

Shin MICHIZONO (KEK)

- *IDT configuration*
- *IDT-WG2 activity*
- *Pre-lab preparation*
- *AWLC*

ICFA appoints members for the ILC International Development Team

10 September 2020 - International Committee for Future Accelerators



The international effort to realise the next major particle collider, the International Linear Collider (ILC), has a new team to lead the project. Today the International Committee for Future Accelerators (ICFA) announced the structure and the team members of the ILC International Development Team (ILC-IDT).

On 2 August, ICFA approved the formation of the ILC-IDT with a mandate to make preparations for the ILC Pre-Lab in Japan, as the first step of the preparation phase of the ILC project. ICFA appointed Tatsuya Nakada, a professor at École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland, as the chair. Nakada is a former chair of the Linear Collider Board, a panel of ICFA that promoted the case for the construction of an electron-positron linear collider and its detectors as a world-wide collaborative project.

The Team is hosted by KEK and consists of the Executive Board (EB) and three Working Groups (WG1, WG2 and WG3). The EB comprises a Chair, three members representing the three regions contributing to the ILC effort (Americas, Asia-Pacific and Europe), and three ex-officio members (KEK liaison officer and Chairs of WG2 and WG3, whereas WG1 is chaired by the EB Chair).

The Team members are:

Tatsuya Nakada (EPFL), Chair-Executive Committee and Working Group 1

Steinar Stapnes (CERN), Regional Representative-Europe

Andy Lankford (University of California, Irvine), Regional Representative-Americas

Geoffrey Taylor (University of Melbourne), Regional Representative-Asia/Oceania

Shinichiro Michizono (KEK), Chair-Working Group 2

Hitoshi Murayama (University California Berkeley/ IPMU-University of Tokyo), Chair-Working Group 3

Yasuhiro Okada (KEK), KEK Liaison

<https://www.interactions.org/press-release/icfa-appoints-members-ilc-international-development-team>

The Team has commenced its work and is expected to complete its mandate by the end of 2021.

WG2 charges/members

- WG2 conducts the ILC accelerator and facility work. It is responsible for continuing the accelerator and facility work currently carried out under the LCC framework. The WG2 effort will be taken over by the ILC Pre-Lab when it will become operational. The members are appointed by the EB.

Dimitri Delikaris	CERN
Hitoshi Hayano	KEK
Masao Kuriki	U. Hiroshima
Benno List	DESY
Jenny List	DESY
Thomas Markiewicz	SLAC
Olivier Napoly	CEA
Toshiyuki Okugi	KEK
John Andrew Osborne	CERN
Marc C. Ross	SLAC

David L. Rubin	Cornell
Tomoyuki Sanuki	U. Tohoku
Nikolay Solyak	FANL
Nobuhiro Terunuma	KEK
David L. Rubin	Cornell
Akira Yamamoto	KEK
Kaoru Yokoya	KEK
Sam Posen	FNAL
Philip Burrows	U. Oxford
Yasuchika Yamamoto	KEK

New members

I hope the members will be approved at next EB (tomorrow).

IDT WG2 timeline

Example (towards Pre-lab)

- 2022 April: Pre-Lab starts
- 2021 Dec.: IDT ends
- 2021 Feb.: First draft of budget request (each region/lab.)
- 2020 Dec.: Draft of sharing remaining technical preparation/pre-lab preparation (each region/lab.)
- 2020 Oct.: AWLC
- 2020 Oct.: Information sharing about technical preparation
- 2020 Sep.: List of Pre-lab acc. activities/ budget/ schedule

Accelerator activities at ILC Pre-lab phase

Technical preparations /performance & cost R&D [shared across regions]

- SRF performance R&D
- Positron source final design and verification
- Nanobeams (ATF3 and related): Interaction region: beam focus, control and Damping ring: fast kicker, feedback
- Beam dump: system design, beam window, cooling water circulation
- Other technical developments considered performance critical

Final technical design and documentation [central project office in Japan with the help of regional project offices (satellites)]

- Engineering design and documentation, WBS
- Cost confirmation/estimates, tender and purchase preparation, transport planning, mass-production planning and QA plans, schedule follow up and construction schedule preparation
- Site planning including environmental studies, CE, safety and infrastructure (see below for details)
- Review office
- Resource follow up and planning (including human resources)

