

Status of ILC detector/physics activity

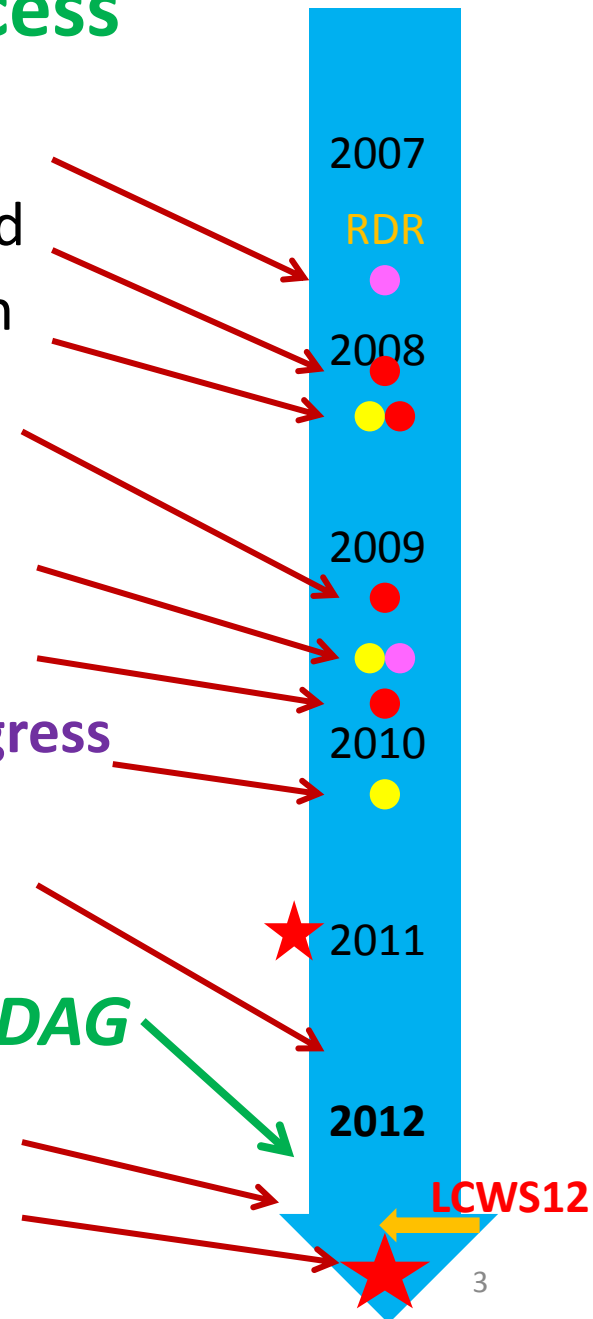
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LCWS12@Arlington

Topics

- Status of DBD
- IDAG Review of DBD @LCWS12
- Plans
- Post 2012 scheme

The time line of the LOI process

- **Oct. 2007: Call for LOIs was made by ILCSC**
- Jan. 2008: Detector management was formed
- Mar.2008: IDAG formed, 3 LOI groups known
- **Mar.2009: 3 LOIs submitted**
- Summer 09: **IDAG recommendation for validation and ILCSC's approval**
- Oct 2009: Work plan of the validated groups
- **Mar:2009: IDAG began monitoring the progress**
- **End 2010: Interim report completed**
- **Apr.2012 DBD outline monitored by IDAG**
- **DBD Draft Review by IDAG**
- **End 2012: DBD to be completed**



Status of DBD

Both Physics volume and Detector volume have been drafted.

Since the last KILC12 much effort has been put for drafting.

~700 pages !

Physics volume: 220 p.

Detector volume: ~500 p.

Not surprising being a summary of 5 years R&D

Congratulation & Appreciation !

Status of DBD (continued)

Works continue !

The drafts are yet incomplete
requiring editing and updating.

In parallel,
the drafts, as of end September, are now being
reviewed by IDAG.

To IDAG members,

“Sorry about rough drafts to read.”

(There will be interview of IDAG with relevant
author groups during this WS, Tuesday- Thursday.)

The physics volume

This volume describes the physics possibility of ILC in the light of new LHC results and referring to the simulations based on the detailed detector design.

- The volume was written by the author group convened by M. Peskin, and its first draft was made open already in July and is kept improving.

You are welcome to read and comment.

<http://lcsim.org/papers/DBDphysics.pdf/>

It is ~3 times thicker than the original plan.

Covered topics of the Physics Volume

- SM Higgs,
- Higgs coupling deviations from possible new physics
- Two-Fermion Processes
- W and Z Boson Physics
- Top Quark
- Extended Higgs Sectors
- SUSY
- Cosmological connections

I found these are very pedagogic for us, too.

