

ILC International Development Team:

-status report-

Presentation at

The 1st Hawaii Mini-Symposium of the US-Japan
Science and Technology Cooperation Program in
High Energy Physics

Virtual meeting, 21-23 April 2021

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EPFL (Swiss Federal Institute of Technology Lausanne)

ILC International Development Team, Executive Board Chair

Reminder for how it happened

- In February 2020 ICFA/LCB meeting at SLAC:
after the presentations by
Mr. H. Masuko, Deputy-Director General, MEXT Research Promotion Bureau
Hon. T. Kawamura, Chairperson of the Federation of Diet Members for the ILC
ICFA asked the LCB to propose a way to move to the preparatory phase for the ILC to be constructed in Japan.
- LCB worked out a proposal to setup the International Development Team (IDT), with KEK as the host, to pave a way to establish the ILC Pre-laboratory.
- In June 2020, LCB/LCC ended their terms defined by the ICFA.
- In August 2020 ICFA meeting
ICFA setup the ILC IDT and appointed the members of the Executive Board, with an aim to establish the ILC Pre-lab within ~1.5 year.
- Since then,
the IDT Executive Board has started working.

Why Pre-lab?

- **Facilities and resources are needed** for the technical and engineering preparation work now to obtain a reliable cost estimate for the ILC that will be essential **for the negotiation and reaching an agreements on the international cost sharing**. (Some of the costs depend strongly on the site.)
- **Framework and support** is needed for the community for developing the ideas and preparing proposals for the experiments at the ILC facilities.

Some organisational structure is required, although it is before the decision of the ILC.

Why IDT?

- The ILC is envisaged as **a global projects with a fair share of the cost, mostly in the form of in-kind contribution for the accelerator, among the participants**, while the infrastructure cost should be taken cared by the host country, i.e. Japan: \Rightarrow a truly international project.
- The natural consequence is that the Pre-lab will also be a global enterprise, thus making an international effort to set-up.

Reminder for ICFA mandate for the IDT

- Clarifying **the function and organisation of the ILC Pre-Lab** based on the KEK International Working Group report,
- Developing a **common understanding for the condition to start the ILC Pre-Lab**,
- Providing **an international framework for the ILC accelerator effort** and coordinating further R&D and engineering design work for the ILC in order to **sustain the community effort and to guarantee a smooth transition to the ILC Pre-Lab phase**,
- Providing **an international framework for the ILC physics and detector activities** and coordinating physics and detector R&D effort in order to **sustain the community effort and guarantee a smooth transition to the ILC Pre-Lab phase**,
- Discussing with international partners (e.g. universities, national and regional laboratories) for **resources needed for the ILC Pre-Lab**, and
- **Providing necessary information** to the national authorities to support their discussion of the establishment of the ILC Pre-Lab.

Reminder for IDT organisation

ICFA

ILC-IDT

Executive Board

Andrew Lankford (UC Irvine): Americas Liaison

Shinichiro Michizono (KEK): Working group 2 Chair

Hitoshi Murayama (UC Berkeley/U. Tokyo): Working group 3 Chair

Tatsuya Nakada (EPFL): Executive Board Chair and Working group 1 Chair

Yasuhiro Okada (KEK): KEK Liaison

Steinar Stapnes (CERN): Europe Liaison

Geoffrey Taylor (U. Melbourne): Asia-Pacific Liaison

Working group 1
Pre-lab set-up

Working group 2
Accelerator

Working group 3
Physics & Detectors

Scientific secretary: Tomohiko Tanabe (KEK)

Communication team led by Rika Takahashi (KEK)

