





ILC International Development Team





WG1 is being set up with representation from/nominated by major labs in some cases in consultation with FAs (around ~5 per region)

In Europe nominations from the Lab Directors Group (LDG)

First meeting 28.12, second next week

- Status of deliverable planning
- Organization of prelab
- Legal status
- Conditions for and how to start the prelab

WG1 and EB

EB meets weekly

Preparation of WG1 issues

WG2 and WG2 reports and discussion

- Deliverables
- Planning in Japan

(recent report: <u>http://jahep-ilc.org/files/ILC_JP_update_20210116_E.pdf</u>)

Recent Progress Towards the Realization of the ILC in Japan: Cooperative Efforts by Academia, Industry, and Local Region

January 16, 2021

JAHEP ILC Steering Panel¹

- Membership and organization, lately mostly linked to WG3
- Timelines for example for experimental programme starting with Eols ..
- Workshops

Communication and Newsline



JAHEP ILC Steering Panel

- In October 2020, the Japan High Energy Physics Committee (HEPC) that represents the Japanese high energy physics community (Japan Association of High Energy Physics – JAHEP) established the ILC Steering Panel to accelerate community-wide efforts to realize the ILC.
- The ILC Steering Panel, chaired by Satoru Yamashita, is charged to lead the community to advance the ILC project and actively cooperate with other scientific communities, government authorities, legislators, corporate leaders, regional governments, and media, as well as international communities and authorities, toward timely realization of the ILC in Japan.
- The Panel is expected to work closely with the ILC International Development Team and KEK.

ILC Steering Panel Members :
Shoji Asai (University of Tokyo)
Kazunori Hanagaki (KEK)
Toru lijima (Nagoya University)
Kiyotomo Kawagoe (Kyushu University)
Sachio Komamiya (Waseda University)
Shinichiro Michizono (KEK)
Tashinari Mari (University of Takya)
Hitoshi Murayama (UC Berkeley/University of Tokyo)
Yutaka Ushiroda (KEK)
Hitoshi Yamamoto (Tohoku University/IFIC Valencia)
Satoru Yamashita (University of Tokyo) – Chair





ANNOUNCEMENTS Two workshops 2021 — Please mark your calendars

by Tatsuya Nakada, Hitoshi Murayama and Steinar Stapnes

The 2021 International Workshop on Linear Colliders (LCWS 2021) will be arranged by Europe/CERN as a remote meeting from15 to 19 March next year. Similar to the past meetings, it will cover the physics, detector, and accelerator studies of ILC and CLIC. The meeting will be at a timely moment since the European Strategy for Particle Physics Update has been published and its implementation started. Also, the ILC International Development



Team and its working groups have been set up and detailed plans for the ILC Pre-lab are being made. In parallel, the Snowmass process is on-going. This workshop will be followed by individual more specialized ones for ILC and CLIC in the autumn 2021. We are looking forward to "seeing" you all in March.

The ILC International Development Team (IDT) will hold a workshop, **Towards ILC Expressions of Interest**, in October 2021 in Tsukuba, Japan, with focus on the experimental programme of the ILC. The main meeting will take place from 26 to 29 October with an optional tour to the ILC candidate site in the Tohoku region of Japan, as well as satellite meetings before and after the main meeting. The discussion will be centred around the steps toward the Expressions of Interest for the experiments at the ILC. It will also include discussions of recent developments in detector technology and provide updated information about the Pre-lab planning and the general status of the ILC project. Further details will follow soon.







What is needed now ?



