



# **ILC Physics and Detector**

## **- Status and Goals for LCWS14 -**

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LCWS14, Belgrade  
October 6, 2014



2014

2016

2018

2020

Deliberation by the Expert Committee  
International Talks

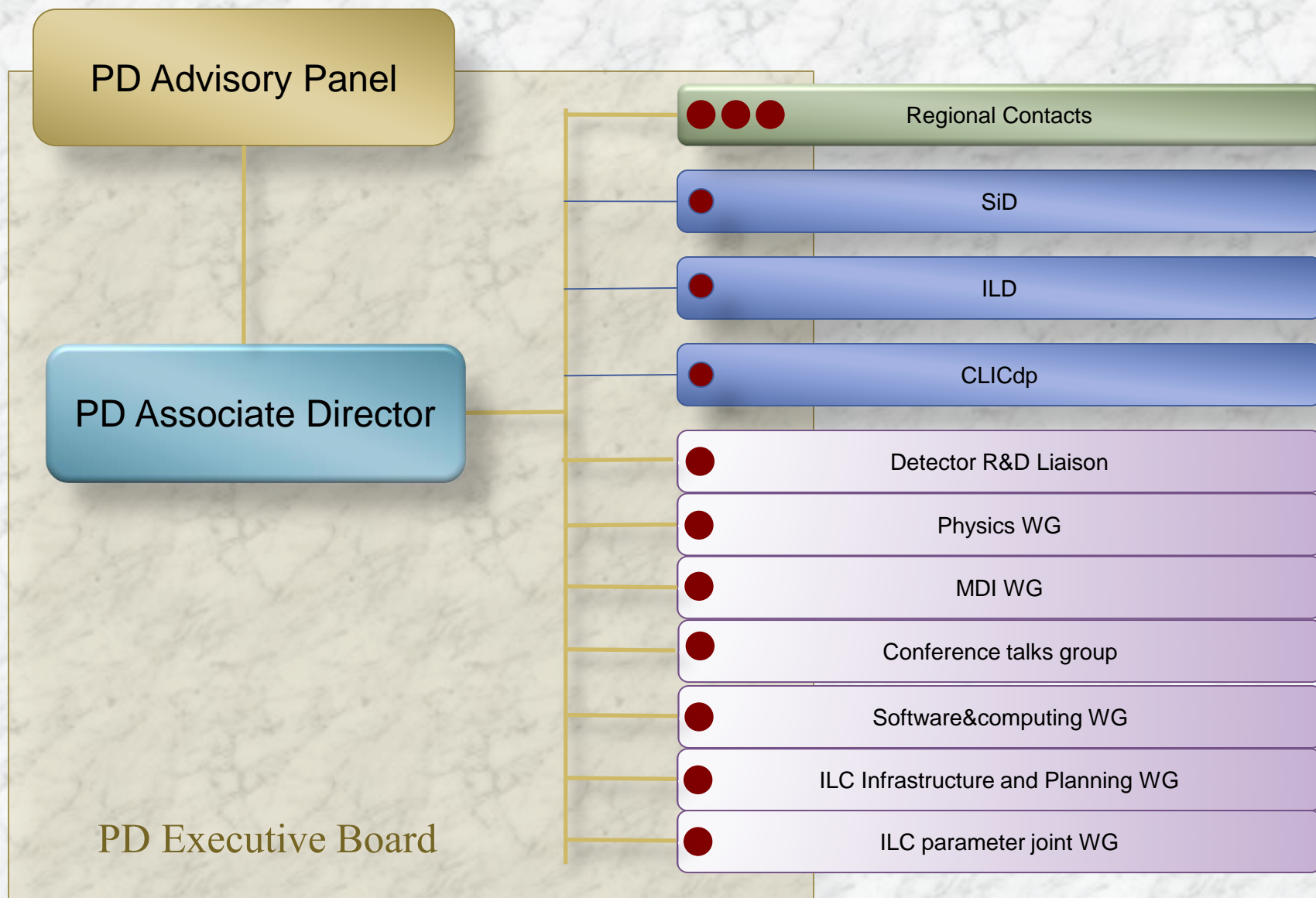
ILC lab established

Detector Proposals:  
Call, Submission, and Review

TDR completion

Construction

Detector groups are preparing for this period by  
Re-optimizing and re-organizing their detectors.