Unlike LCB/LCC, **ILC-IDT is focused on the ILC.**

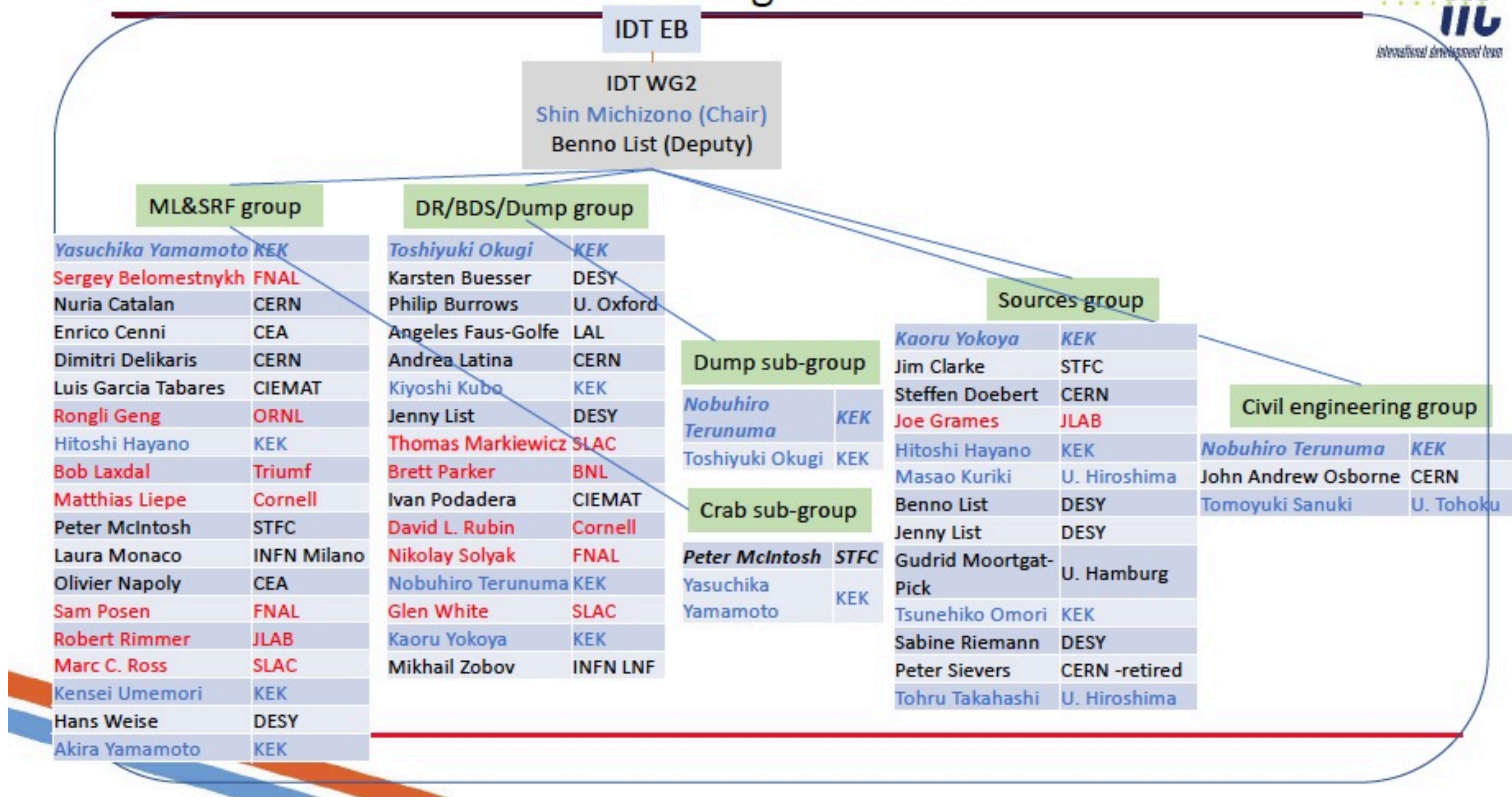
KEK provides administrative, logistic and some financial support.

WGI

- Members:
 - Members from Europe (nominated by the Laboratory Directors Group)
 - ▶ Paul Collier, Brian Foster, Juan Fuster Verdu, Maksym Titov and Eckhard Elsen
 - Members from Americas (nominated by the national laboratories)
 - ▶ Bruce Dunham, Stuart Henderson, Reiner Kruecken, Joseph D. Lykken
 - Liaison to the Japanese community, industry, politics and candidate site region
 - ▶ Satoru Yamashita
 - Ex Officio (EB members)
 - ▶ Andrew J. Lankford, Shinichiro Michizono, Hitoshi Murayama, Tatsuya Nakada, Yasuhiro Okada, Steinar Stapnes, Geoffrey Taylor
 - Scientific secretary
 - ▶ Tomohiko Tanabe

WG2

IDT-WG2 organization



talks by S. Michizono

WG3

WG3 Organisation and mandates

Chair: Hitoshi Murayama (Berkeley/Tokyo)

Deputies: Jenny List (DESY) and Claude Vallée (Marseille)

Coordinator and Deputy coordinator(s)