Pre-lab planning: two main entry points:

- Pursue R&D interests and capabilities, link to "local" strategic interests (Scientific and Technical Collaboration)
 - For some countries and groups this is the easiest entry point to Pre-lab contributions
- Identification and preparation of ILC deliverables one main one is a European SRF module line, then other individual WBS items (Qualify to deliver specific parts)
 - SFR module production line requires a multinational approach, other deliverable are a good entry point for countries and groups, linking to capabilities and industry

Involving Europe in the IDT:

- Participation in IDT WGs from Europe systematically encouraged (but not complete)
- European monthly information meetings (<u>link</u>), next Wednesday 27.1 10-12:00

Mapping of European Prelab planning (first overview by end February) for the accelerator:

- SRF capabilities in Europe (labs and industry) to be consolidated into a model for ILC cryomodule production (SRF discussion ongoing) see next slides
- Similar for the other accelerator parts

"National contacts/communities" actively planning for the next five years (IDT and Pre-lab period) and beyond for ILC

• Examples from UK, CERN, Spain

A	В	С	D	E	F	G	н	1	J	к	L	м	N	0	Р	Q	R	S	т
		Pull down menu from SHEET 2	Pull down menu from SHEET 3					2021		2022		2023		2024		2025	2	026-34	
Labora	atory Responsible/Contact Ja	oar R&D / PreLab / Construction category	ILC category	More details	Involved industry and state	us Collaborators and relevances t	FTE	Material (k€)	FTE	Material (k€) More comments (examp								
CERN	name/name	RD: Component designs (coupler/tuners/	Coupler production incl. preparation/RF processing r	e Design by May 22, possible protype	So and so can produce, not	HL LHC, FCC, etc													Funding available
CERN	name/name	PL: RF system protoypes	No appropriate category found	Klystron design and prototype										T					Applied for funding
CERN	name/name	RD: Cavity R&D, processes and final design	Cavity Production Success yield	Process studies, internal EB welding													0		Linked to work for PIP II
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A	В	C	D	E	F	G	н	1	J	к	L			
R&D - t	pically collaborative efforts which can be afford	ed with existing or adap	ted skills, p	ersonnel an	d facilities:									
1	RD: Cavity R&D, processes and final design	1 RD: Cavity R&D, processes and final design												
2	RD: Component designs (coupler/tuners/)	2 RD: Component designs (coupler/tuners/)												
3	RD: Longer term R&D (Grad,Q)	3 RD: Longer term R&D							1					
4	RD: Local infrastructure	4 RD: Local infrastructure			Steinar Stapnes:									
5	RD: Cryogenics system design	5 RD: Cryogenics system	n design		Activities the groups/labs can do with existing resources related to ILC SRE R&D, or									
6	RD: RF system R&D	6 RD: RF system R&D			infrastructure	development	s already funde	d by/for other	project F.g. F	&D on cavities				
7	RD: Crab cavity design and R&D	7 RD: Crab cavity design	and R&D		coupler, tuner	s, crab cavitie	s, longer term	R&D for even h	gher gradient	is etc.	1			
8	RD: Magnet design/R&D	8 RD: Magnet design/R												
9	RD: Other	9 RD: Other									-			
Pre-lab	actvities - typically related to construction prepa	aration, includng local in	frastructur	e										
10	PL: Cavities preseries	10 PL: Cavities preseries												
11	PL: Cryomodule prototype	11 PL: Cryomodule prote	otype		Steinar Star	nes:								
12	PL: Components (coupler/tuner/)	12 PL: Components (cou	PL: Pre-lab inte	rests during	2022-25, with a	ramp up (i.e. r	nore resource	s						
13	PL: Transport	13 PL: Transport			needed at the	end).								
14	PL: Cryomodule prototype	3 PL: Cryomodule proto		Activities speci	fic in the Prel	ab phase, some	e of which can b	e covered un	der					
15	PL: RF system protoypes	15 PL: RF system protoypes			RD - however i	n most cases	we need to cor	nsider possibilit	ies and needs	for				
16	PL: Prototypes in industry (qualification)	16 PL: Prototypes in ind	ustry (qualifi	ication)	extra funding.	E.g our part o	f the preseries	cavities, cryom	odule prototy	pes,				
17	PL: Facilities and infrastructure (new/improven	17 PL: Facilities and infra	astructure (I	new/improve	category shoul	d exist in tabl	e in blue	ary. In most cas	es an approp	late				
18	PL: Other	18 PL: Other			category should	a exist in tabl	e in blue.	-						
Constru	iction responsibilities:	and the second second second second												
19	CN: SCRF cavities	19 CN: SCRF cavities												
20	CN: Power Couplers	20 CN: Power Couplers							_					
21	CN: HOM couplers	21 CN: HOM couplers			Steinar Stap	nes:	6 34 Create a	matrix (ala E VI						
22	CN: Frequency tuners	equency tuners 22 CN: Frequency tuners CN: Construction period 2020-34, Cree old vacuum 23 CN: Cold vacuum ESS, PIP, etc.) for possible roles of the I			ESS BIB atc) for possible roles of the European labs in the									
23	CN: Cold vacuum			cost estimate	nate yet.									
24	CN: Cryomodules	24 CN: Cryomodules												
25	CN: Cavity testing	25 CN: Cavity testing							_					
26	CN: Cryomodule testing	26 CN: Cryomodule test	ing											
27	CN: Shipping	27 CN: Shipping												
28	CN: Cryogenics system	28 CN: Cryogenics system	m											
29	CN: SC magnets	29 CN: SC magnets												
30	CN: Others	30 CN: Others												
31	CN: Crab cavity (provide details)	31 CN: Crab cavity (prov	ide details)											
32	CN: RF systems (provide details)	32 CN: RF systems (prov	ide details)											

