

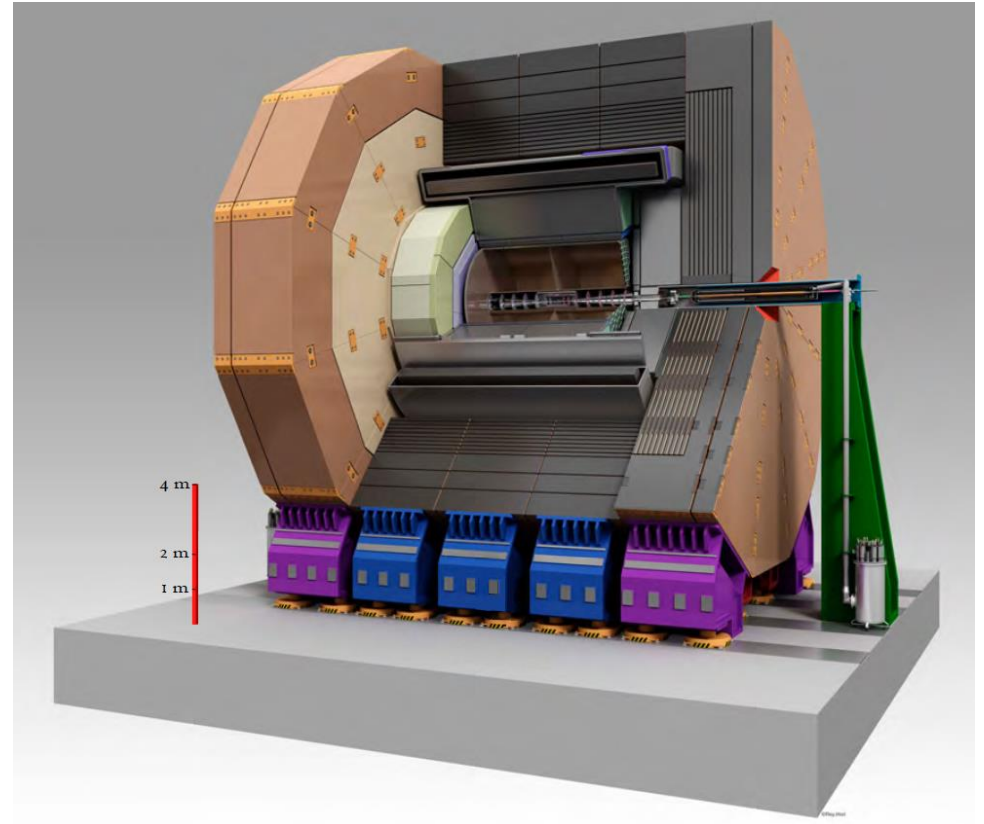


Summary

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ILD meeting virtual



General Situation



- Pre-lab proposal has been published
 - Impact not so clear
 - MEXT has received the request, will study it
 - Officially the questions raised from Japan Science Council have not been answered
- Budget request is being prepared, but not yet submitted
 - Exact strategy and time-plan is not totally clear to me
- Time line discussed by Tatsuya depends on the budget situation

Time line discussed



- **2021:** The IDT calls for EoIs, to be presented in a dedicated workshop after Pre-lab start
- **2022:** Assumed start of the Pre-lab. EoI presentations in dedicated workshop. The process of moving from EoI presentations towards LoI documents is community driven. Initial dedicated ILC R&D funds will be needed.
- **2023:** LoI submissions and presentations. The ILCXAC will initiate its evaluation of the LoIs. R&D continues.
- **2024:** ILCXAC recommendations of initial ILC experiments to proceed towards TPs. R&D towards the TPs.
- **2025:** TP submissions and presentations of these experiments. Continuation of R&D and recommendations by the ILCXAC based on the submitted TPs.
- **2026-27:** Approval of the experiments, based on the TP and ILCXAC recommendations, by a committee set up by the ILC Laboratory. Recommendations to proceed towards Technical Design (TDR) Reports. Funding requests for construction are being prepared and submitted according to the relevant procedures for the participating institutes.

This is a very optimistic time line in my view

ILD actions



- Expression of interest
 - “easy”
 - with the IDR we have easily the material to write an EOI, whenever this is needed
- Letter of Intent
 - this is real work
 - we should insist that there is enough time available to write a good LOI (not just a repeat of the IDR)

Questions/ Discussion points



- Detector Technologies and Integration
- Physics Analysis
- Software and Reconstruction

Technologies



- Timing in all Systems
- Technologies/ scope:
 - Re-visit our current list of options
 - Do we need to extend the options, are there new technologies to be considered? Example micromegas based readout for ECAL?
- Particle ID:
 - For which momenta?
 - Which science case?
- Technology screening:
 - Shall we start an effort here?

Detector Optimization



- Timing: for which systems, how precise, technical implementation
- Forward tracking: comparison to CLIC
- Comparison TPC tracking to SI tracking?
- ...

R&D



- Existing R&D collaboration efforts
 - CALICE
 - LCTPC
 - FCAL
- How can we expand this? Can we draft new people and/ or new technologies by organizing special R&D sessions/ integrate with other bodies?
- Shall we re-new the R&D review activities from the past?
 - Remember ECFA has instituted a standing review board which we can call upon

Detector Integration



Engineering concept of the detector

- Central CAD model support
- Central engineering data handling and storage

Integration concept

- Very positive to see activities
- Obviously the level of work is low, but very relevant, and should find our full support

Analyses



Lots of interesting analysis channels

- List of interesting analysis being maintained: important to attract new people
- This is important to make the science case
- But is this enough these days to convince people to fund ILC:
 - Can we find good arguments why ILC would push methods/ methodology significantly?
 - Example: LHC analyses pushed a lot the development of Machine Learning techniques for event classification: can we make a convincing case why e^+e^- could contribute to cutting edge data science?
 - Can we spin an “elevator” story why we it is worth spending 6Billion on Higgs?

Analysis Goals



Maintain our lead role

Keep our capabilities honed

Include in a more complete fashion systematic errors and calibration questions

Relate to detector performance and geometry

Software / Reconstruction



- We have a very powerful software environment
 - This is unique in the community, and a big plus
 - Detailed detector model exists (interface to engineering?)
 - Need constant updating to reflect our latest understanding
- Do we have a concrete “next goal” a la 250 GeV production?
- Modernising our software ecosystem?
- Connections to other communities?

Personpower is really critical, we need to increase the participation!

Calibration/ Alignment



- Systematic errors are an important ingredient
 - See analyses popping up, which include sys errors
 - Very little has happened on calibration/ alignment:
 - Impact on algorithms?
 - Impact on detector definition?

Reconstruction



- We have a remarkable suite of reconstruction software
- Be part of a general move towards more generic algorithms
- Pandora is a good example how such algorithms can then fan out into other communities (but we lack by now the local know-how to further develop this)
 - Shall we setup a working group on PFA alternatives?
- Explore completely new technologies:
 - Artificial intelligence
 - Quantum computing
 - ...???

The way forward



- Each group within ILD develops a prioritized work plan on open issues and questions
- We publish these list on the ILD confluence

- Based on these list, and over the next year we develop a “development Plan” for ILD:
 - Which capabilities should be expanded
 - Which technologies we see a high potential technologies
 - Develop a plan how based on different scenarios we can see ILD developing
 - Publish this as a document in about one year

- Develop a view how ILD can “have an impact”
 - Develop a coherent story, spread the word