Steering Group

Subgroup conveners, Coordinator and Deputy Coordinator(s)

Kiyotomo Kawagoe (Kyushu), Alain Bellerive (Carleton),
Ivanka Božović Jelisavčić (Belgrade)

Speaker's bureau

Andy White (UT Arlington), Ties Behnke (DESY), Yuanning Gao (Peking), Frank Simon (MPP), Jim Brau (Oregon), Keisuke Fujii (KEK), Phil Burrows (Oxford), Francesco Forti (INFN),
Filip Zarnecki (Warsaw), Patty McBride (Fermilab), Mihoko Nojiri (KEK), CERN member, Timothy Nelson (SLAC), Kajari Mazumdar (Mumbai), Phillip Urquijo (Melbourne), Dmitri Denisov (Brookhaven)

Interface with machine

Coordinate the interactions between the accelerator and facility infrastructure planning and the needs of the experiments

Karsten Buesser (DESY), Yasuhiro Sugimoto (KEK),
Roman Poeschl (Orsay), US

Detector and technology R&D

Provide a forum for discussion and coordination of the detector and technology R&D for the future experimental programme

Marcel Vos (Valencia), Katja Krueger (DESY)
Petra Merkel (Fermilab), David Miller (Chicago)

Software and computing

Promote and provide coordination of the software development and computing planning

Frank Gaede (DESY), Jan Strube (PNL)
Daniel Jeans (KEK)

Physics potential and opportunity

Encourage and develop ideas for exploiting the physics potential of the ILC collider and by use of the beams available for more specialised experiments

Michael Peskin (SLAC), Junping Tian (Tokyo)
Aidan Robson (Glasgow)

Recent activities

- Communication team is working: e.g., (almost) monthly **ILC Newslines** and discussion on other activities on going.

ILC Newsline



[About](#) [Current issue](#) [Archive](#) [Subscribe](#) [Search](#) [Contact](#)



19 APRIL 2021

ANNOUNCEMENTS

IDT Website open

The official ILC International Development Team website is now open. This website provides information regarding development of the IC project, international conference, outreach events, and the latest news.

We are planning to provide additional contents about the ILC project, so stay informed by subscribing the ILC NewsLine.

[Click the here to view the website.](#)

