

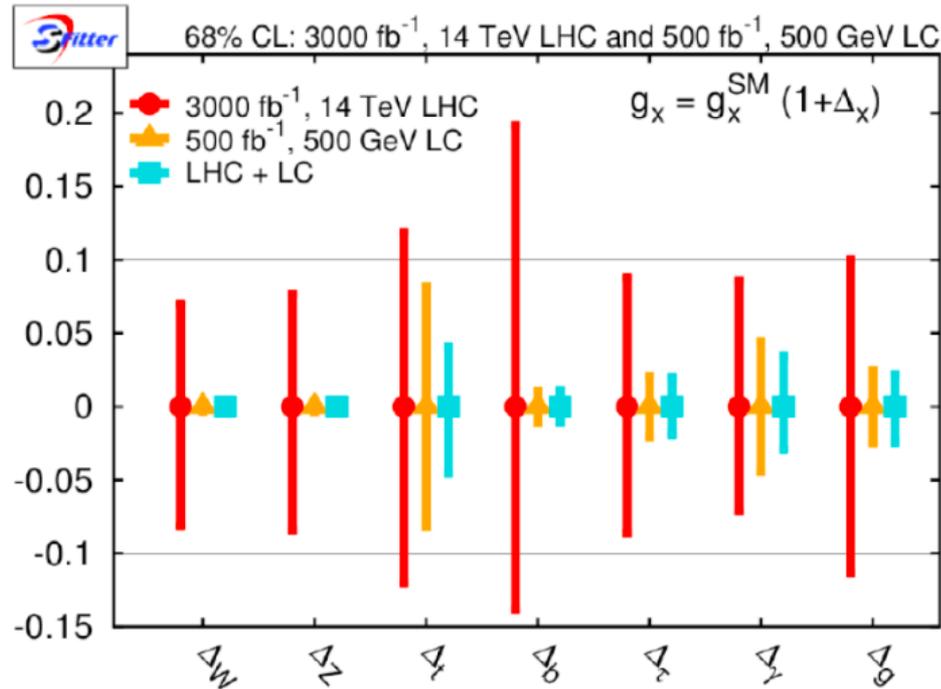


LCC Physics and Detector

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ECFA LC2013, DESY
May 27, 2013