Science  
Council of  
Japan



**MEXT**

ILC Taskforce

Academic Experts Committee

Particle&nuclear physics  
working group

TDR validation  
working group

Recommendations  
Sep 30, 2013



- MEXT has requested \$0.5M for investigatory study which was approved on Dec 24, 2013.
  - Will be doubled next year (i.e. ~ \$1M)
  
- An academic expert committee was established under MEXT (Early 2014)
  - Report to be completed by FY2015 (i.e. end of March 2016) (even though extendable)
  - Kickoff meeting held on May 8, 2014
  - Next meeting: Nov 14, 2014

Japanese government is waiting for the report – including the state of international support.

It is talking to other governments, and other governments are waiting for Japan to make a definitive move.





- Two working groups under the Academic Experts Committee established :
  1. Particle&Nuclear Physics working group
    - On the ILC physics case with respect to other future projects
  2. TDR validation working group
    - On the financial and human resources as well as maturity of design
- The deadline is the same as that of the Academic Experts Committee (i.e. March 31, 2016)
  - They are working intensively now, and reports are likely to come earlier.



- Conveners
  - Keisuke Fujii, Christophe Grojean, Michael Peskin
- Members:
  - (North America) Tim Barkllow, Maxim Perelstein, James Wells, Jaehoon Yu
  - (Europe) Roberto Contino, Jenny List, Juergen Reuter, Frank Simon
  - (Asia) Shinya Kanemura, Hyungdo Kim, Mihoko Nojiri, Tomohiko Tanabe, Yuanning Gao
- Observer
  - Hitoshi Murayama (LCC deputy director)
- For the MEXT subcommittee:
  - Preparing material presented to the MEXT subcommittee
    - Together with the Japanese group (a large overlap of membership)
  - Producing a brief document on the ILC physics case
    - Intended for intelligent non-experts
- At LCWS14
  - ILC physics case session : Wednesday joint plenary



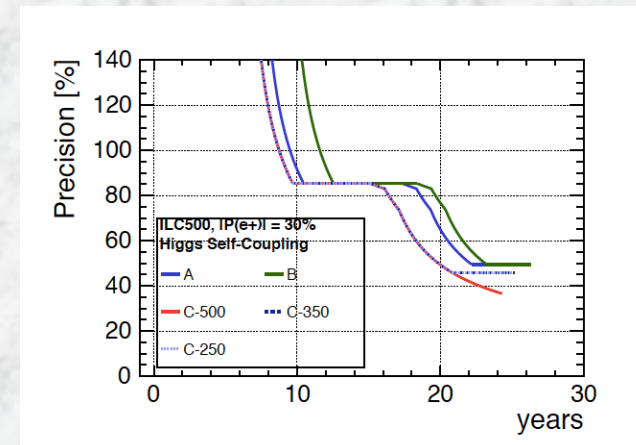
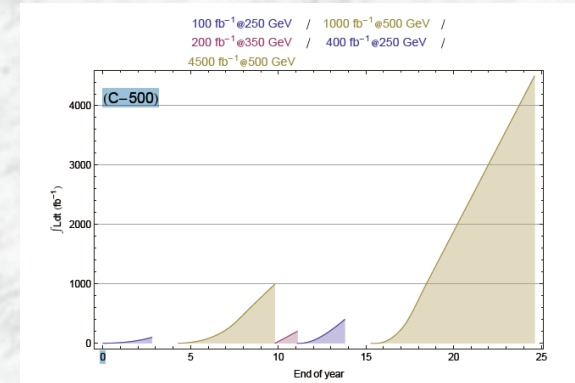
Goal: to come up with energy staging scenarios of ILC

## ■ Members

- **Physics/Detector:** Tim Barklow, Jim Brau (co-convener), Jenny List, Keisuke Fujii
- **Accelerator:** Gao Jie, Nick Walker (co-convener), Kaoru Yokoya

## ■ Procedure :

- ILC parameter WG produces 'a few' scenarios
  - A draft has been produced, was reviewed by the physics WG and LCCPDeb
- LCC/LCB are review the draft
- Ask comments from community at LCWS14
  - A special session is planned
  - Agree on a single official scenario



→ Single official scenario (?)





## ■ Charge

- Studies the time-profiles of the human and budgetary needs of the ILC detector activities.
- Proposes the organizational structure where the detector groups interact with the ILC laboratory.