PREPRINTS

19 APRIL

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DIRECTOR'S CORNER

LCWS2021- the community focuses on an ILC Pre-Lab as the next step

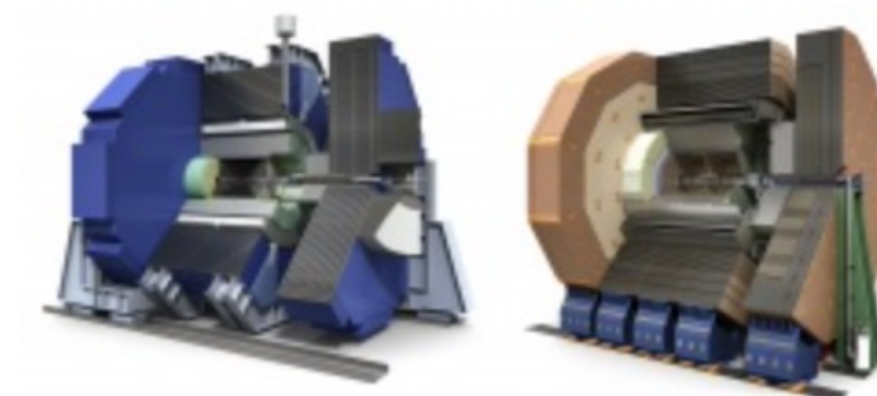
by Steinar Stapnes

Session	PDT (GMT-7)	CET (GMT+1)	JST (GMT+9)
LC School	March 15, 07:00-05:30	March 15, 09:00-12:30	March 15, 17:00-21:30
PLENARY	March 15, 06:00-09:00	March 15, 14:00-17:00	March 15, 22:00-01:00
Parallel 1	March 15, 14:00-16:00	March 15, 22:00-24:00	March 16, 06:00-08:00
Parallel 2	March 15, 22:00-24:00	March 16, 06:00-08:00	March 16, 14:00-16:00
Parallel 3	March 16, 01:00-02:30	March 16, 09:00-10:30	March 16, 17:00-18:30
Parallel 4	March 16, 03:00-04:30	March 16, 11:00-12:30	March 16, 19:00-20:30
PLENARY	March 16, 06:00-09:00	March 16, 14:00-17:00	March 16, 22:00-01:00
Parallel 1	March 16, 14:00-16:00	March 16, 22:00-24:00	March 17, 06:00-08:00
Parallel 2	March 16, 22:00-24:00	March 17, 06:00-08:00	March 17, 14:00-16:00
Parallel 3	March 17, 01:00-02:30	March 17, 09:00-10:30	March 17, 17:00-18:30
Parallel 4	March 17, 03:00-04:30	March 17, 11:00-12:30	March 17, 19:00-20:30
PLENARY	March 17, 06:00-09:00	March 17, 14:00-17:00	March 17, 22:00-01:00
Parallel 1	March 17, 14:00-16:00	March 17, 22:00-24:00	March 18, 06:00-08:00
Parallel 2	March 17, 22:00-24:00	March 18, 06:00-08:00	March 18, 14:00-16:00
Parallel 3	March 18, 01:00-02:30	March 18, 09:00-10:30	March 18, 17:00-18:30
Parallel 4	March 18, 03:00-04:30	March 18, 11:00-12:30	March 18, 19:00-20:30
PLENARY	March 18, 06:00-09:00	March 18, 14:00-17:00	March 18, 22:00-01:00

ANNOUNCEMENTS

Call for participation in Physics & Detector WG3

by Hitoshi Murayama



The IDT Working Group on Physics & Detector activities (WG3) would like to invite the community to engage in ILC studies. You are encouraged to contact convenors of the subgroup of your interest. We look forward to having you involved!

Recent activities

- Communication team is working: e.g., (almost) monthly ILC Newsline and discussion on other activities on going.
- WG1 discussing the Pre-lab organisation, legal framework, possible process for the Pre-lab start-up, etc.
- WG2 compiled **the list of technical work and made it work packages**, which has been reviewed by a committee. Further technical discussion on going

Technical Preparation and WPs

Ver-5: 2021/April/09

Technical Preparation and Work Packages (WPs) during ILC Pre-Lab

IDT-WG2

Contents

Executive summary	1
Timeline	4
Area System 1: ML and SRF	6
Overview	6
Area System ML&SRF: Work packages (WPs)	8
WP-1: Cavity Industrial Production Readiness	10
Technical Preparations Plan	10
Goals of the (0-cel) Cavity Technical Preparation	10
List of items	10
Status and Prospects	11
WP-2: Cryomodule (CM) Global Transfer and Performance Assurance	13
Technical Preparation Plan	13
Goals of the CM technical preparation	13
List of items	14
Status and Prospects	15
WP-3: Crab Cavity System (for BDS Area System)	17
Technical Preparation Plan	17
Goals of the technical preparation	18
List of items	19
Status and Prospects	20
Figures related to this WP-3	20
Area System 2: Electron Source	22
WP-4: Electron Source	22
Technical Preparation Plan	22
Goals of the technical preparation for Pre-Lab phase	22
List of items	23
Status and Prospects	23
Items	25
References	30
Area System 3: Positron Source	33
Introduction	33
References	33
Area System 3.1: Undulator Positron Source	34
Overview	34
Technical preparation goals for the Pre-Lab phase	34
Area System Undulator Positron Source: Work packages (WPs)	35

i

WP-5: Undulator Technology	36
Technical Preparation Plan	36
Goals of the technical preparation for Pre-Lab phase	36
List of items	36
Status and Prospects	36
WP-6: Target Technology	38
Technical Preparation Plan	38
Goals of the technical preparation	38
List of items	38
Status and Prospects	39
WP-7: Magnetic Focusing System	43
Technical Preparation Plan	43
Technical preparation goals for Pre-Lab phase	43
List of items	43
Status and Prospects	44
References	46
Area System 3.2: Electron-Driven Positron Source	47
Overview	47
Goals of the technical preparation	49
Area System Electron-Driven Positron Source: Work packages (WPs)	49
References	49
WP-8: Target	51
Technical Preparation Plan	51
Goals of the technical preparation	51
List of items	51
Status and Prospects	51
Summary table of tasks	52
References	53
WP-9: Flux Concentrator	54
Technical Preparation Plan	54
Goals of the technical preparation	54
List of items	54
Status and Prospects	55
Summary Table of tasks	55
References	56
WP-10: Capture Linac	57
Technical Preparation Plan	57
Goals of the technical preparation	58

