

# ILC in Japan

A 10 minute introduction

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*March 24, 2014*

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## Some history

Long history, before I got involved around ~2004 ( yes a long time ago.....)

2004 - 2013

After decision to go with superconducting RF  
Worldwide effort on SCRF R&D  
Establish infrastructure & capabilities at Fermilab ( as well as DESY & KEK and others)  
Strong financial support for R&D and machine design worldwide

1.2 GHz SCRF established around world  
The ILC TDR was delivered by GDE in June 2013 for machine ( quite detailed)  
Detailed designs of two detector designs (ILD & SiD) were included as well

Rather complete package

2012 Higgs discovery makes case and staged scenario for ILC much stronger

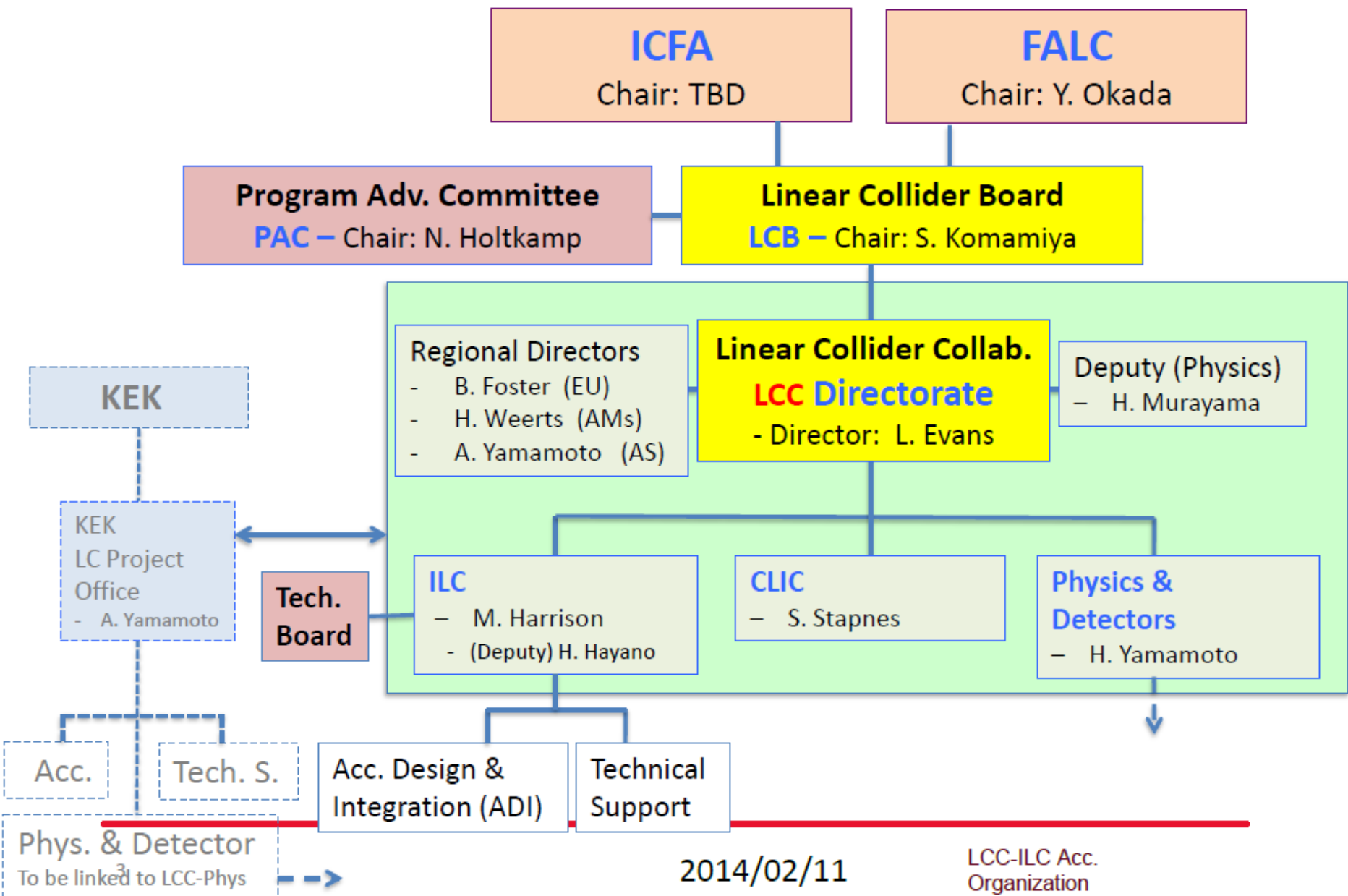
- After TDR funding in US and most other regions set to zero for ILC and remains at zero for now
- Japan initiates process to host the ILC in Japan
- No other hosts come forward
- Snowmass 2013 in US confirms science case for ILC ( LHC -> SLHC & ILC)