LHC 14 TeV 3000 fb⁻¹ and LC 500 GeV 500 fb⁻¹

D. Zerwas

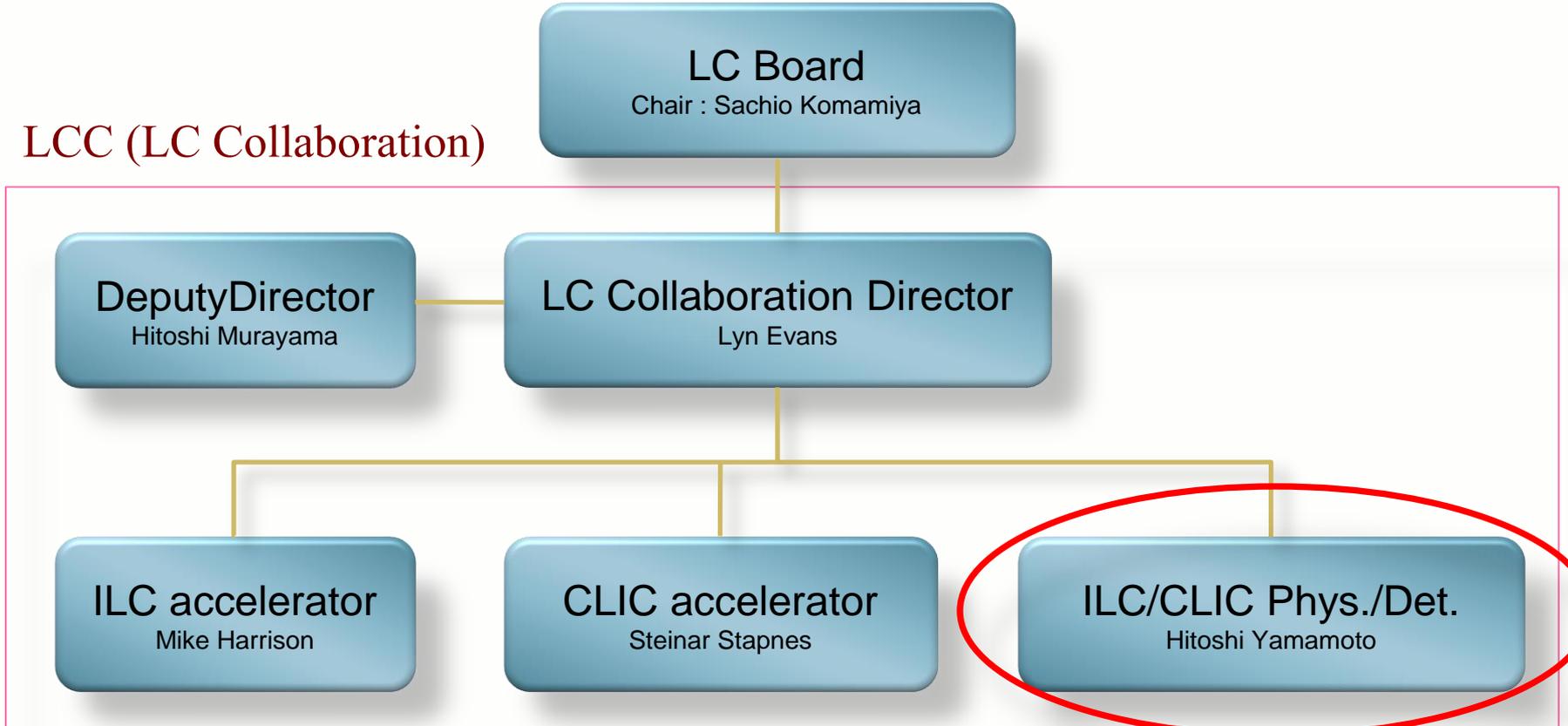
Apart from top and γ , ILC errors are 1/4~1/10 of LHC

(statistical equivalent: 1~2 orders of magnitude more- at about the same cost)

- LHC may improve systematics
- ILC may improve analysis methods



LCC (LC Collaboration)





Charge for the Associate Director for Physics&Detector

- The Associate Director for Physics and Detectors will be responsible for activities that advance the physics and detectors of the linear collider. He/she will coordinate the world-wide effort to develop advanced detectors that are appropriate for either accelerator technology.
- The Associate Director will report to the Director. Working with the community, he/she will prepare the way for collaboration formation and detector construction for when the project is approved.
- **Initially, the Associate Director will focus on**
 - Building the physics case for a linear collider;
 - Coordinating R&D on advanced detector technologies;
 - Developing validated detector concepts for both accelerator technologies.



Charge for the Associate Director for Physics&Detector

- The physics case for the linear collider will unfold in parallel with the LHC results. The Associate Director will continuously assess, update and further develop it, as appropriate. This work will inform the choice of accelerator technology. He/she will be an articulate spokesperson for linear collider physics and will interface to the global linear collider physics community.
- The Associate Director will guide world-wide R&D on linear collider detector technologies. He/she will create and supervise the process that will lead to final approved detectors.
- The Associate Director for physics and detectors will work closely with the Director and other Associate Directors to jointly address common technical issues.



Objectives of LCC Phys./Det. Box (tentative interpretation for updated environment)

- Complete remaining detector R&Ds and move toward realistic engineering designs based on DBD, and prepare for realization of the ILC. (Thank you Sakue and all!)
- Coordinate the collaborative phys./det. efforts of the ILC and the CLIC. Promote the CLIC physics&detector studies.
- Coordinate physics studies for LC, and work closely with the deputy director (HM) to advance the physics case in the wider community.
- Encourage participation of new researchers in LC, and prepare an effective framework toward collaboration formation.
- Globally promote generic detector R&Ds relevant to LC.



