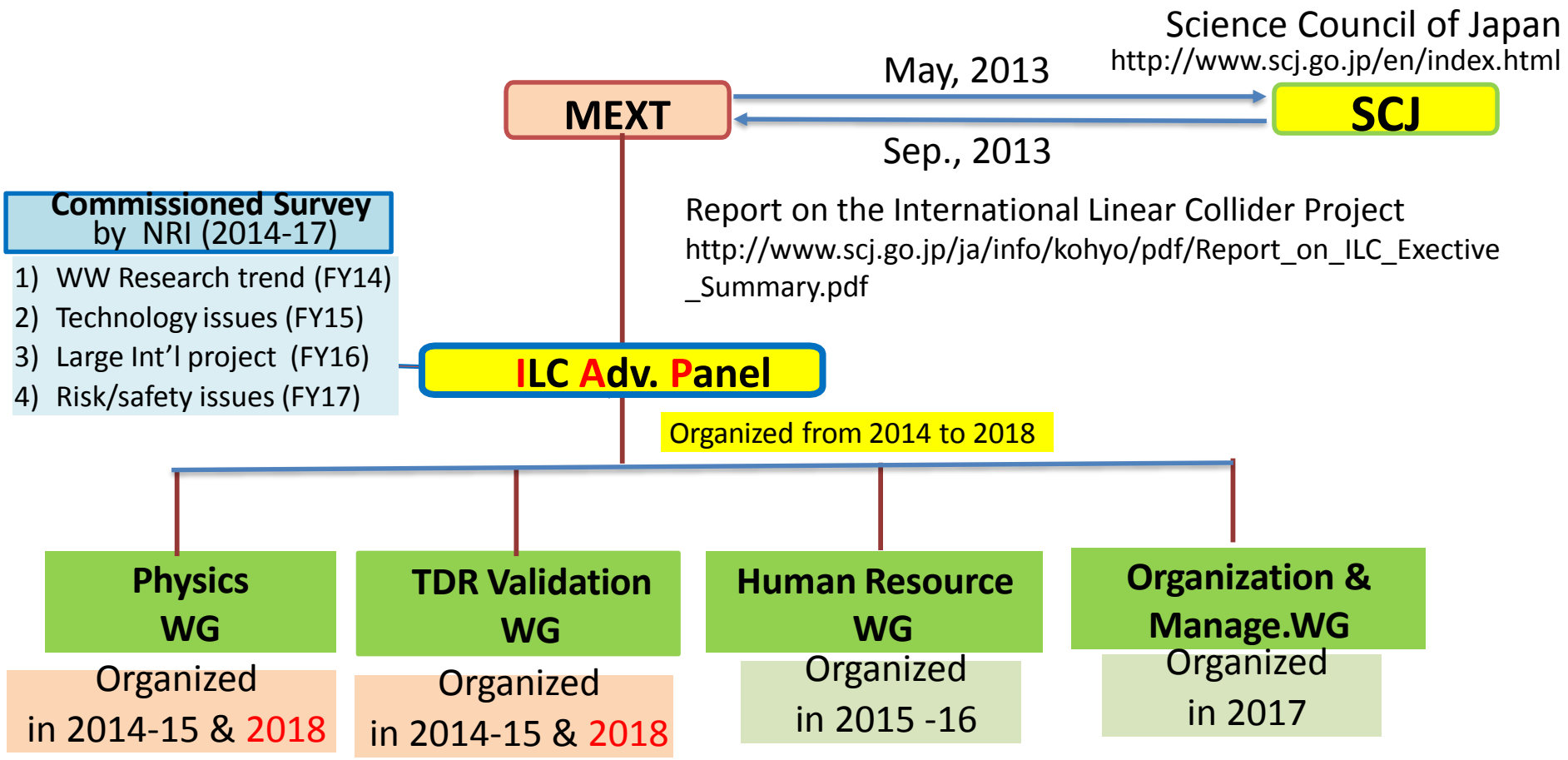
# MEXT advisory panel and SCJ



# SCJ committee on Aug. 2018

**MEXT** → **SCJ**

July, 2018

ILC advisory panel report (in English) is available from http://www.mext.go.jp/component/b_menu/shingi/toushin/__icsFiles/afieldfile/2018/09/20/1409220_2_1.pdf