Α	В	c				
	ILC CATEGORIES AS DEFINED IN THE DOCUMENT REFERED IN HYPERLINK BELOW					
40	Cavity production, partly incl. cavities w/ He tank+mag. shield for CM, high pressure gas regulation, EP/HT/Clean work, partly 2nd pass, incl. VT					
41	Plug-compatibility, surface treatment, Nb material to be reconfirmed/decided	States and A				
42	Cavity Production Success yield	Cavity Industrial-				
43	Tuner design to be decided	production readiness				
44	Infrastructure for EP, HT, VT, pre-tuning, etc.					
45	Coupler production incl. preparation/RF processing readiness (not incl. klystron, baking furnace, clean room)					
46	Tuner production readiness					
47	SCM (Q-D combined) production readiness					
48	CM production incl. high pressure gas, vacuum vessel, cold-mass, and assembly (cavity-string, coupler/tuner, SCM etc.)					
49	CM test and degradation mitigation (in 2-CM joint work) at production site					
50	CM Transportation cage and shock damper	Cryomodule transport				
51	Mockup-CM ground transportation practice	and Performance				
52	Real-CM ground transportation test	assurance				
53	Global CM transfer (sea shipment, longer than CM at E-XFEL, to be checked)					
54	Performance assurance test after global CM transfer					
55	Returning transport to home country again (by sea shipment)					
56	Hub-lab Infrastructure for the CM production, assembly, and test (at each lab.)					
57	Crab: Decision of installation location with cryogenics/RF location accelerator tunnel					
58	Crab: Design and development of prototype cavity/coupler/tuner/CM include. beam extr. line					
59	Crab: Cavity production, incl. cavities w/ He tank+mag. shield for CM, high pressure gas regulation, EP/HT/Clean work, incl. VT					
60	Crab: Coupler production incl. preparation/RF processing readiness (not incl. klystron, baking furnace, clean room)	Crah				
61	Crab: Tuner production readiness	Crab				
62	Crab: CM production incl. high pressure gas, vacuum vessel, cold-mass, and assembly (cavity-string, coupler/tuner, SCM etc.)					
63	Crab: CM test incl. harmonized operation with two cavities					
64	Crab: Infrastructure for CC (and CM) development and test (w/ corresponding lab.)					
65	EDR document preparation, regular meetings/discussions	EDR				
66	No appropriate category found					
	These categories are extracted from the WG2, SRF subgroup meeting 22.12 (password: ilc250)					
	https://agenda.linearcollider.org/event/9041/attachments/36215/56345/Item_ListV5C_SRF_17Dec2020.xlsx					



The ILC-IDT goals



Establish

- A preliminary list of Pre-lab tasks and deliverables and national/regional laboratories which might be interested in contributing to those
- Pre-lab resource needs for the regional activities and central office (a few % of the ILC cost)
 - List of task with resources estimate exists, being reviewed in next months, regional planning underway as indicated above
- A preliminary proposal for the Pre-lab organisation and governance by the end of this year (first WG1 meeting took place 28.12)
- \Rightarrow Needed for the Pre-lab Japanese funding request preparation by KEK in 2021 to obtain funding in 2022: a similar requirements for the other countries expected.