General Remarks on Building the New Structure

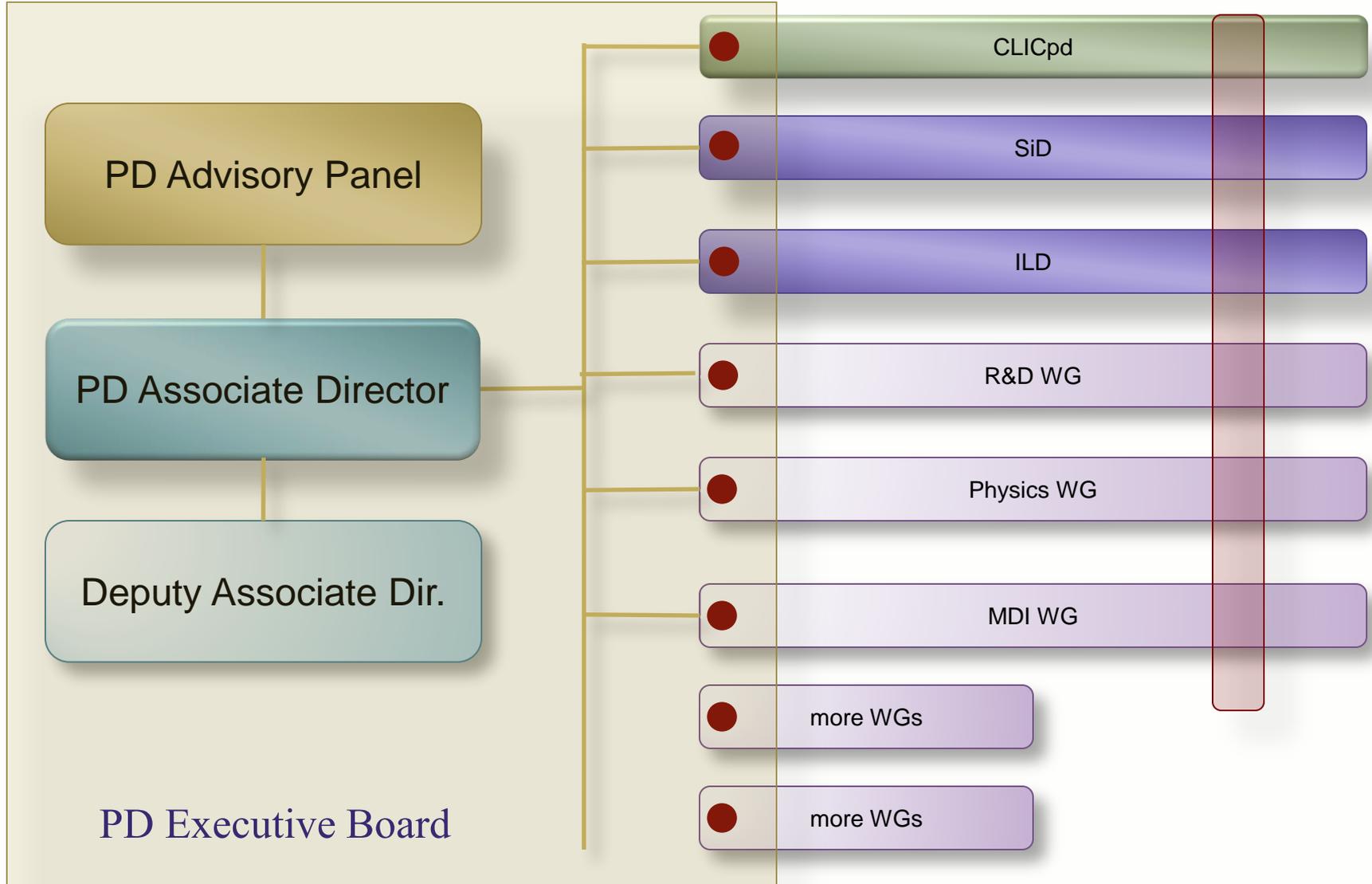
- Do it right than do it quickly
 - But is is about time to move