## Current status

2013      There is new worldwide organization including all possible colliders (ILC & CLIC):  
Linear Collider Collaboration (LCC)



# ILC in the Linear Collider Collaboration



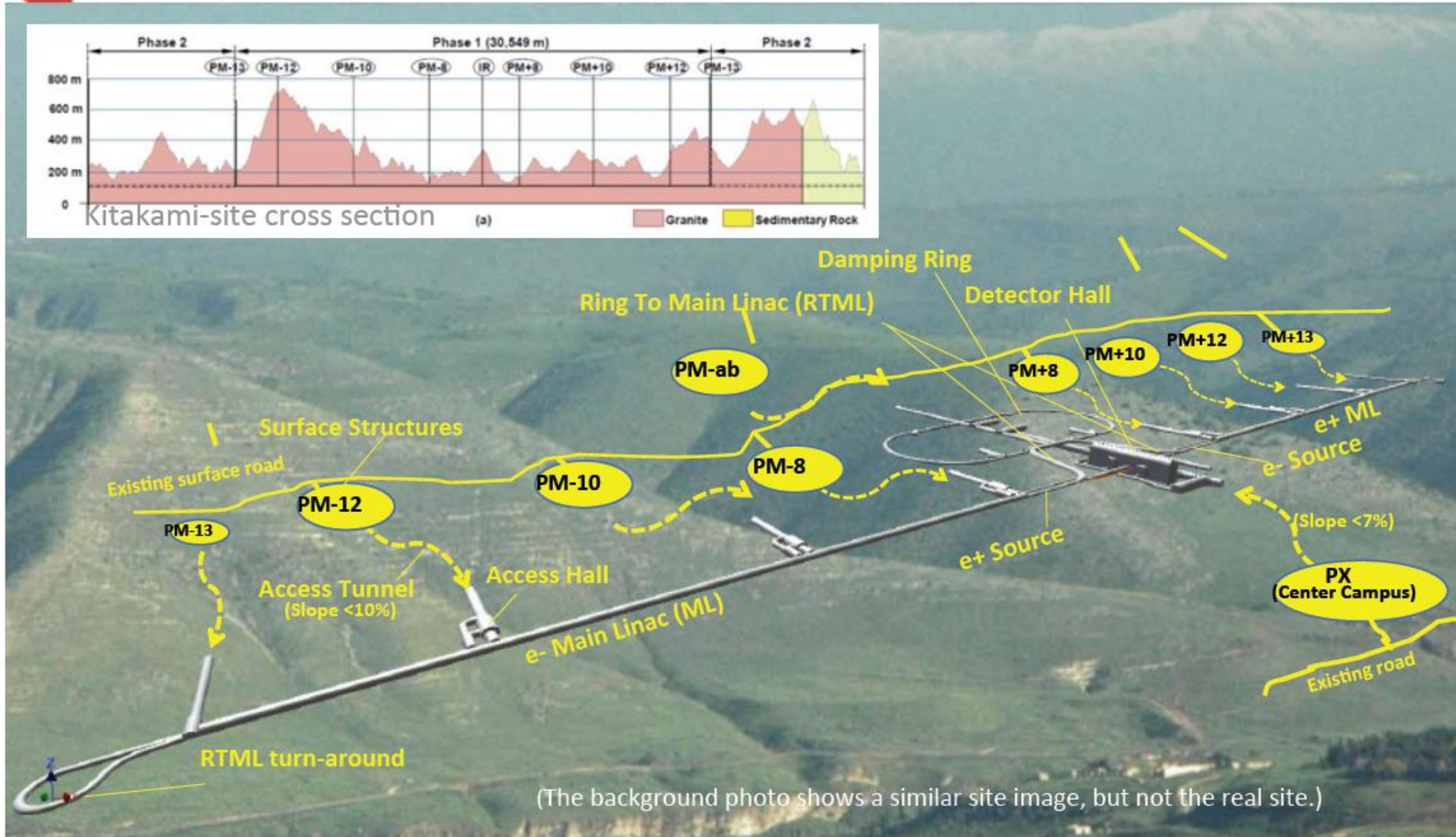
2014/02/11

LCC-ILC Acc. Organization

## Current status

There is new worldwide organization including all possible colliders (ILC & CLIC):  
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2013 Japan explores hosting  
Site selection process in Japan narrows down two sites and eventually to one by a committee of scientists – site selected near Tohoku ( Kitakami site)  
Efforts are now underway to do a site specific design  
No real \$\$ support for ILC yet in world.  
Initial amount in Japan \$0.5M to establish international connections & agreements