ii

List of items	58
Status and Prospects	58
Summary Table of tasks	59
References	59
WP-11: Target Maintenance (common issue for undulator and e-driven sources)	60
Technical Preparation Plan	60
Goals of the technical preparation for Pre-Lab phase	61
List of items	61
Status and Prospects	61
Summary Table of tasks	61
References	62
Area System 4: Damping ring	63
Overview	63
Area System Damping ring: Work packages	63
WP-12: System design of ILC damping ring	64
Technical Preparations Plan	64
Goals of the technical preparation	64
List of items	64
Status and Prospects	65
WP-13: Evaluation of collective effects in ILC damping ring	68
Technical Preparations Plan	68
Goals of the technical preparation	68
List of items	68
Status and Prospects	68
WP-14: System design of ILC DR injection/extraction kickers	71
Technical Preparations Plan	71
Goals of the technical preparation	71
List of items	71
Status and Prospects	72
Area System 5: Beam Delivery System	74
Overview	74
Area System BDS: Work packages	74
WP-15: System design of ILC final focus beamline	76
Technical Preparation Plan	76
Goals of the technical preparation	76
List of items	76
Status and Prospects	77
WP-16: Final doublet design optimization	79

iii

Technical Preparation Plan	79
Goals of the technical preparation	79
List of items	79
Status and Prospects	79
Area System 6: Beam dump	83
Overview	83
Area System Beam Dump: WPs	83
WP-17: System design of the main beam dump	84
Technical Preparations Plan	84
Goals of technical preparation	84
List of items	84
Status and Prospects	85
WP-18: System design of the photon dump for undulator positron source	87
Technical Preparation Plan	87
Goals of technical preparation	87
List of items	87
Status and Prospects	88
Bibliography	90
IDT-WG2 members	90
IDT-WG2 ML&SRF group members	90
IDT-WG2 Sources group members	91
IDT-WG2 DR/BDS/Dump group members	91
Additional contribution from	91
Acknowledgement	92
Appendix	93
ILC parameters	93

iv

Recent activities

- Communication team is working: e.g., (almost) monthly ILC Newsline and discussion on other activities on going.
- WG1 discussing the Pre-lab organisation, legal framework, possible process for the Pre-lab start-up, etc.
- WG2 compiled the list of technical work and made it work packages, which has been reviewed by a committee. Further technical discussion on going
- WG3 newly organised with sub-groups and regular meetings and work started.
- Preparation of **the Interim Pre-lab proposal**, ~40 page document, expected to be ready by the mid May

Interim Pre-lab proposal contents

- Organisational structure and governance model
- Possible legal structure and Pre-lab start-up scenario
- Work packages for Machine technical work
- Machine engineering design work
- Civil engineering and site related work
- Timeline for the machine, civil engineering and site related work
- Timeline for preparing the physics programme
- Reference cost for the Pre-lab work

A draft with all the contents now exists, consultation with WG1 and editorial work in progress. To be released after the endorsement by the ICFA,

Contents of the Interim Proposal draft

Interim Proposal for the ILC Pre-lab

International Linear Collider
International Development Team

April 2021

Contents

1 Introduction	4
1.1 Brief history of the ILC	4
1.2 Mandate and concept of the Pre-lab	5
1.3 Operation principle of the Pre-lab	7
2 Pre-lab organisation	7
2.1 Organisation Structure	8
2.2 Governance Board	8
2.3 Oversight Board	9
2.4 Central Bureau and Directorate	9
2.4.1 Directorate	9
2.4.2 Directorate Office	10
2.4.3 Directorate Functions	10
2.4.4 Director	10
2.4.5 Associate Director for Accelerators	10
2.4.6 Associate Director for Civil Engineering	10
2.4.7 Associate Director for Research	10
2.4.8 Central Technical Office	11
2.4.9 Central Administration Office	11
2.5 Pre-lab Members	11
2.6 Advisory Committees	11
2.6.1 ILC Experiments Advisory Committee (ILCEAC)	11
2.6.2 ILC Machine Advisory Committee (ILCMAC)	12
2.6.3 ILC Civil Engineering and Environment Advisory Committee (IL-CCEAC)	12
3 Required legal structure and a possible Pre-lab start-up process	12
3.1 Legal structure	12
3.2 Pre-lab start-up	13