**Commissioned Survey by NRI (2014-17)**

1) WW Research trend (FY14)
2) Technology issues (FY15)
3) Large Int'l project (FY16)
4) Risk/safety issues (FY17)

**ILC Adv. Panel**

Organized from 2014 to 2018

| Physics WG | TDR Validation WG | Human Resource WG | Organization & Manage.WG |
|---|---|---|---|
| Organized in 2014-15 & 2018 | Organized in 2014-15 & 2018 | Organized in 2015 -16 | Organized in 2017 |

**Review committee for ILC250**

Tasks of the committee
- The academic significance of the ILC, importance of the ILC in the elementary particle physics
- Importance of the ILC in the whole academic research
- Significance of the ILC in Japan
- Preparation status for the ILC, budget and human resources necessary for construction and operation

**Sub-committee**

Tasks of the subcommittee
1 Technical feasibility of large facilities
2 Cost evaluation
3 Economic ripple effect
4 Environmental assessment

Committee members
Prof. Tadashi KOBAYASHI (Philosophy)
Prof. Tatsuyoshi SAIJO (Economics, environmental)
Prof. Takaaki KAJITA (Physics, Nobel Prize)
Prof. Hirokazu TAMURA (Physics)
Prof. Masako YONEDA (Civil Engineering, Vice-chair)
Prof. Yasuhiro IYE (Physics, Chair)
Prof. Mitsuru UESAKA (Physics)
Prof. Naoshi SUGIYAMA (Physics)
Prof. Tomofumi NAGAE (Physics)
Prof. Toshio HIRANO(Biology)

Sub committee members (Chair: Prof. Masako YONEDA)
Prof. Masashi KAMON (Civil Engineering)
Prof. Tohru NAKASHIZUKA (Biology, environmental)
Mr. Tsuneyoshi MOCHIZUKI (Civil engineering)
Dr. Hitoshi TANAKA (Spring-8)
+Prof. Masako YONEDA, Prof. Tatsuyoshi SAIJO and Prof. Yasuhiro IYE

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# SCJ committee from August

(main committee)

1st main committee + sub committee:Aug.10 10AM~4PM

***ILC accelerator, ILC physics, ILC international collaboration***

2nd main committee:Aug.21 9AM-11AM

3rd main committee: Aug. 29 10AM-12AM

4th main committee: Sep. 11 10AM-12AM (Closed session)

5th main + sub committee: Sep.18 10AM-12AM "discussion note"

Interim report and questionnaire

6th main committee: Oct.1 1PM-4PM

7th main + sub committee: Oct.10 1PM-4PM (after hearing, move to closed session)

***Environment and Spring Water***

8th main + sub committee: Oct.16 10AM-12AM (after hearing, move to closed session)

9th main + sub committee: Oct.31 (closed session)

10th main + sub committee: Nov.14 3PM-5PM (first open and after closed session)

***Draft of "reply to MEXT"***

11th main + sub committee: Nov.21 10AM-12AM (closed session)

(subcommittee)

2nd subcommittee: Aug.20 1PM-5PM ***Beam dump, ILC cost -> Detector hall related discussion***

3rd subcommittee: Aug.23 10AM-12AM Technology and Risk issues (by NRI surveys)

4th sub-committee: Sep. 13 10AM-12AM ***Risks considered in the ILC***

6th sub-committee: Oct.2 10AM-1PM

***Reply to the discussion note***

***ILC preparation plan***

***Performance of ILC area system***

***Safety of the ILC***

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# SCJ draft on Nov.14 (and our response on Nov.19)

Tasks of the committee and replies

-The academic significance of the ILC, importance of the ILC in the elementary particle physics

(SCJ draft):There is no consensus in the researcher community.