The detector & simulation volume

This volume describes the detailed baseline designs of the two detectors, their feasibility and capability for solving the aimed physics questions.

- **Introductory chapter (30 p)**
- **Common chapter (50 p)**
- **two detector chapters**
 - ILD and SID (each 170-180 p)**
- **Future prospect chapter (a few pages)**

The outline of their contents were monitored by IDAG during KILC12 last April.

Introductory chapter

“The physics and general characteristics of the ILC”

- **Physics Goal of the ILC**
very brief summary of the physics volume
- **Detector challenges and performance requirements**
aims for R&D
necessity of two detectors,
machine backgrounds,
benchmarks
- **Brief record of the LOI process and its organization**

Common chapter

This chapter describes common items for the both detectors.

- Detector R&D in common
- Event simulation
 - generation of events
 - common tools for simulation
- MDI issues
 - Push-pull scheme, shielding
- Beam Instrumentations
 - measurements of beam energy, polarization and luminosity

DBD Format WG

This group coordinates and edits the contents of the introduction and common chapters.

It also planned the schedule till DBD completion.

- **Members:**

(ILD) T. Behnke, Y. Sugimoto

(SiD) P. Burrows, M. Stanitzki

(Management) J. Brau, J. Fuster, H. Yamamoto, S. Yamada

The group should continue working on editing.

Detector chapters, ILD and SiD

- **Talks by the groups are planned in this session.**

- There are some numbers still missing in these drafts (1 TeV simulation).

We hope these can be filled soon.

- **Both groups exceeded the expected limit of 150 pages.**

We will reconsider the limit while trying to remain within 10-20 % increase.

(These are the final report of our work during the LOI era. To convince experienced readers, detailed information will be useful.)

Interviews with IDAG

Much time is prepared for detailed discussions with authors.

- Tuesday, 23 morning-1: **Introduction chapter**
- morning-2: **Physics**
- afternoon: **Common chapter**
- Wednesday, 24 morning: **SiD**
afternoon closed session on SiD
- Thursday, 25 morning: **ILD**
afternoon closed session on ILD

Updates of the chapters will be presented and we shall receive comments from the IDAG for improvements.

Plans after the review by IDAG

Further polishing will be made quickly,
and the updated version be made open to the
community hopefully within a week or so.

Call for signatories based on this version:

It will be done through web (like for RDR)

The URL will be announced (in our web-page).

**The idea is to collect names of
the contributors, possible collaborators
and supporters to the project.**

Review by PAC

External review for ILCSC

We submit ~final version to PAC:

end November

PAC meets on December 13/14 at KEK

to review both TDR and DBD.

Some IDAG members join this PAC as reviewers.

DBD review scheduled on 14, Friday:

We plan to present both volumes,

in particular, each chapter of the detector volume.

Reviewed drafts

- On December 15, there will be an event in Tokyo to hand symbolically the reviewed drafts of TDR and DBD to the ILCSC chair.
- *In practice, we shall update the draft, after the PAC review, hopefully slightly to make the final version.*

Final Version

Our planned due date: Dec. 21

We wish to hand the final DBD to ILCSC early next year.

Important date:

**ILCSC will meet in February (21, Thursday)
jointly with the new LCB.**

**We wish our DBD will be a good jumping board
for LCB to make the next step.**

Final Version of DBD

- **We plan to publish the final version of DBD.**

There will be a launching event of TDR/DBD in June 2013 in all the regions in series.

The organizing committee was formed.

The regional contact in each region will be the key members of each region.

Details are to be worked out in the org.com. which meets here.

Activity in the next phase

- The Higgs particle-like boson from LHC gave a strong impact what to do next.
- We hoped ILC project would be boosted, and witness positive reactions in the HEP community.
- The accelerator group is completing its TDR.
- The concept groups may wish to go ahead toward technical design phase.
- I hope the new scheme will lead and assist this.

Post 2012 scheme

How to organize the detector/physics branch remains to be solved.

Detailed mandate for the Associate Director was not discussed by the ILCSC so far.

It was agreed that both ILC and CLIC list candidates for the Associate Director, and nomination would be made by the new LC director.

By now both ILC and CLIC candidates have been given.

Summary

- DBD is on its way to be completed, although editing work must be continued.
- IDAG reviews the present version and the improved version will be made open for the call of signature.
- PAC will review the improved ~final version in December.
- The final report will be submitted to ILCSC early next year.
- We wish the new organization make it good material together with TDR to boost the project.