1

Draft: April 23, 2021

4 Pre-lab work plan	14
4.1 Accelerator	14
4.1.1 Description of work	14
4.1.1.1 Main Linacs and SRF domain	14
4.1.1.2 Source domain	16
4.1.1.3 Damping Ring domain	19
4.1.1.4 Beam Delivery System domain	20
4.1.1.5 Beam Dump domain	20
4.1.2 Final technical design and documentation	21
4.1.3 Timeline	22
4.2 Civil construction and site-related tasks	24
4.2.1 Description of tasks and work packages	24
4.2.2 Timeline	28
4.3 Preparation for physics programme	29
4.3.1 Timeline and its implementation	29
4.3.2 Coordinated activities	30
5 Reference cost and required human resources	31
5.1 Accelerator related issues	31
5.2 Civil engineering and site related issues	32
5.3 Central Bureau	32
A Appendix	33
A.1 Main Linacs and SRF domain	33
A.1.1 Work Package 1	33
A.1.2 Work Package 2	34
A.1.3 Work Package 3	35
A.2 Source domain	36
A.2.1 Work Package 4	36
A.2.2 Work Package 5	36
A.2.3 Work Package 6	37
A.2.4 Work Package 7	37
A.2.5 Work Package 8	38
A.2.6 Work Package 9	38
A.2.7 Work Package 10	38
A.2.8 Work Package 11	39
A.3 Damping Ring domain	39
A.3.1 Work Package 12	39
A.3.2 Work Package 13	40
A.3.3 Work Package 14	40
A.4 Beam Delivery System domain	41
A.4.1 Work Package 15	41
A.4.2 Work Package 16	41
A.5 Beam Dump domain	42

2

Draft: April 23, 2021

A.5.1 Work Package 17	42
A.5.2 Work Package 18	43

3

Draft: April 23, 2021

Current idea for the Pre-lab governance model

- Pre-lab is **setup as an international collaboration of national, intergovernmental and university laboratories** governed through the Memorandums of Understanding (MoUs).
- **Technical preparation works** are defined as work packages and delivered by the participating laboratories **as in-kind contributions**..
- **Assembly of the participating laboratories** is the highest decision making body of the Pre-lab. **A forum for the funding agencies and national authorities** to monitor the progress.
- Directorate headed by the director is running the Pre-lab and coordinate the overall work, but **the execution of the work packages are fully under the control of responsible laboratories, including the resource acquisition**.
- Pre-lab facilitates the community to develop ideas, to make R&D and to form collaborations for designing and proposing the ILC experiments.

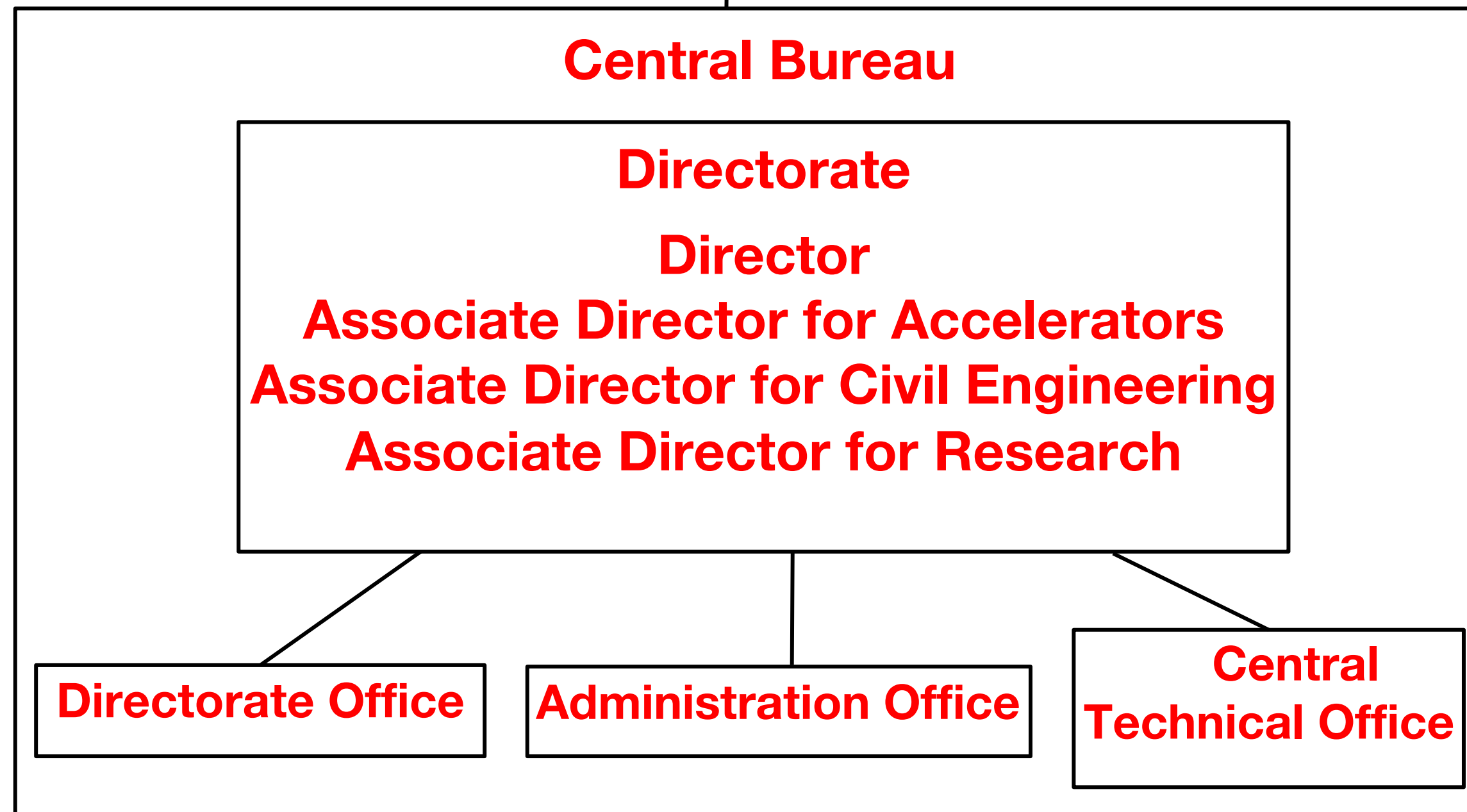
Current idea for the Organisational structure

