



ILD Contribution to the EPPSU

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European Strategy

- Recent decision by CERN Council: accelerate the European Strategy process
 - March 2025: submission deadline for material for the strategy
 - July 2025: Meeting of the community (“Granda style meeting”)
 - Feb 2026: Strategy group retreat
 - Summer 2026: decision on strategy by Council

Goals of the strategy process



- Define the scientific priorities of the European Particle Physics community
- CERN Council plays a central role as the body where science and funding comes together
- CERN as the central European Lab for Particle Physics plays a central role
- First defined in 2006
- Update 2023: decision on high lumi LHC
- Update 2020: pathway to post LHC era

ILD role in EPPSU

- ILD should contribute as a well worked-out detector concept and as community of scientists
 - For ILC
 - For “any” linear collider
 - For “any” Higgs factory
 - The main point:
 - stress in the strategy process the importance to support the early development of integrated detector concept
 - Stress the need for a focused detector R&D
 - Stress the need for software/ computing/ simulation effort support to sustain concept and detector development

The proposal

- Document 1: summarise ILD as a concept, make the science case, present the community
- Document 2: present a detailed description of ILD@FCC-ee

The ILD plan

- Prepare a summary document on ILD
 - Summarise the work done since the publication of the IDR
 - Summarise the questions raised by broadening to other concepts
 - Point out the challenges at different collider concepts
 - Summarise the science studies done in particular in the context of the ECFA study

Remark: needs coordination with the other players in the field, in particular, the ECFA study, to avoid duplication

Next steps

- Structure of the document
 - Introduction
 - Description of the ILD detector
 - Vertexing
 - Tracking
 - Calorimeter
 - Forward
 - Integration of the ILD detector
 - Science with ILD
 - The computing environment of ILD
 - The ILD concept group
 - Conclusions and Outlook
- List of references
- Author list (to be updated)

Until September: will assemble an editorial team and finalise the layout

First draft document end of the year

Final submission April 2025

Access to the document

- Overleaf editor
- Editor system hosted by Helmholtz (collabtex)
 - Accessible with DEYS login or generic signup
 - You may use your local login (e.g. CERN, KEK, ... , even google login works)
- Sample file (previous ILD report to the EPSU):
- <https://collabtex.helmholtz.cloud/read/dfyztzjmnhbjn>
 - Will give you read access to the project
- To gain edit access
 - Login with your account, which registers you with the system
 - Let me know and I will then be able to share the document with you

ILD @ FCC-ee

- Describe the ILD detector at the FCC-ee
- Special focus
 - Forward area and adaptation to FCC-ee
 - Tracking with a TPC: try to summarise the state of art and the limitations (and strength) of a TPC based tracking system
- This document should serve as our official entry / our official statement of interest to enter into the FCC-ee detector world

ILD @ FCC

- ILD at FCC-ee as a Higgs factory
 - Main components to be very similar to ILD
 - Gaseous tracking as central part
 - Key question: can we cool the detector?
- ILD at FCC-ee at the Z-Pole
 - Different central magnetic field
 - Very high occupancy: explore the limits of the TPC
 - Ideally need a dedicated study on calibration and systematic error control

ILD@FCC-ee

- Document will be managed in collabtex
- Will assemble editor team in fall
- Schedule similar to ILD document
- Separate author list, with explicit option to opt in / opt out
 - My proposal would be to not tie the author list to ILD membership, but rather keep this more open
 - Try to build a community based on ILD but open to new people to investigate ILD@FCC-ee

Summary and Conclusion

- ILD should organize a strong showing at the EPSU process
- ILD can contribute centrally
 - As a concept group
 - Through our extensive analysis effort
- ILD should
 - Use the opportunity to gain visibility
 - Use the opportunity to establish itself in the FCC context