

# Introducing the ILC Report to Snowmass 2021

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In my personal opinion, the most important decision to made in this year's Snowmass and P5 process is:

Will the US become a major participant in an e+e-collider to study the Higgs boson and test the Standard Model at the TeV scale ?

There is a strong physics case and global interest in such an collider. At least three proposals – [ILC](#), [CEPC](#), and [FCC-ee](#) – have the attention of governments and a possible route to funding.

But, if Snowmass and P5 cannot support this, and there is no US involvement **now**, such an accelerator will not be build on a timeline relevant to anyone in this audience.

To support this goal, and specifically to support the ILC in Japan, the ILC group is assembling a comprehensive report. This is a report of about 250 pages that will cover:

ILC machine design

ILC detectors and detector technologies

ILC simulation and software

ILC proposed experiments at 250 and 500 GeV

ILC proposed experiments on precision electroweak

ILC proposed fixed-target experiments

Interpretation of the ILC data, projected precisions,  
and relation to theoretical models

Future of the ILC laboratory after ILC

We envision this document as a reference document for P5 and future studies, applicable also to other e<sup>+</sup>e<sup>-</sup> proposals.

# ILC Report to Snowmass 2021



October 1, 2022

US/Eastern timezone

 

## Overview

Scientific Program

ILC Report to Snowmass 2021 - current version

Timetable

Registration

Participant List

There is a broad understanding in the global high-energy physics community that the next major accelerator should be an e+e- collider dedicated to the precision study of the Higgs boson. The opportunity to construct such a collider on the shortest possible timescale now lies with the International Linear Collider in Japan. With the endorsement of the ILC by the Japan Association of High-Energy Physicists and its encouragement by the European Strategy for Particle Physics, the issue of community involvement in the ILC now moves to North America and, in particular, to the Snowmass 2021 Community Study and the P5 process in the US.

To encourage US participation in the ILC, the global community interested in this accelerator is preparing a report to Snowmass 2021 describing the ILC in all of its aspects. This report will cover the ILC physics case, the current status of the accelerator design, the planned detectors for the ILC and potentially useful detector technologies, the planned measurements at 250 GeV and higher energies up to 1 TeV and at the Z pole, the theoretical interpretation of the ILC measurements, and the potential future of the ILC laboratory hosting accelerators at still higher energies.

[agenda.linearcollider.org/event/9135](https://agenda.linearcollider.org/event/9135)

**Please visit the site** and download the current version. This is a work in progress, but our ambitions for the paper will be clear.

**Please contribute** by writing to the “corresponding editors” of the sections you are interested in.

**Please sign the paper !** At this moment, there are **290** signatories. Signing does not indicate that you have worked on the paper, only that you endorse it.

The era of studying “which Higgs factory is the best” is over.

Now we need to push Higgs factory proposals **in all regions**, to make the case to all governments and maximize the chance of building at least one. You will see a US-based proposal, C3, later in this session.

**We need, as a community to support all of these**, so that we can actually carry out the Higgs boson measurements as soon as possible.