- During 2021: Finalise all the inputs needed to set-up the Pre-lab
- Attract more (new) people for the physics and detector activities by
 - During the next Linear Collider workshop (LCWS series, i.e. both CLIC and ILC) in Spring 2021 in Europe (will be remote), include a broad discussion/session on the ILC physics opportunities
 - Organising a dedicated workshop in Autumn 2021 to discuss ideas for experiments at the ILC, at the collision point and beyond covering a broad physics spectra, and associated R&D activities.





LCWS 2021 Planning

Status Overview

- March 15-18, fully virtually, hosted by CERN
- Organisation started late (Covid19, WG3 structure, Xmas, ...)
- For practical purposes driven so far by the "Local" Organizing Committee, led by Steinar Stapnes
- Comittees invited (95% accepted), parallel sess. conveners have also been invited Overlap minimized but not completely zero - we have to become more! :-)
- Webpage being set up: https://indico.cern.ch/event/995633/
- No fee, but registration will be required for book-keeping and data protection reasons
- Overarching goal: broaden the community => healthy mix of information for newbies and opportunities to present & discuss ongoing work!

Timetable

Proposal to the Program Committee

- Plenaries:
 - at international prime-time
 - no Webinar, but regular (interactive) zoom
- Parallels:
 - some at further "international times" => very inconvenient in Europe
 - in order to encourage European bottom-up participation, also offer slots in the (European) morning (nonUS compatible)
- Optionally: Poster Sessions, virtual coffee breaks possibly can piggy-back on conference tool (<u>remo.co</u>) to be purchased by DESY for EPS-HEP 2021???
- Further details of the program tbd with the full Program Committee, aiming for 1st meeting in early February

Date	Time	Session
Mon, March 15	14:00-17:00	PLENARY
Mon, March 15	22:00-01:00	Possible Parallel
Tue, March 16	06:00-09:00	Possible Parallel
Tue, March 16	09:30-12:30	Possible Parallel
Tue, March 16	14:00-17:00	PLENARY
Tue, March 16	22:00-01:00	Possible Parallel
Wed, March 17	06:00-09:00	Possible Parallel
Wed, March 17	09:30-12:30	Possible Parallel
Wed, March 17	14:00-17:00	PLENARY
Wed, March 17	22:00-01:00	Possible Parallel
Thu, March 18	06:00-09:00	Possible Parallel
Thu, March 18	09:30-12:30	Possible Parallel
Thu, March 18	14:00-17:00	PLENARY

Parallel Tracks

in the WG3 realm

Name	Content	WG3
Theory	Calculation, Model Building, MC generators	Phys
Interpretations	EFT, global fits etc	Phys
Physics Analyses	physics-oriented analyses of individue	Phys
Detector Performance	performance studies, high-lever and the second of physics objects, calibration	Phys/Soft
Software	framework, simulation of sconstruction, grid tools etc	Soft
Tracking Detectors	Tracking	Det
Calorimeters	Calc 3-5 and Muon system R&D, DAQ	Det
Interfaces	MDI, Integration, Site planning,	Interface

- plus parallel track on Eols:
 - new technology/ideas for collider experiments; Fixed target, beam dumps & Co
 - conveners from Theory, Collider Exp, Non-collider Exp, Accelerator, MDI => not yet fixed





Accelerator session follow WG2 substructure, with conveners from both CLIC and ILC (overlaps with what earlier was called Combined WGs)

SRF purely ILC, CFS mostly ILC, the rest combined. Accelerator plenary also combined