(our comment)*: errors of fact

-Importance of the ILC in the whole academic research

(SCJ draft): There is a lack of dialogue with neighboring communities and other communities, and more continuous explanation is necessary.

(our comment) :accurate understanding required

-Significance of the ILC in Japan

(SCJ draft): 'Whether Japan will host or not' will be judged in consideration of various requirements including sustainability.

(our comment) :accurate understanding required

-Preparation status for the ILC, budget and human resources necessary for construction and operation

(SCJ draft): The outlook on human resources is not clear. (especially accelerator related)

(our comment): errors of fact

*Our comments were submitted to SCJ on Nov.19 and explained at press conference on Nov.20.

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# Our response and SCJ on Nov.21

We Japanese colleagues made some objection document and submitted this to SCJ on Nov.19.
Our main points are
1. to adopt "critical decision system" like US DoE (and start the discussion about cost sharing)
   We do not ask “decision of the construction”, but “decision of the start of the discussion”.
2. to point out the misunderstanding in SCJ draft

Nov.21 SCJ meeting was held in the morning (closed session).
NHK (like BBC in Japan) reported that
"The committee initially wanted to summarize the views on 21st, but the discussion has continued."

We thought that SCJ meeting would finish on Nov.21 but (probably due to the strong objection from some members) discussion did not end on Nov.21.

Next SCJ meeting has not announced yet.

# Example of our response

http://www.scj.go.jp/ja/member/iinkai/ILC/pdf/siryo2411-2-1-1.pdf

あることに異論はない。しかしながら、「標準模型を超える新物理」の探索には加速器・非加速器ともにさまざまな実験的アプローチがある。その中で、ヒッグス結合の精密測定という研究課題が極めて重要なものの一つであることは認められるものの、素粒子物理学の他の研究課題に比して突出した優先性を有するかという点について、当該分野の研究者コミュニティにおいてさえコンセンサスが形成されている状況にはない。

Sentence of the SCJ draft

There is no consensus in the researcher community.

**事実誤認** errors of fact

*ヒッグス研究の突出した有意性は研究者コミュニティのコンセンサスである。以下に引用する国内外の研究者コミュニティからの表明は、素粒子物理学の現状と将来についての徹底した議論の結果であることを認識すべきである。本文書末尾にリストした研究者のリファレンスレターも参照していただきたい。*

高エネルギー物理分野の研究者コミュニティにおいて、ILCでのヒッグス粒子の詳細研究が素粒子物理学の他の研究課題に比して優先性を有するというコンセンサスが形成されている状況は確固としたものである。以下にコンセンサス形成過程を説明する。

日本では、高エネルギー物理学研究者会議が非加速器実験を含む素粒子物理学全体の方針を審議するもっとも重要な組織となっている。高エネルギー物理学研究者会議は2012年7月にヒッグス粒子が発見されてすぐに、250GeVでのヒッグス精密測定から始めて段階的にエネルギーを上げていくILCを日本に建設することを研究者コミュニティと

Our response

This is error of fact.
There is consensus in
- International society
- Japanese High Energy society

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# Media conference on Nov.20

Nov.20 Press conferences (from our side) were held at Tokyo to explain our objection documents.(more than 30 media joined these conferences

Newspapers:
Nov.21
Nikkei: “ILC should be consulted between governments" by Promoters
Nov.27
Asahi: It seems reasonable to see that the consensus that ‘accurate measurement with 250 GeV ILC is necessary for elementary particle physics’ is formed in "relevant field".
Nov.28
Yomiuri(editorial article): It is about time to clarify Japan’s intention to invite the ILC, on the precondition that various problems will be resolved without fail.