Preparation and planning of deliverables [distributed across regions, liaising with the central project office and/or its satellites]

- Prototyping and qualification in local industries and laboratories, from SRF production lines to individual WBS items
- Local infrastructure development including preparation for the construction phase (including Hub.Lab)
- Financial follow up, planning and strategies for these activities

CE, local infrastructure and site [host country assisted by selected partners]

- Engineering design including cost confirmation/estimate
- Environmental impact assessment and land access
- Specification update of the underground areas including the experimental hall
- Specification update for the surface building for technical scientific and administrative needs

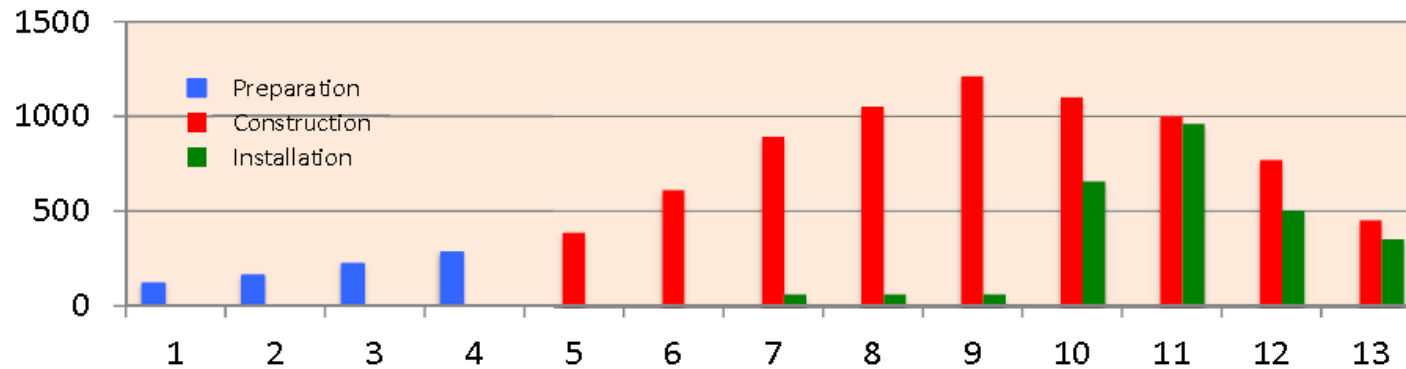
ILC construction human resources

Overview of Human Resources during the ILC Construction

Preparation stage (4 years) ~ Construction stage (9 years) ILC-500 → ILC-250

unit: person

Stage	Preparation				Construction									Total
	1	2	3	4	1	2	3	4	5	6	7	8	9	
Prep.	118	161	222	282										
TDR							TDR, ILC-500 Ann. average: ~ 1,100 persons							
Constr.					410	922	1208	1350	1589	1480	1374	1106	679	10,118
Install.							80	80	80	768	1140	683	522	3,353
Total					410	922	1288	1430	1669	2248	2514	1789	1201	13,471
ILC-250							ILC-250: Ann. average: ~ 830 persons							
Constr.					385	610	890	1050	1210	1100	1000	770	450	7,465
Install.							60	60	60	655	960	500	350	2,645
Total					385	610	950	1110	1270	1755	1960	1270	800	10,110



Accelerator preparation phase R&Ds

KEK ILC action plan



Area	Tasks
Accelerator Design	Design parameter optimization
SCRF	<p>Mass-production and quality control</p> <p>Superconducting material, cavity properties (electric field, resonance characteristics)</p> <p>Hub-lab functioning</p> <p>System performance stabilization (Stabilization of the performance and maintenance, including international transport of CM)</p>
Nanobeam	<p>Minimizing the beam size and demonstrating stability</p> <p>Beam handling (DR, RTML, BDS, BD)*</p>
Accelerator elements - Positron source (e+) - Beam dump	<p>e+: Undulator-driven (polarization) or an electron-driven system (backup), heat balance of the dump, cooling, safety</p>
CFS	<p>Basic Plan by assuming a model site, engineering design, drawings, survey, assessment</p>
common technical support	<p>Safety (radiation, high-pressure gas, etc.)</p> <p>Communication and network</p>
Administration	<p>General affairs, finance, int. relations, public relations</p> <p>Administrative support for ILC pre-lab</p>

Total preparation cost is estimated ~23.3 Byen (~233 M\$)
 Main fraction is Hub-lab demonstration in Japan, CFS survey and detailed design (including technical feasibility study).