Need to establish the IP and linac orientation  
 Then the access points and IR infrastructure  
 Then linac length and timing

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MEXT ministry asks for advise from Science Council of Japan



# Science Council

- The Committee lists issues to be addressed as follows:
- A more precise research strategy for the ILC in view of the LHC upgrade path;
  - The **funding framework** that does not affect the broader field of science or other critical national priorities;
  - Detailed plan of **international cost-sharing**;
  - A **domestic organization** to implement the project consisting of the High Energy Accelerator Research Organization (KEK) and universities;
  - **Human resources** required during construction and operation, in particular, for leadership positions.





# Science Council

THEORETICAL

In parallel, it is necessary to have **discussions with the research institutes and the responsible funding authorities** of key countries and regions involved outside of Japan, and to obtain **clear understanding of the expected sharing of the financial burden**. All of the conditions for the implementation of the ILC project in Japan and achieving a high performance need to be elucidated. Must also be obtained a consensus regarding the project both in the broad academic community and the public at large.

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2014  
Japanese government (especially DIET members) “enthusiastic” about ILC.  
MEXT ministry asks for advise from Science Council of Japan and receives report.  
MEXT minister meets with DOE secretary and brings up ILC plus letter afterwards – official Japan US contact made



I visited United States Energy Secretary Moniz, and held a meeting on the International Linear Collider project, etc.

Jan 9, 2014, Facebook  
Minister of MEXT Shimomura



MEXT

MINISTRY OF EDUCATION, CULTURE, SPORTS,  
SCIENCE AND TECHNOLOGY-JAPAN

Dr. Ernest Moniz  
Secretary of Energy  
Department of Energy  
1000 Independence Ave. SW  
Washington DC 20585  
United States of America

February 7, 2014

Dear Secretary Moniz,

It was a great pleasure to talk with you when I visited the United States recently. In our conversation, I explained the current situation regarding the International Linear Collider (ILC) project in Japan, and I would like to reiterate what I said through this letter.

The Ministry of Education, Culture, Sports, Science and Technology in Japan (MEXT) requested the Science Council of Japan (SCJ) to examine the viability of the ILC project in Japan last year. The SCJ reported that they understood the scientific significance of the ILC, but on the other hand recommended conducting more studies to clarify some uncertain critical issues for making a decision whether or not join the ILC project, such as the implementation structure in Japan and the number of researchers who would join in the ILC project from the world around, with further consideration of two to three years. In response to the recommendation from the SCJ, MEXT allocated the budget for further relevant studies in fiscal 2014 and will examine the viability of the ILC with deep interest in the ILC project.

Researchers in the United States, Europe and Japan have been discussing and continuing their R&D with enthusiasm in the ILC project. Considering the significance and benefit of the ILC project, I believe that discussion from a wider perspective is essential. For this, I recognize that working-level informal exchanges of views among Japan, the United States and / or Europe should be started from the current stage.

However, the priorities for academic and scientific projects and the financial status vary between the countries. Therefore, for making a decision of whether or not to join the ILC project, discussion and sharing of the consensus about the scientific significance and challenges between government and scientists in each country that is interested in the ILC project is indispensable. I understand that the project prioritization process in the field of particle physics in the United States is ongoing. The United States is one of the leading countries in the field of particle physics research in the world, and I hope that substantial discussion will be conducted in the United States as well as in Japan on the ILC project.

Sincerely yours,

A handwritten signature in black ink, appearing to read "H. Shimomura". The signature is fluid and cursive, with a large, sweeping flourish at the end.

Hakubun SHIMOMURA  
Minister of Education, Culture,  
Sports, Science and Technology (MEXT),  
Japan

## Current status-- continued

2014

ILC project office set up at KEK

MEXT trying to understand project cost & impact AND manpower required (concern)

US: waiting for P5 roadmap; support is a requirement for US participation

Japan is deliberately moving forward

Rest of world is in a somewhat “wait & see” position

No funding available or identified so far

It is very clear that “ILC in Japan” will require VERY high level agreements among governments in order to proceed ( presidents- prime ministers).

This initiative will have to come from Japan.

### Possible technical time line:

Now – 2016 negotiations and come to international agreements

2016- 2018 finalize design; land acquisition etc

2018-2027 construction

2027 Start at 250GeV

Global projects  
are not easy