TV :Nov.20
NihonTV: Opinion on attracting ILC
NHK (Tohoku-local report):Promoters claimed merit of attracting ILC

Our explanation about the document is well understood by Media and reported in newspapers.

http://the-japan-news.com/news/article/0005377857

November 28, 2018

The Japan News by The Yomiuri Shimbun

Research

Creating "Social Implementatio
Chemistry and Future Societies

Suguru Noda / Masahiko Matsukata, Professor, Facu

NEWS BLOG 読売新聞(Japanese Edition)

TOP | POLITICS | SOCIETY | BUSINESS | WORLD | SPORTS | EDITORIAL | FEATURES

# ILC particle accelerator project a good fit for Japan, and vice versa

いいね！ 0 シェア ツイート G+ B! 0 CLIP Share

*7:44 pm, November 28, 2018*

**The Yomiuri Shimbun**

The mountainous Kitakami area in the Tohoku region is being proposed as a candidate site for building the International Linear Collider (ILC), a next-generation linear particle accelerator.

The ILC is a research facility for investigating the origin of the universe and physical substances. Given that Japan has achieved many accomplishments in the field of particle physics, positive consideration should be given to the idea of inviting the ILC to be built in the Kitakami highland.

The ILC — an accelerator that is being planned by Japanese, U.S. and European researchers — is a facility for reproducing high-energy conditions akin to those immediately resulting from the creation of the universe. The plan would construct a tunnel with a total length of 20 kilometers, along which electrons would be collided with positrons — pieces of matter with a positive electrical charge — at a speed close to that of light. Ensuing reactions would be precisely measured.

Discoveries that transcend existing physical theories, even to the extent of winning a Nobel prize, could be made possible.

Yomiuri Shimbun on Nov.28
"editorial article"

According to a science ministry estimate, the plan would require about ¥800 billion in construction costs over a 10-year period. The facility is planned to be run for about 20 years until the completion of experiments, requiring about ¥40 billion in annual operating costs.

If the ILC is built on the Kitakami highland, Japan will reportedly need to cover about half of the costs as the host nation.

In its draft reply, the SCJ said there is not yet a prospect for sharing the costs internationally. The council also called for paying attention to possible environmental destruction due to large-scale construction work. While some have also expressed concerns that the plan could end up adversely affecting research budgets in other fields of science, the government has delayed making a decision on the proposal.

To make progress in the efforts to invite the ILC, it is necessary to explain the significance of ILC construction and the project's cost-effectiveness, thereby widening public understanding o the plans.

The ILC is a complementary facility for the world's largest accelerator at the European Organization for Nuclear Research, known as CERN.

In 2012, CERN confirmed the existence of the Higgs boson, which gives mass to all things. One of its next tasks is to conduct a detailed analysis of the Higgs boson through the use of the ILC.

CERN has started to lay down plans for its next research project. Whether CERN can incorporate the ILC into its next plan depends on Japan's moves. If Japan — a nation that devotes effort to the study of elementary particles — decides not to invite the facility, it will cause CERN to lose momentum for its next project at once.

It is about time to clarify Japan's intention to invite the ILC, on the precondition that various problems will be resolved without fail.

It is about time to clarify Japan's intention to invite the ILC, on the precondition that various problems will be resolved without fail.

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# Detector hall related comments at SCJ

Detector Hall crane (SCJ Aug.20)

- nice place and nice treatment will be necessary for the 4,000 ton gantry crane in Japan
- 4,000 ton will be the biggest crane in Japan
- earthquake-proof design

Detector Hall safety (SCJ Aug.20)

- How to secure the stability from the earthquake?
- Disaster prevention where people enters all the time

So, more discussion will be necessary

- Size of gantry crane in Japan, where earthquakes happen
- Optimization (cost, schedule) of the detector construction process with reliable crane

-> These should be well discussed inside detector group (main user of the crane).

# *Thank you for your attention*