- Physics and detector community
 - Works best when organization is as bottom up as possible
 - Phys./det. AD is more a 'coordinator' than a 'director'
(but could be 'pushy')

- Each groups such as SiD, ILD, R&D groups, etc.
 - How to organize itself is up to each group
 - There may be some guidance/suggestion by the LCC management



Possible Structure





PD Deputy Associate Directors

- 3~4 members
- Nominated by relevant bodies (regional etc.) in consultation with the associate director
- Report to the associate director
- Assist the associate director in executing his/her mandate
 - Initially their task includes participating in forming the PD structure
- A formal mandate is being drafted
- Currently negotiating with regional bodies (ECFA, ALCC, AsiaHEP)



PD Advisory Panel

- Advises the associate director in executing his/her mandate
- Could act as a reviewing body for the concept groups
 - No thick reports to produce anytime soon!
 - However, the progress of concept groups toward real collaborations should be guided objectively



Concept Groups

- CLIC, SiD, ILD are now moving toward more formal organizations
 - Better defined membership
 - Sub structures defined clearer

- Eventually, they will form the cores of real collaborations
 - The process of forming the real collaborations should be open to new comers
 - Members of existing groups
 - New groups with new ideas
 - Should also be done in an orderly matter such that efforts accumulated up to now are not wasted



R&D Working Group

- Coordinates detector R&Ds relevant to LC including R&Ds currently not directly adopted by the concept groups
- Represented by a coordinator and a deputy, who sit on the PD executive board
- Representatives of large R&D collaborations can also attend the PD executive board. This includes R&D groups currently not directly adopted by the concept groups, e.g. '4th'.



Physics Working Group

- Will be the key body to formulate the physics case for LC
 - Theorists & experimentalists
 - Closely connected with physics analysis efforts
- Observer: the deputy director (H. Murayama)
- The need is quite urgent
 - e.g. Snowmass process + P5



Linear Collider Workshops

- Two kinds:
 - **International**
 - Once a year. Location rotates among 3 regions.
 - Next one is in Tokyo, Nov 11-15, 2013
 - **Regional**
 - Once a year. Location rotates among 3 regions.
 - This one (ECFA LC2013) is an European-hosted regional workshop

- Regional workshops are now very much ‘international’, but important to keep regional initiatives.



International Linear Collider Workshops

- Has been called 'LCWS'
- Historically organized by the WWS
 - Originally, phys/det only
 - Then, accelerator and physics/detector communities started to hold joint workshops
 - CLIC also joined in
- The joint organization committee of the Tokyo LCWS has decided that
 - From the Tokyo LCWS on, the 3 associate directors of LCC will be the 3 co-chairs of the joint organization committee of LCWS, with the LCC director as an observer.



Regional Linear Collider Workshops

- Organization committee
 - Mostly regional members
 - Historically chaired by the WWS co-chair of that region
 - Other two WWS co-chairs joined the committee

- Future form of the organization is not defined yet
 - At least, the 3 LCC associate directors will join the committee
 - Who chairs the OC?



On the Worldwide Study

- Two main tasks of WWS have been:
 - Organize the (phys/det part of) international LC workshops
 - Represent the wide linear collider community
 - e.g. reported at ILCSC etc.

- However, the international LC workshops are now organized by LCC

- I believe:
 - WWS still has its *raison d'être* as a grass-roots body representing the wide LC community – reporting to committees such as LCB
 - It has to re-establish itself as a body truly representing the wide community