

LCC/LCB Report

30. 03. 2017

Sachio Komamiya

Director salary

Administration

Travel

Outreach

~1.3CHFr/year

LCC definitely needs common fund.

LCC reports Lyn Evan

Mini-workshop on world-wide effort on SRF R&D:
Because of the broad interest and limited resources,
important to have clear picture of priorities of each of
labs involved, in 2-3 years. Revised R&D plans at
various labs around the world, summarized in a table
In the next page.

Worldwide SRF R&D Plan

	On-going	R&D: ML Cavity	Assoc. System	Cryomodule	RF
Fermilab	LCLS-II	N ₂ -infusion (HQ-HG)	Coupler		
JLab	LCLS-II	Nb-LG/FG (Ingot-sliced/rolled) , N ₂ -infusion			
DESY	EXFEL	N ₂ -infusion Nano-Lab study		High-performance CM	
INFN-LASA	ESS	Nb-LG/FG systematic study for ESS			
CEA/CNRS-LAL	IFMIF ESS, SARAF	Vertical EP (VEP), N ₂ -Infusion	Magnetic shield Coupler	Assembly robotizing	
KEK	STF	Nb-LG/FG N ₂ -infusion	Coupler, Tuner Crab. C.		Marx M.
IHEP	ADS	N ₂ -infusion, Industrialization		Industrialization	Marx M. h.e. Klystron
CERN	HL-LHC Hi-Isolde	Thin-film (Nb on Cu)	Coupler		h.e. Klystron
TRIUMF	ISAS-II, ARIEL	VEP, muSR			
(Cornell)	xcs	N ₂ -infusion, VEP			

The substantial increasing of Q and the gradient G by nitrogen doping at Fermilab is a breakthrough development. Opens up the possibility of increasing the gradient for ILC and reducing the cost.

Achieved 45.6 MV/m with $Q \sim 2 \times 10^{10}$. In the short term, assume 35MV/m. As can be seen from the table, ten labs are investigating N₂-infusion/doping.

Ingot work is beginning at three labs. Fundamental physics studies at DESY and TRIUMF.

Prioritize R&D and have results in 2-3 years

⇒ Determine the gradient

After checking the reproducibility, the technology should be transferred to industry (industrialization).

High Power Beam Dump

ILC/CLIC ~18MW one order higher than previous ones.
This is a concern.

No way to build prototype.

Additional design efforts are being made at KEK in collaboration with CERN. CERN can be a critical reviewer of the beam dump design.

X-band Klystron-driven LC

After the technical design choice of SCRF in 2004, no cost comparison between cold vs warm.

This should be treated very carefully in the context of CLIC study and the CLIC people will look at this.

No real machines in the world [cf. SRF EuroXFEL, (LCLS-II)
C-band SACRA, PSI-XFEL]

LCB Meeting 16.02.2017 Valencia

Welcome & Introduction

Dr. Tatsuya NAKADA, Dr. Juan José HERNÁNDEZ REY

LCB Status

Dr. Tatsuya NAKADA

LCC Status

Dr. Lyn EVANS

ILC Status

Dr. Shin MICHIZONO

ILC Progress in Japan

Dr. Masa YAMAUCHI

CLIC Status

Dr. Philip BURROWS

LC Detector/Physics Status

Dr. Jim BRAU

Discussion on LCB/LCC activities and plans for next 2-3 years

LCB Meeting 16.02.2017 Valencia

Chair Komamiya \Rightarrow Tatsuya Nakada

15.02.2017 FALC Meeting Valencia G. Blair (chair)

CERN/EU Sijbrant de Jong (CERN Council president)
European Strategy Group Plan

2017 Sept. Appointment of Strategy Secretary

2018 Sept. Formal opening of the process

2019 preparation of the briefing book

2020 Jan. Draft of proposed strategy by ESG

2020 March Discussion of the proposed strategy by
the Council

2020 May Adoption of new strategy by the Council

Report by Nakada

Based on the European Strategy Group recommendation will appear in May 2020, we need to set up a milestone to work with. There will be intense discussion on the Strategy in 2019. The LC efforts should have something concrete by then. We should figure out what need to happen in the rest of the world to make sure that the Japanese can come up with a positive answer. LCB needs to be pro-active.

Comment by Fabiola Gianotti :

It is important to have by the time of European Strategy Group Update in 2018-19, willingness of Japan to host the ILC and clear statement from Japan.

Comment by Joachim Mnich:

LC is one of important keystones. We should find out what we need to do in order to make it happen.

ILC Status Shin Michizono

cost reduction for SRF

Nb material preparation

SC Cavity fabrication high Q, high G

Power input coupler

Chemical treatment of cavity

e⁺ production

Beam dump

ILC progress in Japan Masanori Yamauchi

Organization of ILC promotion at KEK (WGs)

Nomura Research Institute

Physics at the 250 GeV ILC by JAHEP

synergy with HL-LHC

Comment by Fabiola: If MEXT wants to negotiate with CERN, CERN is willing to do so.

LC Detector/Physics Jim Brau

New Report arXiv 170205333

Answer document to the Report of the Advisory Panel (August 2015)

$E_{cm}=500$ GeV ILC is assumed

Comment by SK on physics studies at 250 GeV ILC:

The comparison between the accuracy of the Higgs couplings by 250 GeV ILC and those by HL-LHC is not so impressive, and probably it is not enough to justify the 250 GeV ILC.

We need to show what we can say about the direction of physics beyond the Standard Model through the combined fit of all the measurements at the 250 GeV ILC (with reasonable Luminosity $1-2\text{ab}^{-1}$).

The next LCB phone meeting 11.04.2017

Conclusion

2017-18 is a critical period for the promotion of the ILC project . (Cost reduction efforts of ILC, 13 TeV LHC results, European Strategy Group Update, new P5 in US, ...)

We need to justify the significance of physics of the 250 GeV ILC, and to reach a consensus of the LC community by this summer on the construction of 250 GeV ILC based on the drastic cost reduction with reasonable accuracy.

LCC/LCB should figure out what need to happen in the rest of the world to make sure that the Japanese can come up with a positive answer.

LCC/LCB needs to be pro-active.