



KEK, High Energy Accelerator  
Research Organization

# Report from KEK

March 15, 2021  
Talk given at LCWS 2021

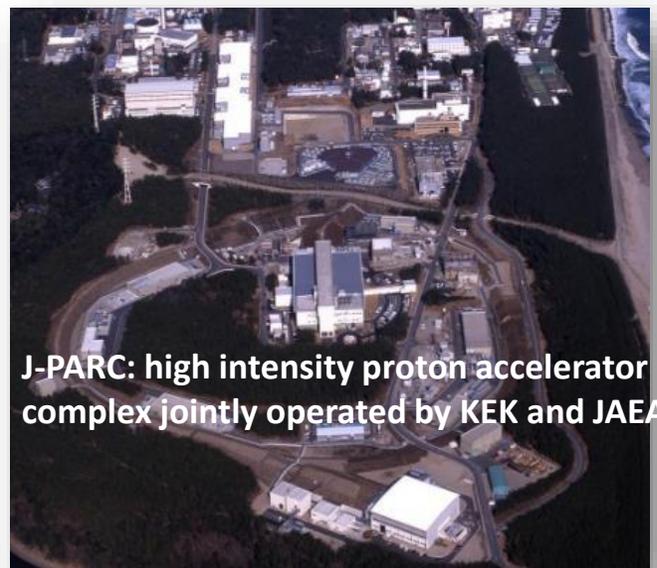
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# Outline

- ILC R&D at KEK
- Stepwise realization of ILC and KEK's role
- Message from the Japanese Government
- Supporting organizations in Japan
  - Federation of the Diet Members for ILC
  - Tohoku ILC Project Development Center
  - Advanced Accelerator Association
- Strong support by the U.S. Government
- Summary and Conclusions



# KEK Geography



KEK covers diverse field of accelerator based science making full use of the electron machines in Tsukuba and the proton machines in Tokai.

# ILC development at KEK



ATF: Technology to handle nano-size beam

STF: Technology to assemble and operate superconducting cavities

CFF: Technology to manufacture superconducting cavities



# Stepwise realization of ILC

IDT is formed under ICFA. KEK serves as its host.

Stage 1 International Development Team (~1.5 years)

ILC Pre-Lab. is established by MOU's among the laboratories.

Stage 2 ILC Pre-Laboratory (4 years)

ILC Lab. is established by governmental agreement.

Stage 3 ILC Laboratory (10 years for construction)

Stage 4 Experiment at ILC!



# KEK's role at IDT and beyond

- The next focus will be when ILC Pre-Lab can be started following the IDT.
- The function of the ILC Pre-lab is to do the remaining works in four years.
  - Solve remaining technical issues of the accelerator.
  - Design of the organization and functions of the ILC laboratory and launch the ILC laboratory!
- Since the start of the ILC Laboratory is the official start of the ILC project, it is necessary to reach an international agreement including cost sharing before its start. The ILC Pre-Lab also plays an important role in supporting such international negotiations
- KEK is making every possible effort to start the ILC Pre-Lab soon after the IDT completes its mandate, and to realize the ILC together with the Japanese physics community and supporting groups in the political sector, industrial sector and Tohoku region.



# Conditions to start Pre-Lab

- Japanese MEXT has not yet disclosed the conditions for starting the Pre-Lab. Following conditions are necessary to be met in the proposal by the IDT.
  - The organization and function of the Pre-Lab described in the IDT report are appropriate, and the technological development program is feasible. In particular, it is expected that technological development at the Pre-Lab will solve problems that have remained as issues.
  - Participations are expected from the international physics communities and laboratories, including financial contributions.



# Message from MEXT (Mar. 2, 2021)

“In the Diet session held on 25th February, a member of the Diet enquired MEXT Minister whether MEXT gave its consent to the budget request for ILC’s pre-laboratory or not if the two conditions were met; (A) IDT’s proposal on the pre-laboratory, which includes its organisation, functions, and R&D plan, is appropriate and feasible; (B) financial contributions from foreign institutions to the pre-laboratory are promising.

The major points of MEXT Minister’s response are as follows;

- The ILC project needs to resolve its various challenges including its international cost sharing and technical feasibility, as well as to obtain broad internal and external cooperation not for its pre-laboratory but for the ILC project itself.
- Under the current situation that the perspective of broad internal and external cooperation for the ILC project itself as well as its pre-laboratory is not promised, it is difficult to obtain the people’s understanding in Japan for investing the pre-laboratory. It is necessary to obtain the clear perspectives on financial contributions to the ILC project itself from the US and European countries in prior considering the pre-laboratory.”



# Direction to go

- Discussions at the ICFA meeting on March 11-12
  - We should keep aiming at the original goal of early start of the Pre-lab.
  - ICFA supports IDT to complete the Pre-lab proposal as it is.
  - ICFA will give a statement to the Japanese government on, “looking forward to the MEXT minister inviting foreign government officials to a discussion.”
- In addition to supporting the IDT to design the Pre-lab, we will strengthen our efforts and cooperation with the government to further promote international discussions at the government level, and aim for the early realization of the PreLab.
- Specifically, it is appropriate to promote discussions and cooperation in the Discussion Groups, which have been established as a forum for intergovernmental discussions between Japan and the US, and Japan and Europe, at an early stage. I would like everyone to synchronize in each country.



## Other remarks by the Minister Hagiuda (Feb. 25, 2021)

- “I am very much in favor of building this facility in Japan, but it cannot be done without international cooperation.”
- “As I said earlier, I fully understand the necessity of the facility itself. I believe that we should proceed only after the international community comes to the table and confirms its commitment.”



# Federation of the Diet Members for ILC

- Bipartisan parliamentary league established in 2008 consisting of 150 members from the Japanese National Diet. Chair is Mr. Takeo Kawamura, former MEXT minister.
- It conducts activities in many aspects to promote ILC, including discussions with the U.S. and European Governments. Delegation the Federation have visited U.S. and Europe twice every year before the COVID pandemic.
- It advocates to realize ILC as a national project that crosses ministries.
- “I believe the ILC should be realized through politically-led efforts, cutting across different ministries and agencies. As such, we’re proceeding to realize a budgeting as a national project with a separate budget outside of the regular science and technology budget.” (Statement of the ILC Federation, March 2019)



# Advanced Accelerator Association (AAA)

- An organization of industrial sector to aim to make a leap in science and technology through the development of cutting-edge accelerators jointly by industry and academia.
- 102 companies and 41 universities and research laboratories
- Activities
  - Activate public relations about the ILC by organizing public symposia and awareness event targeting influencers
  - Consider the direction of technological development for the ILC, and make recommendations to related organizations.
  - Create innovative technology to support advanced accelerators.



# Summary and Conclusions

- ILC will be realized in the stepwise approach. The first of it, the International Development Team, has been formed with KEK as a host. Lively discussion is underway under Chair Tatsuya Nakada.
- Next step is to start ILC Pre-Lab soon after the IDT finishes its mandate. The Japanese research community and KEK are making every possible effort to realize the ILC in timely way.
- We will strengthen our efforts and cooperation with the government to further promote international discussions at the government level, and aim for the early realization of the PreLab.
- There are some organizations in Japan, which provide essential supports to the ILC; Federation of members of the National Diet, the ILC support group in the Tohoku region, which is candidate for the site, and support organizations established in the industrial sector.