Decision making body by the representatives of laboratories providing In-kind contributions



A forum of funding agencies and national authorities that monitor the progress

Executive body of the Pre-lab and supporting groups located in Japan



Participants (stakeholder) of the Pre-lab providing work package deliverables as in-kind contributions

Work plan for the coming days

- IDT
 - started to identify matching between the work packages and **interest and expertise of laboratories**.
 - is preparing discussion to understand conditions where the laboratory **could consider to signup for a work packages**.
- IDT will further develop the governance model and organisational structure reflecting the political development
- IDT explores ways to **start the Pre-lab**
- IDT keeps **stimulating the physics community** through promoting new physics ideas and facilitating common effort, e.g. forthcoming workshop in October 2021 in Japan (face to face hopefully)

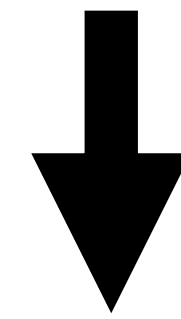
Rough timeline of the ILC under discussion

ILC IDT (~1.5 years.....)

- Prepare the work and deliverables of the ILC Pre-laboratory and workout with national and regional laboratories a scenario for their contributions
- Prepare a proposal for the organisation and governance of the ILC Pre-laboratory

In parallel:

Positive “signs” from the host country (Japan) government and agreements by the national/regional laboratories for providing their contributions.

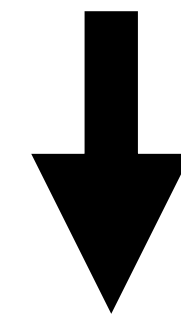


ILC Pre-laboratory (~4 years)

- Complete all the technical preparation necessary to start the ILC project (infrastructure, environmental impact and accelerator facility)
- Prepare scenarios for the regional contributions to and organisation for the ILC.

In parallel:

Positive outcomes of the inter-governmental negotiation for the responsibility and cost sharing among the host (Japan) and partner countries



ILC laboratory

- **Construction and commissioning of the ILC (~10 years)**
- Followed by the operation of the ILC
- Managing the scientific programme of the ILC

Need to recall...

- It is planned that the progress on the Pre-lab preparation will be assessed by the ICFA end of this year
- The US community work for the US HEP roadmap, “Snowmass exercise”, will be completed in Summer 2022 followed by the P5 process

Community's interest in the ILC is quickly building up again,
but

a success of the effort by the Japanese colleagues to achieve a positive statement by the Japanese government during this year is critical.