## ■ Members

- Sakue Yamada (chair), Kiyotomo Kawagoe, Yasuhiro Sugimoto, Frank Simon(Mary-Cruz Fouz:deputy), Karsten Buesser, Marcel Stanitzki, Marty Breidenbach

## ■ Inputs to the MEXT TDR validation working group

- The TDR validation WG is to review the detector issues in ~Feb, 2015

## ■ Inputs to the LCB subcommittee on governance and management



- Liaison:
  - Maksym Titov, Jan Strube (deputy)
- A document describing current detector R&Ds relevant to LC is produced
- At LCWS14
  - Presented by Maksym in his plenary talk on detector R&Ds
  - Probably the last chance for inputs before the first release
- To be updated
  - Software R&Ds are to be included

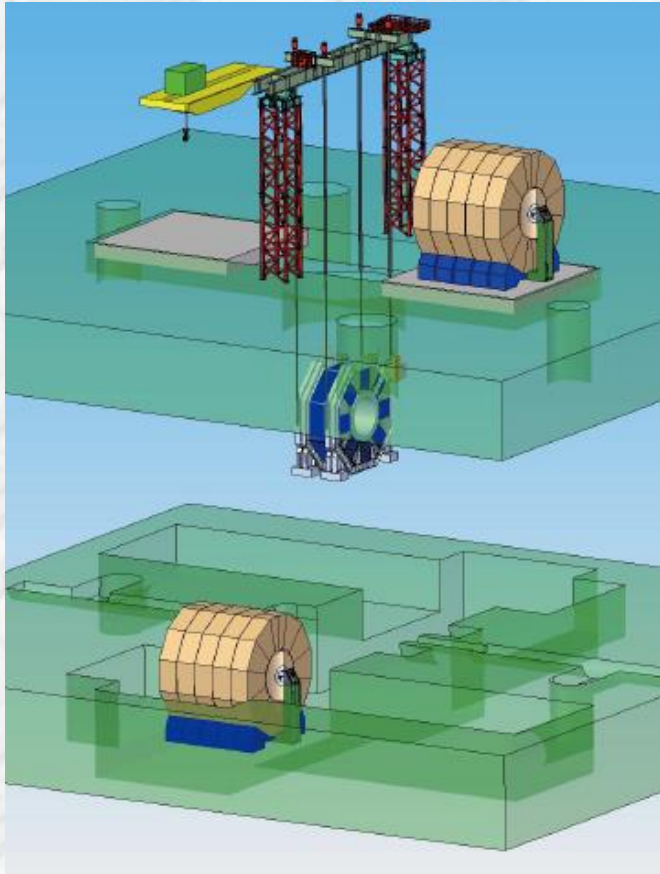


- A set of well-defined rules for changing the baseline design
- Change Management Board
  - **Members:**
    - The ILC accelerator technical board members
    - Two from the physics and detector community
      - Jenny List (ILD, Physics)
      - Tom Markiewicz (SiD, MDI)
  - The physics and detector AD can escalate change requests to LCC.



- Current  $L^*$ 's
  - 4.4 m for ILD, 3.5 m for SiD
- Same  $L^*$  is desirable
  - Machine tuning is easier, risk is minimized
- The smaller  $L^*$  : better
  - Luminosity tends to be larger
- The same  $L^*$  of 4 m or less is proposed
  
- Has already been submitted to CMB
  - Being discussed within the Phys&Det community
- A working group was established to clarify the implication of such  $L^*$  for detectors
  - To come up with answer in a relatively short timescale (not =1 year)
  - Answer from the physics&detector community depends on it





Vertical Access (in addition to horizontal)  
(CMS-like. Kitakami site allows this)

- Serious discussion began at LCWS13
- More study at MDI-CFS mini workshop  
Sep 4~6, 2014, Ichinoseki

At LCWS14 : last open discussion before  
formal submission to CMB





# Summary

- We are at a critical time when MEXT is deliberating on the case for the ILC
  - Time to make max effort to input our best cases
  - LCC PD working groups are doing good job, but could we do even better?
- ILC Change Management Process is starting to function
  - So far, it looks very positive
    - Relevant parties are effectively involved
- Also: detector groups are engaged in
  - Re-optimization
  - Re-organization

preparing for the period of the real collaboration forming and proposal submission&review after the ILC gets 'green sign'.