AWLC (Oct. 19-22, remote)



<https://agenda.linearcollider.org/event/8622/timetable/#20201020>

Plenary: Oct. 20 Tuesday (~2hours)

1. Overview of ILC accelerator design 12+3 Shin MICHIZONO
2. Civil engineering status 12+3 Nobuhiro Terunuma
3. European SRF activities, projects and outlook in view of the ILC 20+5 (TBC)
4. Americas' SRF activity for the ILC 20+5 Sam Posen
5. LCLS-II status 20+5 Marc Ross
6. Potential Canadian contributions to the ILC accelerator 20+5 Oliver Kester

total 130 min.

<https://conf.slac.stanford.edu/awlc2020/>

Parallel: Oct. 19/20/21 (each 2 hours)

SRF 3 sessions: Yasuchika YAMAMOTO, Sam POSEN, Marc WENSKAT

Sources 1~2 sessions: Masao KURIKI, + Americas, Europe (TBC)

BDS/ATF2 2 sessions: Toshiyuki OKUGI, + Americas, Europe (TBC)

CFS 1 session: Nobuhiro TERUNUMA, John OSBONE, +Americas (TBC)

Americas' lab talk 1 session: Hugh MONTGOMERY

SLAC NATIONAL ACCELERATOR LABORATORY

Americas Workshop on Linear Colliders 2020

HOME AGENDA REGISTRATION PARTICIPANTS CONTACT US COMMITTEES

AWLC 2020: Americas Workshop on Linear Colliders

Date: October 19-22, 2020
Location: Virtual - Zoom Conference
Details at the Indico Site

Preparations for the International Linear Collider in Japan have recently moved forward with the formation of the International Development Team, hosted by KEK. At the meeting of ICFA and the Linear Collider Board during this summer's ICHEP conference, ICFA announced this new phase of the ILC preparations:

This step calls for renewed discussion of the possible contributions to this project from laboratories, university groups, and individuals. At the same time, the developing United States community planning process, Snowmass 2021, calls for a coordinated discussion and articulation of the scientific significance of the ILC and the roles envisioned for US scientists. Similar planning exercises are being done in Canada and Latin America. To address all of these developments, we are planning a workshop hosted by SLAC. The workshop will be conducted virtually the week of October 19-23.

The workshop will bring together interested scientists from the global community to discuss the transition phase toward final preparations for the ILC and to formulate updated community plans and actions. The agenda will cover the present status of the ILC project and the opportunities available for participation in accelerator R&D, detector

QUICK LINKS

- Registration
- Agenda
- Timetable
- List of Participants

MEXT roadmap

On September 8, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) released a draft of “Fundamental Concept for Promoting Large Scientific Research Projects – Roadmap 2020 -” and started solicitation of public comments.

<https://www.kek.jp/en/topics-en/topic20200911-2/>

In February this year, KEK submitted an application of the ILC project to be considered in the MEXT Roadmap process; however, KEK withdrew the application in March. We apologize for the delay in reporting this fact, because the general rule is to not disclose matters concerning the Roadmap evaluation process.

Why KEK withdraw the application to MEXT roadmap?

After the submission of the application in late February, discussions were held in the international research community, including the International Committee for Future Accelerators (ICFA), and it was decided that the ILC project will be further strongly advanced by establishing a new international development team and rebuilding the international cooperation framework. Therefore, we have withdrawn the application because the “project promotion structure through international cooperation,” which was an important point of the application, has changed significantly and the project plan is expected to be completely renewed with respect to the submitted application.

The International Development Team of the ILC project was established in August, and activities under this new structure have started. KEK will continue to work diligently with the international research community to realize the ILC.